MADALGO
CENTER FOR MASSIVE DATA ALGORITHMICS

AARHUS UNIVERSITY

Danmarks Grundforskningsfond
Danish National Research Foundation

ANNUAL REPORT 2012

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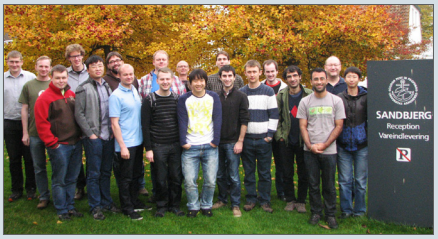
2012 Highlights

Research team

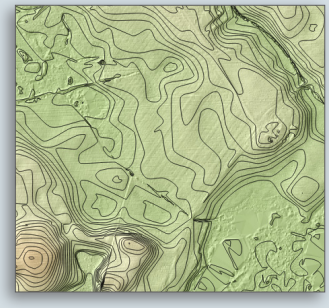
At the end of 2012 the center research team consisted of eight senior researchers (4 at AU), nine Postdocs (7 at AU) and seventeen PhD students (9 at AU). Additionally, three further Postdocs and four PhD students (all of which obtained PhD degrees during the year) were part of the center in 2012. All center Postdocs are internationals and so are a good deal of the PhD students.



Research collaboration and results

In 2012 MADALGO researchers published 88 peer reviewed research papers within the center research areas. Several of these papers have appeared in highly ranked journals and conference proceedings. Some of the results in the papers have been obtained with the many international researchers that have visited MADALGO in 2012. The center also has extensive multidisciplinary and industry collaboration.

Producing both accurate and aesthetic *contour maps* from detailed terrain models is a challenging task. In 2012 MADALGO researchers developed and implemented algorithms that are able to process even extremely large and detailed terrain models to produce aesthetic contour maps with a user-specified *x*-, *y*-, and *z*-accuracy.



Center events

Apart from a large number of smaller research seminars and workshops, as well as a retreat for center employees, MADALGO organized a four day international summer school on Algorithms for Modern Parallel and Distributed Models in 2012, where four international experts lectured for 60 participants (mostly PhD students) from 40 institutions in 17 countries.

The center also organized the Fourth Workshop on Massive Data Algorithmics (MASSIVE 2012) as part of the main European algorithms event ALGO in Ljubljana, Slovenia. In previous years the workshop was colocated with Symposium on Computational Geometry.

In 2012 center researchers gave numerous presentations at international research conferences, as well as more than 45 invited presentations at research conferences, workshops and seminars.

Center researchers have also participated in several public outreach activities, including in the annual Festival of Research where the center booth attracted many interested visitors (including the Minister for Science, Innovation and Higher Education).

Awards and acknowledgments

Center researchers received a number of awards and acknowledgments in 2012 including the following:

Center Director Arge was elected Fellow of the Association of Computing Machinery (ACM) and Brodal received the first Best Lecturer Award given by the Department of Computer Science at Aarhus University. Work by Indyk and collaborators was selected as one of ten emerging technologies by Technology Review.

Center PhD student Larsen won the best paper award *and* the best student paper award (the Danny Lewin award) at the top theoretical computer science conference ACM Symposium on Theory of Computing.

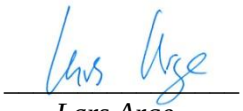
Content

This report describes the 2012 activities at the Danish National Research Foundation's *Center for Massive Data Algorithmics* (MADALGO). The report is accompanied by a number of appendices (covering external relations, conferences, educational activities, external funding, awards, public outreach, patents and applications, publications, list of personnel) as specified by the foundation. The appendices are an important part of the annual report (and information such as external funding and teaching is only covered in the appendices). Note that *some* of the appendices only cover the employees at Aarhus University (and not the participants at Max Planck Institute for Informatics, Massachusetts Institute of Technology and Frankfurt University). Finally, note that the 2012 accounts for the center with appendices (as well as the center research plan and previous yearly reports) are also important in order to obtain a complete overview of the 2012 activities of the center.

Center director statement

By signing I confirm that this annual report and the accounts therein, including notes and summaries, contain all relevant information relating to this year's main activities in the Danish National Research Foundation's Center for Massive Data Algorithmics.

March 2013



Lars Arge
Center Director

1 Center background and organization

Center for Massive Data Algorithmics (MADALGO) strives to be a world-leading center in algorithms for handling massive data. The center particularly focuses on designing algorithms in theoretical models that take the hierarchical memory organization of modern machines into account. The center builds on the research strength at the main center site at Aarhus University (AU) in Denmark (with Brodal, Arge, Jensen and Afshani as senior faculty), at the center sites at the Max Planck Institute for Informatics (MPI) and at Frankfurt University (FRA) in Germany (with Mehlhorn and Meyer as senior faculty), and at Massachusetts Institute of Technology (MIT) in the US (with Demaine and Indyk as senior faculty). The center also relies on significant international research collaboration, multidisciplinary and industry collaboration, and on maintaining a vibrant international environment at the main center site.

Organizationally, the center has seen some changes in 2012 as it went into its second 5 year period, with addition of AU faculty Professor Christian S. Jensen and Assistant Professor Peyman Afshani. Jensen adds a database component to the center and Afshani (who is hired in a "tenure-track" position) adds additional expertize in computational geometry, data structures and lower bounds. Scientifically, the center continues to be led by center director Lars Arge along with the other senior faculty and with advice from the center's international advisory board. Logistically, the main center site continues to be managed by center manager Else Magård and accountant Ellen Lindstrøm, along with student assistant Matie Bach Søgaard and additional secretarial support from the Department of Computer Science. A part time student programmer has also been associated with the center in 2012. On the research personnel side, the center Post Doc and PhD student population has developed more or less as anticipated (refer to section 5).

2 Center research

The second period center research plan discusses a number of research challenges in the center focus research areas of *I/O-efficient*, *cache-oblivious* and *streaming* algorithms and in *algorithm engineering*, as well as challenges in a number of *other and crosscutting* areas. Overall, 2012 was a record year in terms of research results (with no less than 16 publications in the top conferences Symposium on Theory of Computing, Symposium on the Foundation of Computer Science, and Symposium on Discrete Algorithms). Below we *briefly* discuss *some* of the obtained results. We currently see no need to modify the research plan.

I/O-efficient algorithms

In the area of I/O-efficient algorithms, that is, algorithms designed in a two-level memory-disk model, we have made good progress on a number of problems in relation to the areas outlined in the research plan.

In terms of *fundamental algorithmic problems*, we have shown a general equivalence between sorting and priority queues in the I/O-model (similar to an equivalence in internal memory models). A paper with this result is under submission. As also discussed in last year's report, we have also obtained results on so-called fully persistent search-tree structures [C213].

In terms of *geometric data structures*, we have e.g. continued our study of range searching variants, more precisely the problem of storing a set of d-dimensional points such that properties of the subset of points that lie inside a query range can be found efficiently. We have made progress on both building better data structures (upper bounds) and on proving impossibility results (lower bounds). In the first areas we have for example considered two-dimensional skyline queries, where given a rectangular query range the objective is to report the skyline of the points that lie inside the range. In a paper recently accepted for the 2013 Symposium on Principles of Databases, we describe efficient and dynamic data structures for this problem. In the second area, we have e.g. improved the previous best known lower bound (both in the I/O- and pointer machine models) for the problem of reporting all the points that lie inside a query simplex [C230]. We have also considered a number of problems where the goal is to report a sorted order of points that is given implicitly at query time. An example includes storing a set of points in the plane such that we can compute the angular ordering of the points around a given query point efficiently [C229].

In the area of *terrain data processing* we have considered the problem of generating multi-resolution instances of a raster, e.g. representing a terrain, that is, of generating a series of successively more simplified (and smaller) versions of the raster. We developed space and I/O-efficient algorithms for this problem, which e.g. has important applications in biology (biodiversity) [C228]. As mentioned in last year's report, we have also developed I/O-efficient algorithms for extracting and significantly simplifying contour line maps from massive terrain models, while e.g. guaranteeing that the contour lines in the simplified map are provably close to, and nested as, the original contours [C203].

We have also continued to work on I/O-efficient *graph algorithms* and e.g. extended our earlier results on classic shortest-path computations on general undirected graphs with either random or bounded edge weights

[J70]. We have also devised an improved randomized algorithm for approximating the diameter of a graph [C237]. The algorithm can be viewed as a hierarchical version of one of our previous algorithms [C27]. The problem e.g. is relevant in connection with social network analysis, and (as also discussed in last year's report) we have also obtained I/O-efficient algorithms for another key problem in social network analysis, namely for computing the so-called betweeness centrality of each node in a network [C196].

Cache-oblivious algorithms

In the cache-oblivious algorithms area the aim is to develop algorithms that automatically adapt to the unknown multiple levels of modern memory hierarchies. Unfortunately, techniques to obtain cache-oblivious algorithms are still not very developed and the fundamental limitations in the area not well understood.

In 2012 we have continued to try to understand fundamental limitations by considering fundamental data structure problems, such as the search-tree (dictionary) problem. As mentioned in last year's report, we have e.g. developed a structure that in addition to being cache-oblivious also is implicit (i.e. uses no space in addition to the space used to store the data elements), while also supporting predecessor queries within the so-called working-set bound (that is, queries to recently accessed elements is faster than queries to not so recently accessed elements) [C210]. Overall, we have not made as much progress in the cache-oblivious area as we would have liked, but on the other hand our focus on cache-oblivious algorithms is beginning to influence our work in related areas. For example, following the development of the I/O-efficient algorithm for generating multi-resolution instances of a raster described above, which is not cache-oblivious, we recently developed an improved and elegant cache-oblivious (and thus also I/O-efficient) algorithm for the problem. From a theoretical point of view, the algorithm is also interesting because its analysis relies heavily on a central (prime number) result from number theory. A paper with the result is under submission. Several of our algorithms for betweeness centrality discussed above are also cache-oblivious [C196].

Streaming algorithms

Streaming algorithms are algorithms designed in a model where only one (or a small constant number of) sequential pass(es) over the data is (are) allowed. In 2012 we have continued our work on fundamental streaming problems and general streaming algorithm design techniques as outlined in the research plan.

In terms of *fundamental problems*, we have e.g. developed new algorithms for counting sub-graphs in stream graphs [C238] and for computing Parikh matchings [C233]. We have also proved particularly simple lower bounds on the space complexity of estimating frequency moments [C243]. In terms of *design techniques*, we have e.g. continued our study of *sketching*, where the goal is to compute a small so-called sketch Ax of a vector x using an appropriately designed sketching matrix A, such that given only the sketch one can still compute the desired property of x. The vector x could for example be a representation of a data stream. We have designed sketches that preserve the so-called Earth-Mover-Distance norm of the input vector (a measure frequently used in computer vision) [C207], and presented a new construction of sketches that preserve the Euclidean distance [C226]. Unlike prior work, our sketches use sparse matrices A, which significantly reduces the sketching computation cost. We have also presented more efficient sketching algorithms that preserve the edit distance between two strings [C232]. Furthermore, we have investigated the *recovery of a sparse approximation* to x, that is, given Ax, reconstructing an approximation that has as few non-zero coefficients as possible while being as close to x as possible with respect to some metric. We have designed several new sketches for sparse recovery problems that use particularly simple sketching matrices A that are amenable to hardware implementations [C244, J76]. In a paper that recently appeared at Symposium on Discrete Algorithms, we have also showed lower bounds for sparse recovery that hold even for adaptive sketches.

Using the insight we have obtained during our work on streaming, we have also designed several highly efficient algorithms for the *Discrete Fourier Transform* (DFT). DFT is a foundational tool used in numerous applications and currently the fastest DFT algorithm is the so-called Fast Fourier Transform (FFT). We have designed a new algorithm for the sparse DFT that is much faster than the previously known methods [C220, C221]. In fact, in some cases our new algorithm is optimal in the sense that it cannot be improved unless FFT itself can be improved upon.

Algorithm engineering

Algorithm engineering covers the design and analysis of practical algorithms, their efficient implementation, as well as experimentation that provides insight into their applicability. In 2012 we have made progress in most of the algorithm engineering areas discussed in the research plan, as well as in a few others.

In terms of *library development*, we have continued our work on pipelining and multicore support in the TPIE library for implementation of I/O-efficient algorithms. We have also continued our work on

engineering I/O-efficient *graphs algorithms*, and e.g. for diameter approximation experimented with an implementation [C216] of a simple randomized approach [C27], as well as with a more involved hierarchical variant [C237] (also discussed in the I/O-efficient algorithms section above). We have also developed improved heuristics for the analysis of the cycle structure in huge outdegree-one graphs with applications in data encryption [C217]. In terms of *terrain data processing*, we have for example experimented with both the contour map I/O-efficient simplification algorithm [C203] and I/O-efficient and cache-oblivious algorithms for generating multi-resolution instances of a raster [C228] described above. In both cases we got very encouraging results. The contour algorithm is for example capable of reducing the size of ½-meter contours generated from a 26 billion data element terrain model of Denmark with over 90% (from 4 billion to 400 million elements) while ensuring a 20cm height accuracy. In the multi-resolution case it, very interestingly, turned out that the cache-oblivious algorithm outperformed the I/O-efficient algorithm on massive terrain inputs.
As discussed in previous annual reports, much of our previous engineering work on massive terrain data processing is being commercialized through the startup company SCALGO. During 2012 SCALGO released several new and improved software packages, and e.g. delivered a depression flood risk mapping (the so-called Skybrudskort® product) to one of the five regions (Midtjylland) in Denmark. Our massive terrain data algorithms engineering work (including the SCALGO software) is also at the core of our expanding multidisciplinary collaboration with *biodiversity* researchers (described further in Section 3). In 2012 the collaboration for example led to results on land cover classification using LiDAR terrain scanning, on understory light condition estimation using LiDAR scanning, and on the influence of topology on diversity. Journal papers with these results will appear in 2013. The collaboration also inspired the work on multi-resolution raster generation discussed above, since the problem has important applications in biodiversity studies. Thus this work nicely bridges all the way from multidisciplinary collaboration (application), through theoretical work within new computational models (I/O-efficient and cache-oblivious algorithms), to algorithm engineering (implementation and experimentation).
The close collaboration with biodiversity researchers also let to non-terrain results, such as a result on efficient computation of so-called phylogenetic tree measures [C227]. In other collaboration with bioinformatics researchers, we have also obtained results on practical efficient algorithms for computing a certain important measure of distance between binary trees. This work will appear in the Asia Pacific Bioinformatics conference this year. Interestingly, this algorithm engineering work subsequently resulted in theoretical results presented in this year's Symposium on Discrete Algorithms. Finally, we have also done experiments on our new DFT algorithm (inspired by our streaming algorithm work), and shown that in some parameter ranges the algorithm performs better in practice than FFT. In fact, our new algorithm has already been used for GPS locking problems [C242].

Other/crosscutting areas
We have continued our work in several new massive dataset areas as discussed in the research plan.
In the area of *succinct data structures*, that is, data structures that are very space-efficient, we previously studied the problem of designing space efficient data structures for supporting range minimum queries on a two-dimensional matrix [J66]. In recent work we developed new data structures with improved query bounds [C215]. As discussed in last year's report, we have also considered (cache-oblivious) range minimum data structures in the very restrictive implicit succinct model [209]. For the special case where the input is a one-dimensional matrix, range minimum queries can be answered by constructing a Cartesian tree over the input. In 2012 we have developed efficient representations of binary trees that can be used to store Cartesian trees, allowing one dimensional queries to be answered in constant time and using optimal space [C212].
Unlike in the succinct data structures area, we did not make much progress on developing theoretical models and algorithms for *flash memory* or on *faulty-memory algorithms* in 2012. However, much of the center work described above is on data structures, and we have continued to obtain significant results on data structure problems in more classical models of computation. In particular, we have obtained numerous results on data structures for various range searching variants [C195,C198,C31] and we also presented several results on such structures at the recent Symposium on Discrete Algorithms, just as we have obtained considerable progress on lower bounds for such structures [C199,C200,C201,C202]. As mentioned in last year's report, one of the papers presenting these results received the best paper and best student paper awards at the top theoretical computer science conference Symposium on Theory of Computing in 2012 [C199]. As also mentioned in last year's report, at the conference we also presented results on a longstanding classical and fundamental open problem in comparison based (pointer machine model) meldable priority queues [C214].
We have considered massive data problems in several parallel and distributed models of computation. In the *parallel private-cache* model, which models modern multi-core processors, we have extended the ubiquitous

buffer tree data structure for I/O-efficiently performing batched searches and updates to exploit multiple cores [C236]. We have also introduced, and performed an empirical study of, a multi-core algorithm for keeping track of massive amounts of moving objects under rectangular range queries and a large number of updates [C256]. In a recent paper to be presented at Symposium on Parallelism in Algorithms and Architectures, we have also developed several provably efficient algorithms for models of modern (massively parallel) graphics processing units (*GPUs*). We have also continued the work started last year on *distributed streaming* models, where a number of processors each receive a stream of data, and the task is to maintain an approximation of a given function of the union of all streams using a minimal amount of communication. We have e.g. achieved new and improved algorithms and lower bounds for estimating the number of distinct elements and for identifying heavy hitters [C204, 205]. We have also designed algorithms for sliding window problems [J68], and showed lower bounds for multiparty sketching problems [C206].
Much of the work on data structures, multi-core, GPU and distributed streaming above, as well as much of the algorithm engineering work (including the work with biology researchers), are examples of the "crosscutting" work we have done in 2012, that is, work that involves ideas from or spans several areas or combines the various models/methodologies we consider. Additionally, we have e.g. also obtained several results on algorithms that are both I/O-efficient and efficient in internal memory (the RAM model). After adding a database component to the center, we have also obtained a large number of results on spatial database problems in general (e.g. [C228,C240,C254,C259]) and problems on moving objects (e.g. [C252,C253,C255, C256,C257]) in particular. However, we have not had as much synergy between the algorithms and spatial database groups in the center as we would have liked. We hope this will change with the hiring of database Post Doc Sidlauskas with the special task of bridging the gap between the two groups; Sidlauskas has e.g. worked on the multi-core algorithms for moving objects mentioned above [C256].

3 Collaboration

The center continues to try to maintain a vibrant and international environment at the main center site at AU, e.g. through emphasis on hosting international visitors. Almost all senior MIT, MPI and FRA faculty have visited AU during 2012, and all FRA and many MIT PhD-students and Post Docs have also visited. Additionally, non-center Post Doc Djamal Belazzougui (Paris Diderot), along with students Stijn Koopal (TU Eindhoven) and Libor Sarga (Tomas Bata University), visited AU for a longer period of time in 2012, and several faculty members are expressing interest in longer term sabbatical visits in 2013-2014. The list of shorter term non-center researchers visiting AU include Rolf Fagerberg (Southern Denmark), Nodari Sitchinava (Karlsruhe), Stephen Alstrup (Copenhagen), Thomas Mølhave (Duke), Srinivasa Rao Satti (Seoul National), Jeff Phillips (Utah), Sergei Vassilivitskii (Google), Graham Cormode (AT&T), Suresh Venkatasubramanian (Utah), Boris Aronov (NYU Poly), Ian Munro (Waterloo), Andrej Brodnik (Primorska), and Mark de Berg (TU Eindhoven). The center also continues to have a strong collaboration (e.g. through joint events and Post Docs) with Sino-Danish Center for the Theory of Interactive Computation (CTIC).
As can be seen in Appendix A, the center continues to collaborate extensively with researchers from a large number of institutions. The center also continues to try to be a catalyst of multidisciplinary and industry collaboration. Many of the center's activities in this direction are in connection with massive terrain data, where center researchers e.g. collaborate intensively with ecoinformatics researchers at the Department of Bioscience, researchers at Duke in the US and at Primorska in Slovenia, as well as with industry partners COWI, EIVA and center startup SCALGO. Much of the collaboration with ecoinformatics researchers is in the context of *Center for Interdisciplinary Geospatial Informatics Research* (CiGIR). Using a seed grant from Aarhus University Research Foundation, as well as other external funding (e.g. Arge's EliteForsk award), CiGIR currently has one biology based Post Doc (Alexander) and one center based Post Doc (Tsirogiannis); One previous CiGIR Post Doc (Sandel) is now a Biology Assistant Professor associated with CiGIR. The CiGIR staff spends at least one day a week at the other site than their base. Other center multidisciplinary collaborations include various projects with researchers at the AU Bioinformatics Research Center (BiRC), and a project with the State Library in Aarhus (joint advising of PhD student Sindahl). The center is also exploring collaborations in connection with the truly massive data that will be generated by the future FAIR and ESS physics experiments, and is collaborating with Draper Labs on compressive sensing for astronomical imaging and with FlexDanmark and Delphi on GPS data management. Other industry collaborations include a project with Lufthansa Systems concerning flight route optimization, and the center (Arge) recently obtained funding from the Danish High-Tech Foundation ("Højteknologifonden") for an industrial Post Doc project on flight data management with DSE Airport Solutions.

4 Events

During 2012 the center participated in and/or organized a large number of research events. These included internal weekly seminars at AU and a retreat for center employees. Externally, center researchers gave numerous presentations at international research conferences, as well as more than 45 invited presentations at research conferences, workshops and seminars. Center researchers have also participated in several public outreach activities. Brodal has for example lectured on algorithms for both primary and high school students, and along with biodiversity collaborators the center had a booth at the annual Danish Research Day ("Forskningens døgn") that attracted many interested visitors (including the minister of education). Center PhD students also coached two AU student programming competition teams, one of which won the Danish Championship and thus went on to participate in the European competition.

Following previous year's successes, the center organized a fourth *Workshop on Massive Data Algorithmics* (MASSIVE) in 2012. Building on the three first MASSIVE workshops, the center decided to co-locate the fourth workshop with the broad European algorithms conference ALGO rather than with the narrower *Symposium on Computational Geometry* as in previous years. Despite the move in time and venue the workshop was a success. The plan is also to co-locate the fifth MASSIVE with ALGO 2013. The hope is to eventually make MASSIVE a full-fledged conference. The center also continued its series of summer schools and organized a school on *Algorithms for Modern Parallel and Distributed Models* in 2012, where four international experts lectured for around 60 participants from 40 different institutions in 17 countries. The school was a great success and attracted students from both the algorithms and database community. The center anticipates organizing yet another summer school in 2013. Finally, center staff was involved in the organization of a number of other international events, including a FOCS workshop on data structures, a workshop on sparse Fourier transform and a Dagstuhl seminar.

5 Research education

One key goal of the center is to train the next generation of researchers in a world-leading and international environment. Thus PhD-students and Post Docs are a very important part of the center, and the center strives to have a large population of international PhD students and Post Docs at AU.

Currently, the center houses 8 Post Docs (7 at AU, all internationals). Three of these were hired in 2012 (at AU): Hossein Jowhari (PhD Simon Fraser 2012) mainly working on streaming algorithms, Zhewei Wei (PhD HKUST 2012) working on I/O-efficient, cache-oblivious and streaming algorithms, and Darius Sidlauskas (PhD Aalborg 2012) working on problems on the boundary between algorithms and spatial databases. Furthermore, one Post Docs, Allan G. Jørgensen (PhD Aarhus 2010) was recently hired to work on the project with DSE Airport Solutions. Five Post Docs left the center in 2012. At AU, Lap-Kei Lee left after one year to become a Post Doc at Hong Kong University, and Qin Zhang and Elad Verbin left after two years to take up a faculty position at University of Indiana and an additional Post Doc, respectively. At MIT, Simak Tazari left for Google and Christian Sommer left for Apple at the end of 2011 and 2012, respectively.

Currently, the center houses 18 PhD students (10 at AU, 4 internationals). Five of these PhD students joined the center in 2012 and one in 2013. At AU, Jungwoo Yang (with Arge as advisor), Bryan Wilkinson (with Arge and Afshani as advisors) and Sarfraz Raza (with Arge as advisor), at MIT, Ludwig Schmidt and Haitham Hassanieh (with Indyk as advisor), and at FRA, David Veith (with Meyer as advisor). Furthermore, Jakob Truelsen returned from a two year leave (at SCALGO) to finish the two last years of his PhD study (at AU). Four PhD students obtained their degrees in 2012. At AU, Lasse Deleuran (with Arge as advisor), Freek van Walderveen (with Arge as advisor), Jesper Moeslund (with Arge as co-advisor), and at MIT, Khan Do Ba (with Indyk as advisor). Deleuran, van Walderveen and Do Ba went to industry, namely to Cryptomatic, SCALGO and Hudson River Trading, respectively. Biology PhD Moeslund went on to work at Danish Centre for Environment and Energy (DCE). Furthermore, after several years on leave with Octoshape, Mark Greve unfortunately decided to terminate his PhD study without obtaining a degree. During 2012 AU PhD students Casper Kejlberg-Rasmussen and Kasper G. Larsen spent approximately a semester abroad at Thessaloniki University and Princeton University, respectively.

As discussed in previous annual reports, we believe the center's Post Doc and PhD student recruitment efforts have been relatively successful. For example, all Post Docs and almost half of the current AU PhD students are recruited internationally. The center's focus on research education includes exchange of Post Doc and PhD students, a 6 months stay abroad for AU PhD students, and organization of summer schools and workshops. Center Post Docs also continue to organize specialized PhD classes, although less in 2012 than in previous years. Finally, the center continues to emphasize initiatives designed to create a sense of community at the main center site and among the center sites. This includes a yearly fall retreat, monthly center lunches at AU, and a number of social events.

EXTERNAL RELATIONS **SECTION A**

List **includes** relevant collaboration for AU as well as MIT, MPI and FRA researchers in 2012

Collaborator Name (person and/or institution), Country	Collaboration subject	Output of collaboration	Collaboration with: (Please check the appropriate box)			
			Danish universities, research groups and institutions	Foreign universities, research groups and institutions	Danish companies	Foreign companies
Peder Klith Bøcher, Jens-Christian Svenning and Bettina Nygaard (Biosciences, AU), Tommy Dalgaard (Agroecology, AU), Denmark	Collaborators and co-advisors of PhD student Jesper Erenskjold Moeslund	Publications	X			
Norbert Zeh (Dalhausie), Canada	I/O-efficient algorithms and range seaching data structures	Publications		X		
Ke Yi (HKUST), Hong Kong	I/O efficient data structures, streaming algorithms, distributed computation	Publications		X		
Lu Wang (HKUST), Hong Kong	I/O efficient data structures	Publications		X		
Graham Cormode (AT&T Lab), USA and Zengfeng Huang (HKUST), Hong Kong	Distributed computation	Publications		X		
Kristian Trøjelsgaard Nielsen and Jens Mogens Olesen (Aarhus University), Denmark	Biological interaction networks	Publications and software	X			
Brian Enquist (University of Arizona), USA	Phylogenetic diversity patterns	Publications and software		X		
Martin Olsen (Aarhus University, Herning), Denmark	Alliances in graphs	Publication	X			
Martijn van Leusen (Groningen), The Netherlands	Geomorphometric Algorithms for Archaeological Applications			X		

Dimitris Cheliotis (Athens), Greece	Phylogenetic tree algorithms	Publication and Software		X		
Christos Tsirogiannis (Cambridge), UK	Social network analysis algorithms			X		
Stephane Durocher and Jason Morrison (Manitoba), Canada, Manindra Agrawal (IIT), India	Data structures	Publication		X		
Anna Lubiw (University of Waterloo), Canada	Morphing planar graphs	publication		X		
BNR A/S	GIS in traffic management				X	
COWI A/S (incl. Johnny Koust Rasmussen and Jeppe Sikker Jensen), Denmark	Efficient Handling of Massive Terrain Data	Terrain processing algorithms and software	X		X	
Jan Vahrenhold (TU Dortmund), Germany and Andrew Danner (Swarthmore College), USA	TPIE	TPIE software package		X		
Eiva A/S, Denmark	Sonar data cleaning	Software			X	
Scalable Algorithmics (SCALGO), Denmark	I/O-efficient terrain algorithms and software				X	
Mike Goodrich (UC Irvine), USA	I/O-efficient algorithms	Publication		X		
Pankaj K. Agarwal, Duke University, USA	Data structures, dstributed and I/O-efficient terrain algorithms	Publications		X		
Timothy M. Chan (Waterloo), Canada	Data structures	Publications		X		
Rasmus Pagh (ITU), Denmark	Colored Range Searching	Publication	X			
Huy L. Nguyen (Princeton), US	Range Searching Lower Bounds	Publication		X		
Michiel Smid (Carleton), Canada	Range diameter reporting	Publication		X		

Jeff M. Phillips (Utah), USA	Approximate and distributed algorithms and data structures	Publications		X		
Herman Haverkort, Mark de Berg and Stijn Koopal (TU Eindhoven), The Netherlands	Terrain algorithms	Publications		X		
Mohammad Ali Abam (TU Dortmund), Germany, Shervin Daneshpajouh, Mohammad Ghodsi (Sharif), Iran	Line simplification	Publications		X		
Thomas Mølhave (Duke), USA	I/O-efficient terrain algorithms and software	Publications and software		X		
Mikkel Thorup (AT&T), USA	I/O-efficient RAM algorithms	Publication				X
Riko Jacob (ETH), Switzerland	Convex hull	Publication		X		
Andy Brodknik (University of Primorska & University of Ljubljana), Slovenia	Data structures, terrain processing	Publication, project		X		
David P. Woodruff (IBM Research), USA	Distributed functional monitoring	Publication		X		
Zengfeng Huang and Ke Yi (Hong Kong University of Science and Technology), China	Distributed tracking	Publication		X		
Moshe Lewenstein (Bar-Ilan University), Israel	Streaming Parikh matching	Publication		X		
Sze-Hang Chan, Ho-Leung Chan, Tak-Wah Lam, and Jianqiao Zhu (HKU), Hong Kong	Scheduling	Publication		X		
Bolette Ammitzbøll Jurik (The State and University Library), Denmark	Audio Quality Assurance	Publication		X		

Djamal Belazzougui (University of Helsinki), Finland	RAM sorting	Manuscript		X		
Kostas Tsichlas (Aristotle University of Thessaloniki), Greece, Kostas Tsakalidis (HKUST), Hong Kong, Yufei Tao (Chinese University of Hong Kong), Hong Kong and Jeonghun Yoon (KAIST), South Korea	IO-Efficient Range Skyline Queries	Manuscript		X		
Moshe Lewenstein, (Bar Ilan University), Israel, John Iacono (Polytechnic Institute of New York University), USA	Dynamic Connectivity, 3SUM, The Multiphase problem	Manuscript		X		
Christian Konrad (LIAFA, Université Paris Diderot), France	Error-Correcting under Earth-Mover Distance	Publication		X		
Xiaoming Sun and Chengu Wang (Tsinghua), China	Inner Product and Counting Cycles relationship	Publication		X		
S. Srinivasa Rao (Seoul National University), South Korea	Succinct data structures	Publication		X		
Rajeev Raman, (University of Leicester), UK and Moshe Lewenstein (Bar Ilan University), Israel	Data structures, succinct representations of trees	Publication		X		
Michel Smid (Carleton), Canada	Range Diameter data structures	Publication		X		

George Lagogiannis (Athens), Greece and Robert E. Tarjan (Princeton & HP), USA	Data Structures	Publication		X		X
Kostas Tsichlas (Thessaloniki) and Spyros Sioutas (Ionian), Greece	I/O-efficienct Persistence	Publication		X		
Rolf Fagerberg (University of Southern Denmark), Christian Nørgaard Storm Pedersen, Thomas Mailund, and Andreas Sand (Aarhus University), Denmark	Evolutionary tree comparison	Publication		X		
Djamal Belazzougui (University of Helsinki), Finland	Communication Complexity, Edit Distance	Publication		X		
Graham Cormode (AT&T Labs-Research), USA	Streaming Algorithms	Publication		X		
Funda Ergun (Simon Fraser University), USA	Streaming Algorithms	Publication		X		
Nodari Sitchinava (Karlsruhe Institute of Technology), Germany	GPU and I/O-efficient algorithms	Publications		X		
Man Lung Yiu and Jeppe Rishede (Hong Kong Polutechnic University), China	Spatial keyword querying, directions query caching	Publications and software		X		

Gao Cong, Xin Cao, Lisi Chen (Nanyang Technological University), Singapore, Dingming Wu (Hong Kong Baptist University), China, Bin Cui (Peking University), China	Spatial keyword querying, question retrieval	Publications and software		X		
Xiaohui Li, Kian-Lee Tan, Beng Chin Ooi (National University of Singapore), Singapore	Spatial keyword querying, trajectory data management	Publications and software		X		
Kostas Tzoumas (FU Berlin), Germany, Amol Deshpande (University of Maryland), USA	Query optimization	Publications and software		X		
Panos Kalnis and Ruogu Ding (KAUST), Saudi Arabia	Outsourced similarity search, trajectory data management	Publication and software		X		
Xiaofang Zhou, Ke Deng and Kai Zheng (University of Queensland), Australia	Trajectory data management	Publication and software		X		
Panos Karras (Rutgers), USA	Scalable continuous query processing	Publications and software		X		
FlexDanmark, Denmark and Delphi, Germany/USA	GPS data management	Publications and software			X	X
Kristian Torp, Hua Lu and Ove Christensen (Aalborg University), Denmark	GPS data management, optimization, indoor query processing, indoor positioning	Publications and software	X			
Gustavo Alonso (ETH), Switzerland, Dieter Pfoser and Timos Sellis (NTUA), Greece	User-generated geo-content	Project collaboration		X		

German Algorithm Engineering Cluster, Germany	Selected Topics in Alg. Engineering	Workshops		X		
Lufthansa Systems, Germany	Efficient shortest-paths computations with dynamic weights					X
Group of Peter Sanders (Karlsruhe), Germany	Libraries for parallel/external computation and energy-efficient sorting	Publications, software, Sorting World records		X		
GSI Helmholtz Centre for Heavy Ion Research, Germany	Foundations of memory-efficient information processing for FAIR computing			X		
Group of Knut Reinert (FU Berlin), Germany	I/O-efficient traversal of large alignment graphs			X		
Deepak Ajwani (University College Cork), Ireland	I/O-efficient algorithms, Top-K range reporting, Flash Memory, and parallel memory-cache algorithms	Publications		X		
Draper labs (Chris Yu), USA	Compressive sensing	Publication				X
Shell Houston (Detlef Hohl), USA	Compressive sensing	Publication				X
Alex Andoni (Microsoft Research), USA	Random sampling algorithms	Publication				X
David Woodruff (IBM), USA	Streaming algorithms	Publications				X
Mashhood Ishaque, Andrew Winslow, Sarah Cannon (Tufts), Matthew J. Patitz, Robert T. Schweller (Texas), Scott M. Summers (Wisconsin), USA	Self-Assembly	Publication		X		
Vi Hart (SUNY Stony Brook), USA	Balloon Polyhedra	Book chapter		X		

Glencora Borradaile (U. Waterloo), Canada and Siamak Tazari (Humbolt), Germany	Bounded-Genus Graphs	Publication		X		
Takehiro Ito (Tohoku), Japan	Approximability of the Subset Sum Reconfiguration Problem	Publication		X		
MohammadTaghi Hajiaghayi (Maryland), USA, Hamid Mahini (Sharif), Iran, Noga Alon (Tel Aviv), Israel	Network Creation Games	Publication		X		
Sebastien Collette and Stefan Langerman (Bruxelles), Belgium	Narrow Misere Dots-and-Boxes	Book chapter		X		
Mohammad Ghodsi,Amin S. Sayedi-Roshkhar (Sharif), Iran, MohammadTaghi Hajiaghayi (Maryland), USA	Scheduling	Publication		X		
Anna Lubiw (Waterloo), Canada, Andre Schulz (Munster), Germany, Andrew Winslow, Diane Souvaine (Tufts U.), USA, Giovanni Viglietta (Pisa), Italy	Algorithms for Designing Pop-Up Cards	Publication		X		
Yair N. Minsky (Yale), Joseph Mitchell (SUNY Stony Brook), Mihai Patrascu (AT&T), USA	Picture-Hanging Puzzles	Publication		X		
Vida Dujmovic, Pat Morin (McGill), Canada, Ryuhei Uehara (JAIST), Japan	Ghost Chimneys	Publication		X		

Ryuhei Uehara (JAIST), Japan	Any Monotone Boolean Function Can Be Realized by Interlocked Polygons	Publication		X		
Greg Aloupis (McGill), Canada	Classic Nintendo Games are (NP-) Hard	Publication		X		
Mirela Damian (Villanova), Robin Flatland (Siena College), MohammadTaghi Hajiaghayi (Maryland), Joseph O'Rourke (Smith College), Scott D. Kominers (Harvard), USA, Daniel Marx (Tel Aviv), Israel, Jin-ichi Itoh (Kumamoto), Japan, Anna Lubiw (Waterloo), Canada, Chie Nara (Tokai), Japan	Folding	Publication		X		

CONFERENCES **SECTION B**

List **includes** 2012 information for AU, as well as MIT, MPI and FRA researchers.
Only invited (and e.g. not conference contributed) talks are listed.

a) Organisation of international conferences, symposia, seminars etc.(*)

Title of event
Workshop on Massive Data Algorithmics (MASSIVE)
Summer School on Algorithms for Modern Parallel and Distributed Models
Yearly meeting of the German Algorithm Engineering Cluster
Dagstuhl Perspectives Workshop: Publication Culture in Computing Research
FOCS Workshop on Data Structures
Workshop on Sparse Fourier Transform

b) Number of Invited Talks

Title of event	Venue	Name(s) of participant(s)
FOCS Workshop on Data Structures	New Brunswick, NJ, USA	Larsen
China Theory Week	Aarhus University, Denmark	Larsen
STOC Workshop on algorithms for memory-sesitive computing	NYU, New York, NY, USA	Arge
SoCG Workshop on Algorithms in the field	UNC, Chapel-Hill, NC, USA	Arge
ARO Big data workshop at large workshop	Duke, Durham, NC, USA	Arge
ESS Workshop	Copenhagen University, Denmark	Arge
NII Shonan Meeting on Large-scale Distributed Computation	NII, Japan	Zhang
Workshop on Algorithms for Data Streams	Dortmund, Germany	Zhang
Stringology 2012	Safed, Israel	Kejlberg-Rasmussen
Seminar	NYU-Poly, New York, USA	Davoodi
Seminar	ETH, Zürich, Switzerland	Brodal
International Conference on Conceptual Modeling	Florence, Italy	Jensen
International Conference on Very Large Databases	Istanbul, Turkey	Jensen
International Workshop on Spatio-Temporal Data Integration and Retrieval	Washington D.C., USA	Jensen
KAIST ICC Global Lecture Series	KAIST, South Korea	Jensen
Workshop on Big Data Analysis and Management	Beijing, China	Jensen
Seminar	University of Zurich, Switzerland	Jensen
Seminar	Microsoft Research, China	Jensen
Summer Research Camp	Sha Shixuan International Research Center, China	Jensen
Sino-German Frontiers of Science Symposium	Nanjing, China	Meyer
Symposium: Alan Turing - Creator of Intellectual Currents	Bangalore & Kanpur, India	Mehlhorn
Excellence 2012	Aarhus University, Denmark	Mehlhorn
Computer Science in Russia	Niznyi Novgorod, Russia	Indyk
Algorithmic Frontiers Workshop	EPFL, Switzerland	Indyk
Seminar	MSR, CA, USA	Indyk
SIAM Imaging Conference	Philadelphia, PA, USA	Indyk
Algorithms for Distributed and Streaming Data Workshop	STOC, New York, NY, USA	Indyk
Seminar	National Tsing Hua University, Taiwan	Demaine
Seminar	Academia Sinica, Taiwan	Demaine

23rd International Symposium on Algorithm and Computation	Taipei, Taiwan	Demaine
Seminar	Israeli Origami Center, Israel	Demaine
Thailand-Japan Joint Conference on Computational Geometry and Graphs	Bangkok, Thailand	Demaine
Seminar	Two Sigma Investments, NY, USA	Demaine
Gathering for Gardner Celebration of Mind	Boston, Massachusetts	Demaine
Seminar	National Institutes of Health, USA	Demaine
FOCS Workshop on Data Structures (in memory of Mihai Patrascu)	New Brunswick, New Jersey	Demaine
Seminar	Abu Dhabi, United Arab Emirates	Demaine
Symposium on Geometry Processing	Tallinn, Estonia	Demaine
STOC Workshop on algorithms for memory-sesitive computing	NYU, New York, NY, USA	Demaine
Cairo Science Festival	Cairo, Egypt	Demaine
Cambridge Science Festival	Cambridge, MA, USA	Demaine
Gathering for Gardner 10	Atlanta, GA, USA	Demaine
Seminar	University of Louisville, KY, USA	Demaine
American Physical Society March Meeting	Boston, MA, USA	Demaine
Seminar	Fuller Craft Museum, MN, USA	Demaine
Seminar	Carnegie Institution for Science, DC, USA	Demaine
Seminar	National Security Agency, DC, USA	Demaine
2012 Joint Mathematics Meetings	Boston, MA, USA	Demaine

EDUCATIONAL ACTIVITIES **SECTION C**

List only **includes** 2012 information for AU employees (as well as relevant information for MIT, MPI and FRA employees taught **outside** their home institution). PhD student TA'ing is not included.

Title of activity	ECTS	Length of course (number of hours)
BSc course: Algorithms and Data Structures 1, Spring 2012	5	28
BSc course: Algorithms and Data Structures 2. Spring 2012	5	28
BSc course: Computer Science in Perspective (topic Algoritms and Complexity, and Internet Algorithms, 2 out of 7 weeks). Fall 2012	5	6
BSc course: Databases, Fall 2012	5	28
Msc course: I/O-efficient algorithms. Spring 2012	10	30
MSc course: Data Management for Moving Objects. Spring 2012	5	21
MSc course: Multivariate analysis of biological data. Fall 2012	5	28
MSc course: Computational Geometry. Fall 2012	10	40
MSc: Database systems. Fall 2012	5	21
PhD course: R for Macroecology. Spring 2012	5	30
NCPC and NWERC Programming Contest Coaching		

Number of Master Graduates	Number of Bachelor Graduates
6	2

EXTERNAL FUNDING **SECTION D**

List **only includes** information for AU employees; it includes all active/new funding in 2012.

	Funding body	Purpose	Grant holder	Activity period	Granted amount in DKK	Partial amount allocated to the reported year
Public Danish funds	Danish Minister of Research	Elite Researcher Award	AU (Arge)	2010-2012	1.000.000	~940.000
	Danish Minister of Research	EliteForsk Travel scholarship	AU (Larsen)	2011-2013	300.000	~5000
	State Library	PhD Fellowship	AU (Brodal and Nielsen)	2011-2015	~1.000.000	~250.000
Private Danish funds	Aarhus Universitets Forskningsfond	Center for Interdisciplinary Geospatial Informatics Research	Faculty of Natural Sciences, AU (incl Arge)	2009-2012	2.500.000	~750.000
	Villum Kann Rasmussen foundation	Annual Award for Technical and Scientific Research 2011	AU (Jensen)	2011–2021	2.000.000	~10.000
International funds	Google	European Doctoral Fellowship	Dept. of Computer Science, AU (Arge and Larsen)	2010-2013	~1.000.000	0
	Slovenian Research Agency	Processing of Massive Geometric Data	University of Aribor, University of Primorska, AU (Arge and Brodal) and others	2010-2013	~2.000.000	?
	European Commission	Reduction — Reducing Environmental Footprint based on Multi-Modal Fleet management Systems for Eco-Routing and Driver Behavior Adaptation	AU (Jensen)	2011–2014	~3.400.000	~1.500.000
	European Commission	GEOCROWD — Creating a Geospatial KnowledgeWorld	AU (Jensen)	2010–2014	~4.250.000	~1.100.000

AWARDS **SECTION E**

List **includes** relevant 2012 information for AU as well as MIT, MPI and FRA researchers.

Awards	Recipient	Granted amount in DKK, if relevant
Best Paper Award (STOC)	Larsen	
Danny Lewin Award (STOC Best Student Paper Award)	Larsen	
NSERC Postgraduate Scholarship	Wilkinson	350.000
Fellow of the Association of Computing Machinery (ACM)	Arge	
Best Lecturer Award, Department of Computer Science, Aarhus University	Gerth Stølting Brodal	
MIT Faculty Research Innovation Fellowship	Indyk	350.000
"Ten Emerging Technologies", Technology Review	Hassanieh, Indyk, Katabi, Price	
Science Atlantic Outstanding Student Hall of Fame	Demaine	
Danish NCPC Programing Contest winner	Rav	10.000

PUBLIC OUTREACH **SECTION F**

List **only includes** 2012 information for AU employees.

a) Electronic media

Specific media (TV, radio, other)	Type of communication (interview, commentary, debate, feature program, etc.)	Subject	Contributor from the Center
tv2oj.dk	News	Julehjerter på computeren	Brodal
ekstrabladet.dk	News	Data-lektor opfinder Julehjertemaskine	Brodal
dr.dk	News	Lektor opfinder personlig julepynt: Flet dit eget navn i et julehjerte	Brodal
Videnskab.dk	News	Forsker-opfindelse: Lav julehjerte med kærestens navn	Brodal
Berlingske.dk	News	Dansker afslører Googles begrænsninger	Larsen
JP.DK	News	Ung dansker har fundet Googles begrænsninger	Larsen
Videnskab.dk	News	Så effektive kan søgemaskiner blive	Larsen
Danmarks Radio, DR P1, Harddisken	Interview	Kort hjælper i katastrofesituationer	Arge
Danmarks Radio, DR P1, Videnskabens verden	Interview	En gigantisk database (International Centre for Earth Simulation)	Arge
Danmarks Radio, DR P1, Radioavisen	News	Ung dansker modtager pendant til Oscar inden for sit felt	Larsen, Arge
Version2.dk	News	Aarhusiansk datalogistuderende knækker database-nød med hård matematik	Larsen
Stiften.dk	News	Datalogiens Oscar går til århusianer	Larsen
version2	Feature	Hacking/security (Studerende taler ud om kæmpehul: Pærelet at hacke 100.000 danske routere)	Skovsgaard

b) Press

Specific media (newspapers, journals, magazines, other)	Type of communication (interview, commentary, debate, feature, etc.)	Subject	Contributor from the Center
Århus Stiftstidende	News	Aarhus-lektor skaber julehjertegenerator	Brodal
Viborg Stifts Folkeblad	News	Flet dit budskab i julehjerte	Brodal

c) Other

Specific type of communication (presentation/lecturing at open university, high school, etc.)	Subject	Contributor from the Center
Lecture at Open spaces Aarhus	Datastrukterer og nedregrænser	Larsen
Friday lecture	Data structures and lower bounds	Larsen
Group exercises	Introduction to Algorithms for Primary and High School students	Brodal
Group exercises	Introduction to Algorithms at IT Camp 2012 (woman in CS initiative)	Brodal
Lecture at Open Space Aarhus	Julehjertegenerator	Brodal
Interacting with students at Nairobi University.	Entrepreneurship	Skovsgaard
Lecture at GOTO Copenhagen	Hacking/security	Skovsgaard
Interactive booth at "forskningens døgn"	Climage change	AU

PATENTS AND APPLICATIONS **SECTION G**

List **only includes** 2012 information for AU employees.

Number of inventions reported to institution	Number of submitted patent applications	Number of granted patents	Number of mutually agreed licence, sale and option agreements	Names of spin-off companies established

PUBLICATIONS **SECTION H**

Publication list/counts **includes** relevant publications for AU as well as MIT, MPI and FRA researchers.

TOTAL NUMBER OF PUBLICATIONS IN THE REPORTED YEAR	Peer reviewed	Not peer reviewed
Number of journal articles	27	0
Number of conference proceedings	61	4
Number of monographs	0	0
Number of book chapters	0	0
Others	0	12

The 10 most prestegious conferences within the Center's research area

1. ACM Symposium on Theory of Computing (STOC)
2. IEEE Symposium on Foundations of Computer Science (FOCS)
3. ACM-SIAM Symposium on Discrete Algorithms (SODA)
4. Symposium on Computational Geometry (SoCG)
5. International Colloquium on Automata, Languages, and Programming (ICALP)
6. European Symposium on Algorithms (ESA)
7. ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)
8. International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)/ International Workshop on Randomizationand Computation (RANDOM)
9. Scandinavian Workshop on Algorithm Theory (SWAT)/Workshop on Algorithms and Data Structures (WADS)
10. Workshop on Algorithm Engineering and Experiments (ALENEX)

The 10 most prestegious journals in the Center's research area

1. Journal of the ACM
2. SIAM Journal on Computing
3. ACM Transactions on Algorithms
4. Discrete & Computational Geometry
5. Algorithmica
6. Journal of Computer and System Sciences
7. Computational Geometry: Theory and Applications
8. ACM Journal of Experimental Algorithmics
9. Theoretical Computer Science
10. Journal of Discrete Algorithms

Bibliometric information

Distribution of center publications on 10 most prestigious conferences:

	2007	2008	2009	2010	2011	2012
STOC	1				3	4
FOCS	1	7	3	2	3	1
SODA		6	5	6	6	11
SoCG		5	3	3	2	3
ICALP	1		7	1	3	2
ESA	3	1		3	1	5
SPAA	3	1		3	1	1
APPROX/RANDOM		1		1	3	0
SWAT/WADS	1	3	6	1	3	1
ALENEX			1		1	0

STOC, FOCS and SODA can be rated as "best non specialized" conferences
SoCG and ALENEX can be rated as "best specialized" conferences

Center publications have been authored by 520 unique authors - 70 associated with the center and 450 not.

Only 109 center publications are by center researchers only.

Citations to center publication (according to Google scholar, which is the most reliable

- but certainly not perfect - source of citation information in the area) can be found at
http://scholar.google.com/citations?user=fRowhXcAAAAJ

Conference proceedings

C1	2007	B. Escoffier, G. Moruz and A. Ribichini	Adapting Parallel Algorithms to the W-Stream Model, with Applications to Graph Problems	Proc. International Symposium on Mathematical Foundations of Computer Science (MFCS)	(PR)(CO)
C2	2007	S. Guha, P. Indyk and A. McGregor	Sketching Information Divergences	Proc. Annual Conference on Learning Theory (COLT)	(PR)(CO)
C3	2007	G. S. Brodal and A. G. Jørgensen	A Linear Time Algorithm for the k Maximal Sums Problem	Proc. International Symposium on Mathematical Foundations of Computer Science (MFCS)	(PR)(CO)
C4	2007	G. S. Brodal, L. Georgiadis, K. A. Hansen and I. Katriel	Dynamic Matchings in Convex Bipartite Graphs	Proc. International Symposium on Mathematical Foundations of Computer Science (MFCS)	(PR)(CO)
C5	2007	G. Jørgensen, G. Moruz and T. Mølhave	Resilient Priority Queues	Proc. International Workshop on Algorithms and Data Structures (WADS)	(PR)
C6	2007	G. S. Brodal, R. Fagerberg, I. Finocchi, F. Grandoni, G. Italiano, A. G. Jørgensen, G. Moruz and T. Mølhave	Optimal Resilient Dynamic Dictionaries	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C7	2007	P. K. Agarwal, L. Arge, A. Danner, H. Mitasova, T. Mølhave and K. Yi	TerraStream: From Elevation Data to Watershed Hierarchies	Proc. ACM International Symposium on Advances in Geographical Information Systems (ACM-GIS)	(PR)(CO)
C8	2007	M. Patrascu and Mikkel Thorup	Planning for Fast Connectivity Updates	Proc. IEEE Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C9	2007	G. Franceschini, S. Muthukrishnan, and M. Patrascu	Radix Sorting With No Extra Space	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C10	2007	E. D. Demaine, S. Mozes, B. Rossman and O. Weimann	An Optimal Decomposition Algorithm for Tree Edit Distance	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)(CO)
C11	2007	M. A. Bender, M. Farach-Colton, J. T. Fineman, Y. Fogel, B. C. Kuszmaul and J. Nelson	Cache-Oblivious Streaming B-trees	Proc. ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C12	2007	E. D. Demaine, M. Ghodsi, M. Hajiaghayi, A. S. Sayedi-Roshkhar and M. Zadimoghaddam	Scheduling to Minimize Gaps and Power Consumption	Proc. ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C13	2007	M. Patrascu	Lower Bounds for 2-Dimensional Range Counting	Proc. ACM Symposium on Theory of Computing (STOC)	(PR)
C14	2007	G. M. Landau, D. Tsur and O. Weimann	Indexing a Dictionary for Subset Matching Queries	Proc. Symposium on String Processing and Information Retrieval (SPIRE)	(PR)(CO)

C15	2007	T. Friedrich and D. Ajwani	Average-Case Analysis of Online Topological Ordering	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)
C16	2007	K. Chang	Multiple pass streaming algorithms for learning mixtures of distributions in R^d	Proc. Algorithmic Learning Theory (ALT)	(PR)
C17	2007	M. Westergaard, L. M. Kristensen, G. S. Brodal and L. Arge	The ComBack Method - Extending Hash Compaction with Backtracking	Proc. International Conference on Applications and Theory of Petri Nets and Other Models of Concurrency (ICATPN)	(PR)
C18	2007	M. A. Bender, G. S. Brodal, R. Fagerberg, R. Jacob and E. Vicari	Optimal Sparse Matrix Dense Vector Multiplication in the I/O-Model	Proc. ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C19	2007	A. Golynski, R. Grossi, A. Gupta, R. Raman and S. S. Rao	On the Size of Succinct Indices	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C20	2007	M. Olsen	Nash Stability in Additively Separable Hedonic Games is NP-hard	Proc. Conference on Computability in Europe (CiE)	(PR)
C21	2008	M. Ruzic and P. Indyk	Near-Optimal Sparse Recovery in the L1 norm	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C22	2008	M. Patrascu	(Data) STRUCTURES	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)
C23	2008	M. Patrascu	Succincter	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)
C24	2008	E. Demaine, S. Langerman and E. Price	Confluently Persistent Tries for Efficient Version Control	Proc. Scandinavian Workshop on Algorithm Theory (SWAT)	(PR)(CO)
C25	2008	D. Ajwani, I. Malinger, U. Meyer and S. Toledo	Characterizing the Performance of Flash Memory Storage Devices and Its Impact on Algorithm Design	Proc. Workshop on Experimental Algorithms (WEA)	(PR)(CO)
C26	2008	U. Meyer	On Dynamic Breadth-First Search in External-Memory	Proc. Symposium on Theoretical Aspects (STACS)	(PR)
C27	2008	U. Meyer	On Trade-Offs in External-Memory Diameter Approximation	Proc. Scandinavian Workshop on Algorithm Theory (SWAT)	(PR)
C28	2008	G. S. Brodal and A. G. Jørgensen	Selecting Sums in Arrays	Proc.International Symposium on Algorithms and Computation (ISAAC)	(PR)
C29	2008	L. Arge, G. S. Brodal and S. S. Rao	External Memory Planar Point Location with Logarithmic Updates	Proc. Symposium on Computational Geometry (SoCG)	(PR)
C30	2008	A. Golynski, R. Raman and S. S. Rao	On the Redundancy of Succinct Data Structures	Proc. Scandinavian Workshop on Algorithm Theory (SWAT)	(PR)(CO)
C31	2008	M. Olsen	The Computational Complexity of Link Building	Proc. International Conference on Computing and Combinatorics (COCOON)	(PR)

C32	2008	M.A. Abam, M. de Berg and J. Gudmundsson	A Simple and Efficient Kinetic Spanner	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C33	2008	L. Arge, M.T. Goodrich, M. Nelson and N. Sitchinava	Fundamental Parallel Algorithms for Private-Cache Chip Multiprocessors	Proc. Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C34	2008	L. Arge, T. Moelhave and N. Zeh	Cache-Oblivious Red-Blue Line Segment Intersection	Proc. European Symposium on Algorithm (ESA)	(PR)(CO)
C35	2008	P.K. Agarwal, L. Arge, T. Moelhave and B. Sadri	I/O-efficient Algorithms for Computing Contour Lines on a Terrain	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C36	2008	J. Feldman, S. Muthukrishnan, A. Sidiropoulos, C. Stein and Z. Svitkina	On Distributing Symmetric Streaming Computations	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C37	2008	P. Indyk	Explicit Constructions for Compressed Sensing of Sparse Signals	Proc Symposium on Discrete Algorithms (SODA)	(PR)
C38	2008	A. Andoni, P. Indyk and R. Krauthgamer	Earth Mover Distance over High-Dimensional Spaces	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C39	2008	P. Indyk and A. McGregor	Declaring Independence via the Sketching of Sketches	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C40	2008	K. Onak and A. Sidiropoulos	Circular Partitions with Applications to Visualization and Embeddings	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C41	2008	J. Matousek and A. Sidiropoulos	Inapproximability for metric embeddings into R^d	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C42	2008	N. J. A. Harvey, J. Nelson and K. Onak	Sketching and Streaming Entropy via Approximation Theory	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C43	2008	A. Andoni, D. Croitoru and M. Patrascu	Hardness of Nearest Neighbor under L-infinity	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C44	2008	T. Chan, M. Patrascu and L. Roditty	Dynamic Connectivity: Connecting to Networks and Geometry	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C45	2008	S. Mozes, K. Onak and Oren Weimann	Finding an Optimal Tree Searching Strategy in Linear Time	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C46	2008	A. Chakrabarti, T.S. Jayram and M. Patrascu	Tight Lower Bounds for Selection in Randomly Ordered Streams	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C47	2008	E. Demaine, T. Ito, Ni. J. A. Harvey, C. H. Papadimitriou, M. Sideri, R. Uehara and Yushi Uno	On the Complexity of Reconfiguration Problems	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)
C48	2008	E. Demaine, G. Aloupis, S. Collette, S. Langerman, V. Sacristan and S. Wuhrer	Reconfiguration of Cube-Style Modular Robots Using O(log n) Parallel Moves	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)

C49	2008	E. Demaine, M. Buadoiu, M. Hajiaghayi, A. Sidiropoulos and M. Zadimoghaddam	Ordinal Embedding: Approximation Algorithms and Dimensionality Reduction	Proc. International Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)	(PR)(CO)
C50	2008	E. Demaine, T. G. Abbott, Z. Abel, D. Charlton, M. L. Demaine and S. D. Kominers	Hinged Dissections Exist	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C51	2008	E. R. Hansen, S. S. Rao and P. Tiedemann	Compressing Binary Decision Diagrams	European Conference on Artificial Intelligence (ECAI)	(PR)(CO)
C52	2008	R. Berinde, P. Indyk and M. Ruzic	Practical Near-Optimal Sparse Recovery in the L1 Norm (invited paper)	Proc. Allerton Conference	(CO)
C53	2008	R. Berinde, A. Gilbert, P. Indyk, H. Karloff and M. Strauss	Combining Geometry and Combinatorics: A Unified Approach to Sparse Signal Recovery (invited paper)	Proc. Allerton Conference	(CO)
C54	2008	M.A. Abam, M. de Berg, and S-H. Poon	Fault-Tolerant Conflict-Free Coloring	Proc. Canadian Conference on Computational Geometry	(CO)
C55	2009	R. Berinde, G. Cormode, P. Indyk and M. Strauss	Space-optimal Heavyhitters with Strong Error Bounds	Proc. Symposium on Principles of Database Systems (PODS)	(PR)(CO)
C56	2009	V. Cevher, C. Hegde, P. Indyk and R. G. Baraniuk	Recovery of Clustered Sparse Signal from Compressive Measurements	Proc. International Conference on Sampling Theory and Applications (SAMPTA)	(PR)(CO)
C57	2009	E. Demaine, G. Landau and O. Weimann	On Cartesian Trees and Range Minimum Queries	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)(CO)
C58	2009	D. Hermelin, G. M. Landau, S. Landau and O. Weimann	A Unified Algorithm for Accelerating Edit-Distance Computation via Text-Compression	Proc. International Symposium on Theoretical Aspects of Computer Science (STACS)	(PR)(CO)
C59	2009	A. Kovacs, U. Meyer, G. Moruz and A. Negoescu	Online Paging for Flash Memory Devices	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)
C60	2009	G. Brodal, A. Jørgensen, G. Moruz and T. Mølhave	Counting in the Presence of Memory Faults	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)
C61	2009	D. Ajwani, A. Beckmann, R. Jacob, U. Meyer and G. Moruz	On Computational Models for Flash Memory Devices	Proc. Symposium on Experimental Algorithms (SEA)	(PR)(CO)
C62	2009	U. Meyer and V. Osipov	Design and Implementation of a Practical I/O-efficient Shortest Paths Algorithm	Proc. Workshop on Algorithm Engineering and Experiments (ALENEX)	(PR)
C63	20009	U. Meyer	Via Detours to I/O-Efficient Shortest Paths	Proc. Efficient Algorithms - Essays dedicated to Kurt Mehlhorn on the Occasion of his 60th birthday	

C64	2009	D. Ajwani, R. Dementiev, U. Meyer and V. Osipov	Breadth First Search on Massive Graphs	Proc. Ninth DIMACS Implementation Challenge: The Shortest Path Problem	(PR)
C65	2009	A. Beckmann, R. Dementiev and J. Singler	Building a Parallel Pipelined External Memory Algorithm Library	Proc. International Symposium on Parallel and Distributed Processing (IPDPS)	(PR)
C66	2009	G. S. Brodal and A. Jørgensen	Data Structures for Range Median Queries	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)
C67	2009	G. S. Brodal, R. Fagerberg, M. Greve and A. López-Ortiz	Online Sorted Range Reporting	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)
C68	2009	G. S. Brodal, A. Kaporis, S. Sioutas, K. Tsakalidis and K. Tsichlas	Dynamic 3-sided Planar Range Queries with Expected Doubly Logarithmic Time	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)
C69	2009	G. S. Brodal, A. Jørgensen and T. Mølhave	Fault Tolerant External Memory Algorithms	Proc. Algorithms and Data Structures Symposium (WADS)	(PR)
C70	2009	A. Kaporis, A.N. Papadopoulos, S. Sioutas, K. Tsakalidis and K. Tsichlas	Efficient Processing of 3-Sided Range Queries with Probabilistic Guarantees	Proc. International Conference on Database Theory (ICDT)	(PR)(CO)
C71	2009	M. Abam, M. de Berg, M. Farshi, J. Gudmundsson and M. Smid	Geometric Spanners for Weighted Point Sets	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C72	2009	M. Abam and M. de Berg	Kinetic Spanners in R^d	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C73	2009	M. Abam, P. Carmi, M. Farshi and M. Smid	On the Power of the Semi-Separated Pair Decomposition	Proc. Algorithms and Data Structures Symposium (WADS)	(PR)(CO)
C74	2009	D. Ajwani	On P-complete Problems in Memory Hierarchy Models	Proc. Workshop on Massive Data Algorithmics (MASSIVE)	
C75	2009	A. Farzan, R. Raman and S. Srinivasa Rao	Universal Succinct Representations of Trees?	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)(CO)
C76	2009	R. Pagh and S. Srinivasa Rao	Secondary Indexing in One Dimension: Beyond B-trees and Bitmap Indexes	Proc. Symposium on Principles of Database Systems (PODS)	(PR)(CO)
C77	2009	R. Grossi, A. Orlandi, R. Raman and S. Srinivasa Rao	More Haste, Less Waste: Lowering the Redundancy in Fully Indexable Dictionaries	Proc. International Symposium on Theoretical Aspects of Computer Science (STACS)	(PR)(CO)
C78	2009	J. E. Moeslund, P. K. Bøcher, J.-C. Svenning, T. Mølhave and L. Arge	Impacts of 21st Century Sea-level Rise on a Danish Major City – An Assessment Based on Fine-resolution Digital Topography and a New Flooding Algorithm	IOP Conference Series: Earth and Environmental Science 8	(PR)
C79	2009	M. de Berg and P. Hachenberger	Rotated-Box Trees: A Lightweight c-Oriented Bounding-Volume Hierarchy	Proc. International Symposium on Experimental Algorithms (SEA)	(PR)(CO)
C80	2009	P. Afshani, L. Arge and K. Dalgaard Larsen	Orthogonal Range Reporting in Three and Higher Dimensions	Proc Symposium on Foundations of Computer Science (FOCS)	(PR)

C81	2009	P. Afshani, C. Hamilton and N. Zeh	A Unified Approach for Cache-Oblivious Range Reporting and Approximate Range Counting	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C82	2009	P. Afshani, C. Hamilton and N. Zeh	Cache-Oblivious Range Reporting With Optimal Queries Requires Superlinear Space	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C83	2009	P. Afshani, J. Barbay and T. Chan	Instance-optimal Geometric Algorithms	Proc Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C84	2009	L. Arge, M.T. Goodrich and N. Sitchinava	Parallel External Memory Model	Proc. Workshop on Theory and Many-Cores	
C85	2009	L. Arge and M. Revsbæk	I/O-Efficient Contour Tree Simplification	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)
C86	2009	A. Andoni, P. Indyk, R. Krauthgamer and H.L. Nguyen	Approximate Line Nearest Neighbor in High Dimensions	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C87	2009	A. Andoni, P. Indyk and R. Krauthgamer	Overcoming the L1 Non-embeddability Barrier: Algorithms for Product Metrics	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C88	2009	R. Berinde and P. Indyk	Sequential Sparse Matching Pursuit	Proc. Allerton Conference	(PR)(CO)
C89	2009	A. Andoni, K. Do Ba, P. Indyk and D. Woodruff	Efficient Sketches for Earth-Mover Distance, with Applications	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C90	2009	A. Andoni, P. Indyk, K. Onak and R. Rubinfeld	External Sampling	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)(CO)
C91	2009	E. Demaine, M. Demaine, G. Konjevod and R. Lang	Folding a Better Checkerboard	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)
C92	2009	J. Cardinal, E. Demaine, M. Demaine, S. Imahori, S. Langerman and R. Uehara	Algorithmic Folding Complexity	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)
C93	2009	E. Demaine, M. Hajiaghayi, and D. Marx	Minimizing Movement: Fixed-Parameter Tractability	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C94	2009	B. Ballinger, D. Charlton, E. Demaine, M. Demaine, J. Iacono, C-H. Liu and S-H. Poon	Minimal Locked Trees	Proc. Algorithms and Data Structures Symposium (WADS)	(PR)(CO)
C95	2009	E. Demaine, D. Kane and G. Price	A Pseudopolynomial algorithm for Alexandrov's Theorem	Proc. Algorithms and Data Structures Symposium (WADS)	(PR)(CO)
C96	2009	T. Ito, M. Kaminski and E. Demaine	Reconfiguration of List Edge-Colorings in a Graph	Proc. Algorithms and Data Structures Symposium (WADS)	(PR)(CO)
C97	2009	E. Demaine, M. Hajiaghayi and K. Kawarabayashi	Approximation Algorithms via Structural Results for Apex-Minor-Free Graphs	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)(CO)
C98	2009	E. Demaine, M. Hajiaghayi and P. Klein	Node-Weighted Steiner Tree and Group Steiner Tree in Planar Graphs	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)(CO)

C99	2009	E. Demaine, G. Borradaile and S. Tazari	Polynomial-Time Approximation Schemes for Subset-Connectivity Problems in Bounded-Genus Graphs	Proc. International Symposium on Theoretical Aspects of Computer Science (STACS)	(PR)(CO)
C100	2009	E. Demaine, D. Harmon, J. Iacono, D. Kane and M. Patrascu	The Geometry of Binary Search Trees	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C101	2009	E. Demaine, K. Kawarabayashi and M. Hajiaghayi	Additive Approximation Algorithms for List-Coloring Minor-Closed Class of Graphs	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C102	2009	E. Demaine, M. Hajiaghayi, H. Mahini and M. Zadimoghaddam	The Price of Anarchy in Cooperative Network Creation Games	Proc. International Symposium on Theoretical Aspects of Computer Science (STACS)	(PR)(CO)
C103	2009	J. Cardinal, E. Demaine, S. Fiorini, G. Joret, I. Newman and O. Weimann	The Stackelberg Minimum Spanning Tree Game on Planar and Bounded-Treewidth Graphs	Proc. Workshop on Internet and Network Economics (WINE)	(PR)(CO)
C104	2009	J. McLurkin and E. Demaine	A Distributed Boundary Detection Algorithm for Multi-Robot Systems	Proc. International Conference on Intelligent Robots and Systems	(PR)(CO)
C105	2009	G. Aloupis, N. Benbernou, M. Damian, E. Demaine, R. Flatland, J. Iacono and S. Wuhrer	Efficient Reconfiguration of Lattice-Based Modular Robots	Proc. European Conference on Mobile Robots	(PR)(CO)
C106	2009	M. Ajtai, V. Feldman, A. Hassidim and J. Nelson	Sorting and Selection with Imprecise Comparisons	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)(CO)
C107	2009	R. Yuster and O. Weimann	Computing the Girth of a Planar Graph in O(n log n) time	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)(CO)
C108	2009	R. Backofen, G. Landau, M. Möhl, D. Tsur and O. Weimann	Fast RNA Structure Alignment for Crossing Input Structures	Proc. Symposium on Combinatorial Pattern Matching (CPM)	(PR)(CO)
C109	2009	P. Klein, S. Mozes and O. Weimann	Shortest Paths in Directed Planar Graphs with Negative Lengths: A Linear-Space O(n log2 n)-Time Algorithm	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C110	2010	K. Do Ba, P. Indyk, E. Price and D.P. Woodruff	Lower Bounds for Sparse Recovery	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C111	2010	P. Indyk, H.Q. Ngo and A. Rudra	Efficiently Decodable Non-adaptive Group Testing	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C112	2010	D.M. Kane, J. Nelson and D.P. Woodruff	An Optimal Algorithm for the Distinct Elements Problem	Proc. Symposium on Principles of Database Systems (PODS)	(PR)(CO)
C113	2010	J. Nelson and D.P. Woodruff	Fast Manhattan Sketches in Data Streams	Proc. Symposium on Principles of Database Systems (PODS)	(PR)(CO)
C114	2010	I. Diakonikolas, D.M. Kane and J. Nelson	Bounded Independence Fools Degree-2 Threshold Functions	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)

C115	2010	D.M. Kane, J. Nelson and D.P. Woodruff	On the Exact Space Complexity of Sketching and Streaming Small Norms	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C116	2010	A. Beckmann , U. Meyer, P. Sanders and J. Singler	Energy-Efficient Sorting using Solid State Disks	Proc. International IEEE Green Computing Conference	(PR)(CO)
C117	2010	M. Greve, A.G. Jørgensen, K.D. Larsen and J. Truelsen	Cell Probe Lower Bounds and Approximations for Range Mode	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)
C118	2010	M. Olsen	Maximizing PageRank with new Backlinks	Proc. International Conference on Algorithms and Complexity (CIAC)	(PR)
C119	2010	G.S. Brodal, E. Demaine, J. T. Fineman, J. Iacono, S. Langerman and J.I. Munro	Cache-Oblivious Dynamic Dictionaries with Optimal Update/Query Tradeoff	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C120	2010	A. Kaporis, A.N. Papadopoulos, S. Sioutas, K. Tsakalidis and K. Tsichlas	Efficient Processing of 3-Sided Range Queries with Probabilistic Guarantees	Proc. International Conference on Database Theory (ICDT)	(PR)(CO)
C121	2010	M.A. Abam and S. Har-Peled	New constructions of SSPDs and their applications	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C122	2010	M.B. Kjærgaard, H. Blunck, T. Godsk, T. Toftkjær, D.L. Christensen, and K. Grønbæk	Indoor Positioning using GPS Revisited	Proc. International Conference on Pervasive Computing (Pervasive)	(PR)
C123	2010	L. Arge, M.T. Goodrich and N. Sitchinava	Parallel external memory graph algorithms	Proc. International Parallel & Distributed Processing Symposium (IPDPS)	(PR)(CO)
C124	2010	P. Afshani, L. Arge and K.D. Larsen	Orthogonal Range Reporting: Query Lower Bounds, Optimal Structures in 3-d, and Higher Dimensional Improvements	Proc. Symposium on Computational Geometry (SoCG)	(PR)
C125	2010	P. Afshani, L. Arge and K.D Larsen	I/O-Efficient Orthogonal Range Reporting in Three and Higher Dimensions	Proc. Workshop on Massive Data Algorithmics (MASSIVE)	
C126	2010	T. Mølhave, P.K. Agarwal, L. Arge and M. Revsbæk	Scalable Algorithms for Large High-Resolution Terrain Data	Proc. International Conference on Computing for Geospatial Research & Application (COM.GEO)	(PR)(CO)
C127	2010	L. Arge, M. Revsbæk and Norbert Zeh	I/O-Efficient Computation of Water Flow Across a Terrain	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C128	2010	G.S. Brodal, P. Davoodi and S.S. Rao	On Space Efficient Two Dimensional Range Minimum Data Structures	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C129	2010	D. Ajwani, N. Sitchinava and N. Zeh	Geometric Algorithms for Private-Cache Chip Multiprocessors	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C130	2010	Z. Abel, N. Benbernou, M. Damian, E.D. Demaine, M.L. Demaine, R. Flatland, S. Kominers and R. Schwelle	Shape Replication Through Self-Assembly and RNase Enzymes	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)

C131	2010	E.D. Demaine, M. Hajiaghayi and K. Kawarabayashi	Decomposition, Approximation, and Coloring of Odd-Minor-Free Graphs	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C132	2010	N. Gershenfeld, D. Dalrymple, K. Chen, A. Knaian, F. Green, E.D. Demaine, S. Greenwald and P. Schmidt-Nielsen	Reconfigurable Asynchronous Logic Automata	Proc. Symposium on Principles of Programming Langauges (POPL)	(PR)(CO)
C133	2010	G. Aloupis, J. Cardinal, S. Collette, E.D. Demaine, M.L. Demaine, M. Dulieu, R. Fabila-Monroy, V. Hart, F. Hurtado, S. Langerman, M. Saumell, C. Seara and P. Taslakian	Matching Points with Things	Proc. Latin American Theoretical Informatics Symposium (LATIN)	(PR)(CO)
C134	2010	E.D. Demaine and M. Zadimoghaddam	Scheduling to Minimize Power Consumption using Submodular Functions	Proc. Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)
C135	2010	S. Gilbert, R. Guerraoui, F. Malakouti and M. Zadimoghaddam	Collaborative Scoring in the Presence of Malicious Players	Proc. Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C136	2010	N. Alon, E.D. Demaine, M. Hajiaghayi and T. Leighton	Basic Network Creation Games	Proc. Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C137	2010	E.D. Demaine and M. Zadimoghaddam	Minimizing the Diameter of a Network using Shortcut Edge	Proc. Scandinavian Workshop on Algorithm Theory (SWAT)	(PR)
C138	2010	M. Bateni, M.H. Hajiaghayi and M. Zadimoghaddam	Submodular Secretary Problem and Extensions	Proc. Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)	(PR)(CO)
C139	2010	B. Ballinger, N. Benbernou, P. Bose, M. Damian, E.D. Demaine, V. Dujmović, R. Flatland, F. Hurtado, J. Iacono, A. Lubiw, P. Morin, V. Sacristán, D. Souvaine and R. Uehara	Coverage with k-Transmitters in the Presence of Obstacles	Proc. International Conference on Combinatorial Optimization and Applications (COCOA)	(PR)(CO)
C140	2010	E.D. Demaine and M. Zadimoghaddam	Constant Price of Anarchy in Network Creation Games via Public Service Advertising	Proc. International Workshop on Algorithms and Models for the Web-Graph	(PR)
C141	2010	G. S. Brodal, C. Kejlberg-Rasmussen and J. Truelsen	A Cache-oblivious Implicit Dictionary with the Working Set Property	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)
C142	2010	L. Arge, K. D. Larsen, T. Mølhave and F. van Walderveen	Cleaning Massive Sonar Point Clouds	Proc. International Conference on Advances in Geographic Information System (ACM-GIS)	(PR)
C143	2010	G.S Brodal, Ss.Sioutas, K. Tsichlas and C. Zaroliagis	D2-Tree: A New Overlay with Deterministic Bounds	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)
C144	2010	F. Gieseke, G. Moruz and J. Vahrenhold	Resilient kd-trees: K-means in space revisited	Proc. Conference on Data Mining (ICDM)	(PR)(CO)

C145	2010	J. Brody and E. Verbin	The Coin Problem and Pseudorandomness for Branching Programs	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C146	2011	H. Blunck, M. B. Kjærgaard and T. S. Toftegaard	Sensing and Classifying Impairments of GPS Reception on Mobile Devices	Proc. International Conference on Pervasive Computing (Pervasive)	(PR)(CO)
C147	2011	A. G. Jorgensen and K. G. Larsen,	Range Selection and Median: Tight Cell Probe Lower Bounds and Adaptive Data Structures	Proc. Symposium on Discrete Algorithms (SODA)	(PR)
C148	2011	P. Afshani, P. K. Agarwal, L. Arge, K. G. Larsen and J. M. Phillips	(Approximate) Uncertain Skylines	Proc. International Conference on Database Theory (ICDT)	(PR)(CO)
C149	2011	T. M. Chan, K. G. Larsen and M. Patrascu	Orthogonal Range Searching on the RAM, Revisited	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C150	2011	K. G. Larsen	On Range Searching in the Group Model and Combinatorial Discrepancy	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)
C151	2011	M. de Berg and C. Tsirogiannis	Exact and Approximate Computations of Watersheds on Triangulated Terrains	Proc. International Conference on Advances in Geographic Information Systems (ACM-GIS)	(PR)(CO)
C152	2011	H.Haverkort and C. Tsirogiannis	Flow on Noisy Terrains: An Experimental Evaluation	Proc. International Conference on Advances in Geographic Information Systems (ACM-GIS)	(PR)(CO)
C153	2011	D. Ajwani, N. Sitchinava and N. Zeh	I/O-Optimal Distribution Sweeping on Private-Cache Chip Multiprocessors	Proc. International Symposium on Parallel and Distributed Processing (IPDPS)	(PR)(CO)
C154	2011	M.T. Goodrich, N. Sitchinava and Q. Zhang	Sorting, Searching, and Simulation in the MapReduce Framework	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)
C155	2011	M. A. Abam, S. Daneshpajouh, L. Deleuran, S. Ehsani and M. Ghodsi	Computing Homotopic Line Simplification in a Plane	Proc. European Workshop on Computational Geometry (EuroCG)	(CO)
C156	2011	P. Afshani and N. Zeh	Improved Space Bounds for Cache-Oblivious Range Reporting	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C157	2011	P. Afshani, G.S. Brodal and N. Zeh	Ordered and Unordered Top-K Range Reporting in Large Data Sets	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C158	2011	G.S. Brodal, G. Moruz, and A. Negoescu	OnlineMin: A Fast Strongly Competitive Randomized Paging Algorithm	Proc. Workshop on Approximation and Online Algorithms (WAOA)	(PR)
C159	2011	G.S. Brodal, P. Davoodi, and S.S. Rao	Path Minima Queries in Dynamic Weighted Trees	Proc. Workshop on Algorithms and Data Structures (WADS)	(PR)(CO)
C160	2011	G.S. Brodal and K. Tsakalidis	Dynamic Planar Range Maxima Queries	Proc. International Colloquium on Automata, Languages, and Programming (ICALP)	(PR)

C161	2011	G.S. Brodal, M. Greve, V. Pandey and S.S. Rao	Integer Representations towards Efficient Counting in the Bit Probe Model	Proc. Conference on Theory and Applications of Models of Computation (TAMC)	(PR)(CO)
C162	2011	H.L. Chan, T.W. Lam, L.K. Lee, J. Pan, H.F. Ting and Q. Zhang	Edit Distance to Monotonicity in Sliding Windows	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR) (CO)
C163	2011	D. Ajwani, A. Cosgaya-Lozano and N. Zeh	Engineering a Topological Sorting Algorithm for Massive Graphs	Proc. Workshop on Algorithm Engineering and Experiments (ALENEX)	(PR)(CO)
C164	2011	S.H. Chan, T.W. Lam, L.K. Lee, C.M. Liu and H.F. Ting	Sleep management on multiple machines for energy and flow time	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR) (CO)
C165	2011	A.G. Jørgensen, M. Loffler and J. Phillips	Geometric Computations on Indecisive Points	Proc. International Workshop on Algorithms and Data Structures (WADS)	(PR)(CO)
C166	2011	P. Davoodi and S. Srinivasa Rao	Succinct Dynamic Cardinal Trees with Constant Time Operations for Small Alphabet	Proc. Theory and Applications of Models of Computation (TAMC)	(PR)(CO)
C167	2011	E. Verbin and W. Yu	The Streaming Complexity of Cycle Counting, Sorting By Reversals, and Other Problems	Proc. Symposium on Discrete Algorithms (SODA)	(PR)
C168	2011	U. Meyer, A. Negoescu and V. Weichert	New bounds for old algorithms: On the average-case behavior of classic single-source shortest path approaches	Proc. Conference on Theory and Practice of Algorithms in (Computer) Systems (TAPAS)	(PR)
C169	2011	M. Manjunath, K. Mehlhorn, K. Panagiotou and H. Sun	Approximate Counting of Cycles in Streams	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C170	2011	E. Price	Efficient Sketches for the Set Query Problem	Proc. Symposium on Discrete Algorithms (SODA)	(PR)
C171	2011	P. Indyk and E. Price	K-Median Clustering, Model-Based Compressive Sensing, and Sparse Recovery for Earth Mover Distance	Proc. Symposium on Theory of Computing (STOC)	(PR)
C172	2011	P. Indyk, E. Price and D. P. Woodruff	On the Power of Adaptivity in Sparse Recovery	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C173	2011	R. Gupta, P. Indyk, E. Price and Y. Rachlin	Compressive Sensing with Local Geometric Features	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C174	2011	E. Price and D. P. Woodruff	(1+eps)-approximate sparse recovery	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)(CO)
C175	2011	D. M. Kane, J. Nelson, E. Porat and D. P. Woodruff	Fast Moment Estimation in Data Streams in Optimal Space	Proc. Symposium on Theory of Computing (STOC)	(PR)(CO)

C176	2011	D. M. Kane, R. Meka and J. Nelson	Almost Optimal Explicit Johnson-Lindenstrauss Transformations	Proc. International Workshop on Randomization and Computation (RANDOM)	(PR)(CO)
C177	2011	D. B. Khanh and P. Indyk	Sparse recovery with partial support knowledge	Proc. Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)	(PR)(CO)
C178	2011	K. Kawarabayashi, P. N. Klein and C. Sommer	Linear-Space Approximate Distance Oracles for Planar, Bounded-Genus, and Minor-Free Graphs	Proc. International Colloquium on Automata, Languages, and Programming (ICALP)	(PR)(CO)
C179	2011	C. Gavoille and C. Sommer	Sparse Spanners vs. Compact Routing	Proc. Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C180	2011	H. N. Djidjev and C. Sommer	Approximate Distance Queries for Weighted Polyhedral Surfaces	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C181	2011	D. Alistarh, J. Aspnes, K. Censor-Hillel, S. Gilbert and M. Zadimoghaddam	Optimal-Time Adaptive Tight Renaming, with Applications to Counting	Proc. Symposium on Principles of Distributed Computing (PODC)	(PR)(CO)
C182	2011	A. Karbasi and M. Zadimoghaddam	Compression with Graphical Constraints: An Interactive Browser	Proc. International Symposium on Information Theory (ISIT)	(PR)(CO)
C183	2011	B. Haeupler, V. Mirrokni and M. Zadimoghaddam	Online Stochastic Weighted Matching: Improved Approximation Algorithms	Proc. Workshop on Internet & Network Economics	(PR)(CO)
C184	2011	Z. Abel, E. D. Demaine, M. L. Demaine, S. Eisenstat, J. Lynch, T. B. Schardl and I. Shapiro-Ellowitz	Folding Equilateral Plane Graphs	Proc. International Symposium on Algorithms and Computation (ISAAC)	(PR)(CO)
C185	2011	E. D. Demaine, S. Eisenstat, M. Ishaque and A. Winslow	One-Dimensional Staged Self-Assembly	Proc. International Conference on DNA Computing and Molecular Programming	(PR)(CO)
C186	2011	E. D. Demaine, M. L. Demaine, S. Eisenstat, A. Lubiw and A. Winslow	Algorithms for Solving Rubik's Cubes	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C187	2011	E. D. Demaine and S. Eisenstat	Flattening Fixed-Angle Chains Is Strongly NP-Hard	Proc. International Workshop on Algorithms and Data Structures (WADS)	(PR)
C188	2011	P. Christiano, E. D. Demaine and S. Kishore	Lossless Fault-Tolerant Data Structures with Additive Overhead	Proc. International Workshop on Algorithms and Data Structures (WADS)	(PR)(CO)
C189	2011	P. Berman, E. D. Demaine and M. Zadimoghaddam	O(1)-Approximations for Maximum Movement Problems	Proc. Workshop on Approximation Algorithms for Combinatorial Optimization Problems (APPROX)	(PR)(CO)
C190	2011	G. Aloupis, E. D. Demaine, M. L. Demaine, V. Dujmovic and J. Iacono	Meshes preserving minimum feature size	Proc. Spanish Meeting on Computational Geometry	(CO)
C191	2011	E. D. Demaine and A. Lubiw	A generalization of the source unfolding of convex polyhedra	Proc. Spanish Meeting on Computational Geometry	(CO)

C192	2011	E. D. Demaine, M. Hajiaghayi and K. Kawarabayashi	Contraction Decomposition in H-Minor-Free Graphs and Algorithmic Applications	Proc. Symposium on Theory of Computing (STOC)	(PR)(CO)
C193	2011	E. D. Demaine, M. J. Patitz, R. T. Schweller and S. M. Summers	Self-Assembly of Arbitrary Shapes Using RNAse Enzymes: Meeting the Kolmogorov Bound with Small Scale Factor	Proc. Symposium on Theoretical Aspects of Computer Science (STACS)	(PR)(CO)
C194	2011	E. D. Demaine and A. Schulz	Embedding Stacked Polytopes on a Polynomial-Size Grid	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C195	2012	P. Davoodi, M. Smid and F. van Walderveen	Two-Dimensional Range Diameter	Proc. Latin American Symposium on Theoretical Informatics (LATIN)	(PR)(CO)
C196	2012	L. Arge, M.T. Goodrich and F. van Walderveen	Computing betweenness centrality in external memory	Workshop on Massive Data Algorithmics (MASSIVE)	(CO)
C197	2012	K. G. Larsen and R. Pagh	I/O-Efficient Data Structures for Colored Range and Prefix Reporting	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C198	2012	T. M. Chan, S. Durocher, K. G. Larsen, J. Morrison and B. T. Wilkinson	Linear-Space Data Structures for Range Mode Query in Arrays	Proc. Symposium on Theoretical Aspects of Computer Science (STACS)	(PR)(CO)
C199	2012	K. G. Larsen	The Cell Probe Complexity of Dynamic Range Counting	Proc. Symposium on Theory of Computing (STOC)	(PR)
C200	2012	P. Afshani, L. Arge and K. G. Larsen	Higher-dimensional Orthogonal Range Reporting and Rectangle Stabbing in the Pointer Machine Model	Proc. Symposium on Computational Geometry (SoCG)	(PR)
C201	2012	K. G. Larsen and H. L. Nguyen	Improved Range Searching Lower Bounds	Proc. Symposium on Computational Geometry (SoCG)	(PR)(CO)
C202	2012	K. G. Larsen	Higher Cell Probe Lower Bounds for Evaluating Polynomials	Proc. Symposium on Foundations of Computer Science (FOCS)	(PR)
C203	2012	L. Arge, L. Deleuran, T. Mølhave, M. Revsbæk and J. Truelsen	Simplifying Massive Contour Maps	Proc. European Symposium on Algorithms (ESA)	(PR)
C204	2012	Z. Huang, K. Yi and Q. Zhang,	Randomized Algorithms for Tracking Distributed Count, Frequencies, and Ranks	Proc. Symposium on Principles of Database Systems (PODS)	(PR)(CO)
C205	2012	D.P. Woodruff and Q. Zhang	Tight Bounds for Distributed Functional Monitoring	Proc. Symposium on Theory of Computing (STOC)	(PR)(CO)
C206	2012	J. M. Phillips, E. Verbin and Q. Zhang	Lower Bounds for Number-in-Hand Multiparty Communication Complexity, Made Easy	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C207	2012	E. Verbin and Q. Zhang	Rademacher-Sketch: A Dimensionality-Reducing Embedding for Sum-Product Norms, with an Application to Earth-Mover Distance	Proc. International Colloquium on Automata, Languages and Programming (ICALP)	(PR)

C208	2012	H.L. Chan, S.H. Chan, T.W. Lam, L.K. Lee, and J. Zhu	Non-clairvoyant weighted flow time scheduling with rejection penalty	Proc. ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C209	2012	G. S. Brodal, J. A. S. Nielsen and J. Truelsen	Finger search in the implicit model	Proc. International Symposium on Algorithms and Computation (STACS)	(PR)
C210	2012	G.S. Brodal and C. Kejlberg-Rasmussen	Cache-Oblivious Implicit Predecessor Dictionaries with the Working-Set Property	Proc. Symposium on Theoretical Aspects of Computer Science (STACS)	(PR)
C211	2012	X. Sun , C. Wang and W. Yu	The Relationship between Inner Product and Counting Cycles	Proc. Latin American Theoretical Informatics Symposium (LATIN)	(PR)(CO)
C212	2012	P. Davoodi, R. Raman and S. S. Rao	Succinct Representations of Binary Trees for Range Minimum Queries	Proc. International Computing and Combinatorics Conference (COCOON)	(PR)(CO)
C213	2012	G.S. Brodal, S. Sioutas, K. Tsakalidis and K. Tsichlas	Fully Persistent B-trees	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C214	2012	G.S. Brodal, G. Lagogiannis and R.E. Tarjan.	Strict Fibonacci Heaps	Proc. Symposium on Theory of Computing (STOC)	(PR)(CO)
C215	2012	G.S Brodal, P. Davoodi, M. Lewenstein, R. Raman and S. S. Rao	Two Dimensional Range Minimum Queries and Fibonacci Lattices	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C216	2012	D. Ajwani, A. Beckmann, U. Meyer and D. Veith	I/O-efficient approximation of graph diameter by parallel cluster growing - a first experimental study	Proc. Workshop on Parallel Systems and Algorithms (PASA)	(PR)(CO)
C217	2012	A. Beckmann, J. Fedorowicz, J.Keller and U. Meyer	A structural analysis of the A5/1 state transition graph	Proc. Workshop on Graph Inspection and Traversal Engineering (GRAPHite)	(PR)(CO)
C218	2012	G. Moruz and A. Negoescu	Outperforming LRU via Competitive Analysis on Parametrized Inputs for Paging	Proc. Symposium on Discrete Algorithms (SODA)	(PR)
C219	2012	G. Moruz, A. Negoescu, C. Neumann and V. Weichert	Engineering Efficient Paging Algorithms	Proc. Symposium on Experimental Algorithms (SEA)	(PR)
C220	2012	H. Hassanieh, P. Indyk, D. Katabi and E. Price	Simple and Practical Algorithm for Sparse Fourier Transform	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C221	2012	H. Hassanieh, P. Indyk, D. Katabi and E. Price	Nearly Optimal Sparse Fourier Transform	Proc. Symposium on Theory of Computing (STOC)	(PR)(CO)
C222	2012	S. Mozes and C. Sommer	Exact Distance Oracles for Planar Graphs	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C223	2012	T. Akiba, C. Sommer and K-i Kawarabayashi	Shortest-Path Queries for Complex Networks: Exploiting Low Tree-width Outside the Core	Proc. International Conference on Extending Database Technology (EDBT)	(PR)(CO)
C224	2012	S. Kreutzer and S. Tazari	Directed Nowhere Dense Classes of Graphs	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C225	2012	V.S. Mirrokni, S. O. Gharan and M. Zadimoghaddam	Simultaneous approximations for adversarial and stochastic online budgeted allocation	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C226	2012	D. M. Kane and J. Nelson	Sparser Johnson-Lindenstrauss Transforms	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)

C227	2012	C. Tsirogiannis, B. Sandel and D. Cheliotis	Efficient Computation of Popular Phylogenetic Tree Measures	Proc. Workshop on Algorithms in Bioinformatics (WABI)	(PR)(CO)
C228	2012	L. Arge, H. Haverkort and C. Tsirogiannis	Fast Generation of Multiple Resolution Instances of Raster Data Sets	Proc. International Conference on Advances in Geographic Information Systems (ACM-GIS)	(PR)(CO)
C229	2012	P. Afshani and N. Zeh	Lower Bounds for Sorted Geometric Queries in the I/O Model	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C230	2012	P. Afshani	Improved pointer machine and I/O lower bounds for simplex range reporting and related problems	Proc. ACM Symposium on Computational Geometry (SoCG)	(PR)
C231	2012	T. M. Chan, S. Durocher, M. Skala, and B. T. Wilkinson	Linear-Space Data Structures for Range Minority Query in Arrays	Proc. Scandinavian Workshop on Algorithm Theory (SWAT)	(PR)(CO)
C232	2012	H. Jowhari	Efficient Communication Protocols for Deciding Edit Distance	Proc. European Symposium on Algorithms (ESA)	(PR)
C233	2012	L. K. Lee, M. Lewenstein and Q. Zhang.	Parikh matching in the streaming model	Proc. International Symposium on String Processing and Information Retrieval (SPIRE)	(PR)(CO)
C234	2012	D. Belazzougui and R. Venturini	Compressed String Dictionary Look-up with Edit Distance One	Proc. Symposium on Combinatorial Pattern (CPM)	(PR)(CO)
C235	2012	B. Ammitzbøll Jurik and J.A.S. Nielsen	Audio Quality Assurance: An Application of Cross Correlation	Proc. iPRES Conference	(PR)(CO)
C236	2012	N. Sitchinava and N. Zeh	A parallel buffer tree	Proc. ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)	(PR)(CO)
C237	2012	D. Ajwani, U. Meyer and D. Veith	I/O-efficient Hierarchical Diameter Approximation	Proc. European Symposium on Algorithms (ESA)	(PR)(CO)
C238	2012	D. Kane, K. Mehlhorn, T. Sauerwald and H. Sun	Counting Arbitrary Subgraphs in Data Streams	Proc. International Colloquium on Automata, Languages, and Programming (ICALP)	(PR)
C239	2012	M. Wibral, P. Wollstadt, U. Meyer, N. Pampu, V.Priesemann and R. Vicente	Revisiting Wiener's principle of causality — interaction-delay reconstruction using transfer entropy and multivariate analysis on delay-weighted graphs	Proc. International Confonference in Medicine & Biology Society (EMBC)	(PR)(CO)
C240	2012	P. Indyk, R. Levi and R. Rubinfeld	Approximating and Testing k-Histogram Distributions in Sub-linear Time	Proc. Symposium on Principles of Database Systems (PODS)	(PR)(CO)
C241	2012	J. Wang, H. Hassanieh, D. Katabi and P. Indyk	Efficient and Reliable Low-Power Backscatter Networks	Proc. International Conference on Mobile Computing and Networking (SIGCOMM)	(PR)(CO)
C242	2012	H. Hassanieh, F. Adib, D. Katabi and P. Indyk	Faster GPS Via the Sparse Fourier Transform	Proc. MOBICOM	(PR)(CO)

C243	2012	E. Price and D. Woodruff	Applications of the Shannon-Hartley Theorem to Data Streams and Sparse Recovery	Proc. International Symposium on Information Theory (ISIT)	(PR)(CO)
C244	2012	L. Hamilton, D. Parker, C. Yu and P. Indyk	Focal Plane Array Folding for Efficient Information Extraction and Tracking	Proc. Applied Imagery Patterns Recognition Workshop (AIPR)	(PR)(CO)
C245	2013	E. Price and D. Woodruff	Lower Bounds for Adaptive Sparse Recovery	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C246	2013	A. Andoni, H. Hassanieh, P. Indyk and D. Katabi	Shift Finding in Sub-linear Time	Proc. Symposium on Discrete Algorithms (SODA)	(PR)(CO)
C247	2012	E.D. Demaine, M.L. Demaine, Y. N. Minsky, J.S.B. Mitchell, R.L. Rivest and M. Patrascu	Picture-Hanging Puzzles	Proc. International Conference on Fun with Algorithms	(CO)
C248	2012	E. D. Demaine, M.L. Demaine, J-i. Itoh, A. Lubiw, C. Nara and J. O'Rourke	Refold Rigidity of Convex Polyhedra	Proc. European Workshop on Computational Geometry	(CO)
C249	2012	S. Lim, C. Sommer, E. Nikolova and D. Rus	Practical Route Planning Under Delay Uncertainty: Stochastic Shortest Path Queries	Proc. Robotics: Science and Systems VIII	(PR)(CO)
C250	2012	C. Ratti and C. Sommer	Approximating Shortest Paths in Spatial Social Networks	Proc. International Conference on Social Computing	(PR)(CO)
C251	2012	M. Zadimoghaddam and A. Roth	Efficiently Learning from Revealed Preference	Proc. International Workshop on Internet and Network Economics	(PR)(CO)
C252	2012	C. Guo, Y. Ma, B. Yang, C. S. Jensen and M. Kaul	Evaluating Models of Vehicular Environmental Impact	Proc. International Conference on Advances in Geographic Information Systems (ACM-GIS)	(PR)(CO)
C253	2012	X. Li, P. Karras, L. Shi, K.-L. Tan and C. S. Jensen	Cooperative Scalable Moving Continuous Query Processing	Proc. International Conference on Mobile Data Management (MDM)	(PR)(CO)
C254	2012	D. Šidlauskas, C. S. Jensenand S. Šaltenis	A Comparison of the Use of Virtual Versus Physical Snapshots for Supporting Update-Intensive Workloads	Proc. International Workshop on Data Management on New Hardware (DaMoN)	(PR)(CO)
C255	2012	J. Rishede, M. L. Yiu and C. S. Jensen	Effective Caching of Shortest Paths for Location-Based Services	Proc. International Conference on the Management of Data (SIGMOD)	(PR)(CO)
C256	2012	D. Šidlauskas, S. Šaltenis and C. S. Jensen	Parallel Main-Memory Indexing for Moving-Object Query and Update Workloads	Proc. International Conference on the Management of Data (SIGMOD)	(PR)(CO)
C257	2012	H. Lu, X. Cao and C. S. Jensen	A Foundation for Efficient Indoor Distance-Aware Query Processing	Proc. International Conference on Data Engineering (ICDE)	(PR)(CO)
C258	2012	H. Lu and C. S. Jensen	Upgrading Uncompetitive Products Economically	Proc. International Conference on Data Engineering (ICDE)	(PR)(CO)
C259	2012	X. Cao, L. Chen, G. Cong, C. S. Jensen, Q. Qu, A. Skovsgaard, D. Wu and M. L. Yiu	Spatial Keyword Querying (invited paper)	Proc. International Conference on Conceptual Modeling (ER)	(CO)

Journals

J1	2007	G. S. Brodal, R. Fagerberg and G. Moruz	On the Adaptiveness of Quicksort	ACM Journal of Experimental Algorithmics, 12	(PR) (CO)
J2	2008	D. Ajwani, T. Friedrich and U. Meyer	An O(n^{2.75}) Algorithm for Incremental Topological Ordering	ACM Transactions on Algorithms, 4(4)	(PR)
J3	2008	M. Stissing, T. Mailund, C. N. S. Pedersen, G. S. Brodal and R. Fagerberg	Computing the All-Pairs Quartet Distance on a set of Evolutionary Trees	Journal of Bioinformatics and Computational Biology, 6(1)	(PR)(CO)
J4	2008	L. Arge, M. de Berg, H. J. Haverkort and K. Yi	The Priority R-Tree: A Practically Efficient and Worst-Case Optimal R-Tree	ACM Transactions on Algorithms, 4(1)	(PR)(CO)
J5	2009	M. Olsen	Nash Stability in Additively Separable Hedonic Games and Community Structures	Theory of Computing Systems, 45(4)	(PR)
J6	2009	M. Abam, M. de Berg, M. Farshi and J. Gudmundsson	Region-Fault Tolerant Geometric Spanners	Discrete & Computational Geometry, 41(4)	(PR)(CO)
J7	2009	M. Abam, M. de Berg and B. Speckmann	Kinetic kd-Trees and Longest-Side kd-Trees	SIAM Journal of Computing, 39(4)	(PR)(CO)
J8	2009	L. Arge, V. Samoladas and K. Yi	Optimal External-Memory Planar Point Enclosure	Algorithmica, 54(3)	(PR)(CO)
J9	2009	L. Arge, M. de Berg and H. Haverkort	Cache-Oblivious R-Trees	Algorithmica, 53(1)	(PR)(CO)
J10	2009	H. Iben, J. O'Brien and E. Demaine	Refolding Planar Polygons	Discrete & Computational Geometry, 41(3)	(PR)(CO)
J11	2009	E. Demaine, M. Hajiaghayi, H. Mahini, A. Sayedi-Roshkhar, S. Oveisgharan and M. Zadimoghaddam	Minimizing Movement	ACM Transactions on Algorithms, 5(3)	(PR)(CO)
J12	2009	E. Demaine, M. Hajiaghayi and K. Kawarabayashi	Algorithmic Graph Minor Theory: Improved Grid Minor Bounds and Wagner's Contraction	Algorithmica, 54(2)	(PR)(CO)
J13	2009	T. Abbott, M. Burr, T. Chan, E. Demaine, M. Demaine, J. Hugg, D. Kane, S. Langerman, J. Nelson, E. Rafalin, K. Seyboth and V. Yeung	Dynamic Ham-Sandwich Cuts in the Plane	Computational Geometry: Theory and Applications, 42(5)	(PR)(CO)
J14	2009	E.D. Demaine, M. Hajiaghayi, H. Mahini and M. Zadimoghaddam	The Price of Anarchy in Network Creation Games	ACM SIGECOM Exchanges, 8(2)	(PR)(CO)
J15	2009	E.D. Demaine, M.L. Demaine, J. Iacono and S. Langerman	Wrapping Spheres with Flat Paper	Computational Geometry: Theory and Applications, 42(8)	(PR)(CO)
J16	2010	P. Indyk and A. Gilbert	Sparse Recovery Using Sparse Matrices	Proceedings of the IEEE June 2010	(PR)(CO)
J17	2010	E.D. Demaine, S.Langerman and E. Price	Confluently Persistent Tries for Efficient Version Control	Algorithmica 57(3)	(PR)(CO)
J18	2010	M.A. Abam, M. de Berg, P. Hachenberger and A. Zarei	Streaming Algorithms for Line Simplification	Discrete & Computational Geometry 43(3)	(PR)(CO)
J19	2010	M.A. Abam, M. de Berg and J. Gudmundsson	A Simple and Efficient Kinetic Spanner	Computational Geometry: Theory and Applications 43(3)	(PR)(CO)
J20	2010	D. Ajwani and T. Friedrich	Average-case Analysis of Incremental Topological Ordering	Discrete Applied Mathematics 158	(PR)(CO)

J21	2010	H. Blunck and J. Vahrenhold	In-Place Algorithms for Computing (Layers of) Maxima	Algorithmica 57(1)	(PR)(CO)
J22	2010	P. Indyk, Z. Syed, C. Stultz, M. Kellis and J. Guttag	Motif discovery in physiological datasets: A methodology for inferring predictive elements	ACM Transactions on Knowledge Discovery in Data 4(1)	(PR)(CO)
J23	2010	E. Hawkes, B. An, N. M. Benbernou, H. Tanaka, S. Kim, E.D. Demaine, D. Rus and R.J. Wood	Programmable matter by folding	Proceedings of the National Academy of Sciences of the United States of America 107(28)	(PR)(CO)
J24	2010	J.L. Bredin, E.D. Demaine, M. Hajiaghayi and D. Rus	Deploying Sensor Networks with Guaranteed Fault Tolerance	IEEE/ACM Transactions on Networking 18(1)	(PR)(CO)
J25	2010	E.D. Demaine, J. Iacono and S. Langerman	Grid Vertex-Unfolding Orthostacks	International Journal of Computational Geometry and Applications 20(3)	(PR)(CO)
J26	2010	E.D. Demaine, S.P. Fekete, G. Rote, N. Schweer, D. Scymura and M. Zelke	Integer Point Sets Minimizing Average Pairwise L_1 Distance: What is the Optimal Shape of a Town?	Computational Geometry: Theory and Applications 44(2)	(PR)(CO)
J27	2010	R. Connelly, E.D. Demaine, M.L. Demaine, S. Fekete, S. Langerman, J. S. B. Mitchell, A. Ribó and G. Rote	Locked and Unlocked Chains of Planar Shapes	Discrete & Computational Geometry 44(2)	(PR)(CO)
J28	2010	P.K. Agarwal, L. Arge and K. Yi	I/O-Efficient Batched Union-Find and Its Applications to Terrain Analysis	ACM Transactions on Algorithms 7(1)	(PR)(CO)
J29	2010	P. Afshani, C. Hamilton and N. Zeh	A General Approach for Cache-Oblivious Range Reporting and Approximate Range Counting	Computational geometry: Theory and applications 43(8)	(PR)(CO)
J30	2010	J. Katajainen and S. S. Rao	A compact data structure for representing a dynamic multiset	Information Processing Letters 110(23)	(PR)(CO)
J31	2010	M.A. Bender, G.S. Brodal, R. Fagerberg, R. Jacob and E. Vicari	Optimal Sparse Matrix Dense Vector Multiplication in the I/O-Model	Theory of Computing Systems 47(4)	(PR)(CO)
J32	2010	C. Demetrescu, B. Escoffier, G. Moruz and A. Ribichini	Adapting Parallel Algorithms to the W-Stream Model, with Applications to Graph Problems	Theoretical Computer Science 411(44-46)	(PR)(CO)
J33	2011	J. E. Moeslund, L. Arge, P. K. Bøcher, B. Nygaard and J.-C. Svenning	Geographically Comprehensive Assessment of Salt-Meadow Vegetation-Elevation Relations Using LiDAR	Wetlands 31(3)	(PR)(CO)
J34	2011	B. Sandel, L. Arge, B. Dalsgaard, R. Davies, K. Gaston, W. Sutherland and J.-C. Svenning	The influence of Late Quaternary climate-change velocity on species endemism	Science 334	(PR)(CO)

J35	2011	B. Dalsgaard, E. Magård, J. Fjeldså, A.M. Martín González, C. Rahbek, J. Olesen, J. Ollerton, R. Alarcón, A.C. Araujo, P.A. Cotton, C. Lara, C.G. Machado, I. Sazima, M. Sazima, A. Timmermann, S. Watts, B. Sandel, W. Sutherland and J.-C. Svenning	Specialization in Plant-Hummingbird Networks Is Associated with Species Richness, Contemporary Precipitation and Quaternary Climate-Change Velocity	PLoS ONE 6	(PR)(CO)
J36	2011	B. Sandel, M. Krupa and J. Corbin	Using plant functional traits to guide restoration: A case study in California coastal grassland	Ecosphere 2	(PR)(CO)
J37	2011	P. Afshani, C. Hamilton and N. Zeh	Cache-Oblivious Range Reporting With Optimal Queries Requires Superlinear Space	Discrete & Computational Geometry 45(4)	(PR)(CO)
J38	2011	G.S. Brodal, B. Gfeller, A.G. Jørgensen and P. Sanders	Towards Optimal Range Medians	Theoretical Computer Science 412(24)	(PR)(CO)
J39	2011	M. Kutz, G.S: Brodal, K. Kaligosi and I. Katriel	Faster Algorithms for Computing Longest Common Increasing Subsequences	Journal of Discrete Algorithms 9(4)	(PR)(CO)
J40	2011	M.A. Bender, G.S. Brodal, R. Fagerberg, D. Ge, S. He, H. Hu, J. Iacono and A. López-Ortiz	The Cost of Cache-Oblivious Searching	Algorithmica 61(2)	
J41	2011	H.L. Chan, T.W. Lam, L.K. Lee and H.F. Ting	Approximating frequent items in asynchronous data stream over a sliding window	Algorithmica 4(3)	(PR) (CO)
J42	2011	C. Daskalakis, R. M. Karp, E. Mossel, S. Riesenfeld and E. Verbin	Sorting and Selection in Posets	SIAM Journal of Computing	(PR)(CO)
J43	2011	M. A. Abam and M. de Berg	Kinetic Spanners in R^d	Discrete & Computational Geometry 45(4)	(PR)(CO)
J44	2011	M. A. Abam, M. de Berg, M. Farshi, J. Gudmundsson and M. H. M. Smid	Geometric Spanners for Weighted Point Sets	Algorithmica 61(1)	(PR)(CO)
J45	2011	M. A. Abam, P. K. Agarwal, M. de Berg and H. Yu	Out-of-Order Event Processing in Kinetic Data Structures	Algorithmica 60(2)	(PR)(CO)
J46	2011	J. Freixas, X. Molinero, M. Olsen and M. J. Serna	On the Complexity of Problems on Simple Games	RAIRO - Operations Research 45(4)	(PR)(CO)
J47	2011	A. Beckman, U. Meyer, P. Sanders and J. Singler	Energy-Efficient Sorting using Solid State Disks	Sustainable Computing: Informatics and Systems 1(2)	(PR)(CO)
J48	2011	E. D. Demaine, S. P. Fekete, G. Rote, N. Schweer, D. Schymura and M. Zelke	Integer Point Sets Minimizing Average Pairwise L1 Distance: What is the Optimal Shape of a Town?	Computational Geometry: Theory and Applications 44(2)	(PR)(CO)
J49	2011	B. An, N. Benbernou, E. D. Demaine and D. Rus	Planning to Fold Multiple Objects from a Single Self-Folding Sheet	Robotica 29(1)	(PR)(CO)

J50	2011	G. Aloupis, S. Collette, M. Damian, E. D. Demaine, R. Flatland, S. Langerman, J. O'Rourke, V. Pinciu, S. Ramaswami, V. Sacristan and S. Wuhrer	Efficient constant-velocity reconfiguration of crystalline robots	Robotica 29(1)	(PR)(CO)
J51	2011	E. D. Demaine, M. L. Demaine, V. Hart, G. N. Price and T. Tachi	(Non)existence of Pleated Folds: How Paper Folds Between Creases	Graphs and Combinatorics 27(3)	(PR)(CO)
J52	2011	E. D. Demaine, M. L. Demaine, V. Hart, J. Iacono, S. Langerman and J. O'Rourke	Continuous Blooming of Convex Polyhedra	Graphs and Combinatorics 27(3)	(PR)(CO)
J53	2011	J. Cardinal, E. D. Demaine, M. L. Demaine, S. Imahori, T. Ito, M. Kiyomi, S. Langerman, R. Uehara and T. Uno	Algorithmic Folding Complexity	Graphs and Combinatorics 27(3)	(PR)(CO)
J54	2011	K. C. Cheung, E. D. Demaine, J. Bachrach and S. Griffith	Programmable Assembly With Universally Foldable Strings (Moteins)	IEEE Transactions on Robotics 27(4)	(PR)(CO)
J55	2011	G. Aloupis, P. Bose, E. D. Demaine, S. Langerman, H. Meijer, M. Overmars and G. T. Toussaint	Computing Signed Permutations of Polygons	International Journal of Computational Geometry and Applications 21(1)	(PR)(CO)
J56	2011	T. Ito, E. D. Demaine, N. J. A. Harvey, C. H. Papadimitriou, M. Sideri, R. Uehara and Y. Uno	On the Complexity of Reconfiguration Problems	Theoretical Computer Science 412(12-14)	(PR)(CO)
J57	2011	H. Ahn, S. Bae, E. D. Demaine, M. L. Demaine, S. Kim, M. Korman, I. Reinbacher and W. Son	Covering points by disjoint boxes with outliers	Computational Geometry: Theory and Applications 44(3)	(PR)(CO)
J58	2011	J. Cardinal, E. D. Demaine, S. Fiorini, G. Joret, S. Langerman, I. Newman and O. Weimann	The Stackelberg Minimum Spanning Tree Game	Algorithmica 59(2)	(PR)(CO)
J59	2011	H. Haverkort and F. van Walderveen	Four-Dimensional Hilbert Curves for R-Trees	Journal of Experimental Algorithmics 16	(PR)(CO)
J60	2012	B. Sandel and J. Corbin	Scale and diversity following manipulation of productivity and disturbance in Californian coastal grasslands.	Journal of Vegetation Science 23	(PR)(CO)
J61	2012	M. Schleuning, J. Fründ, A-M. Klein, S. Abrahamczyk, R. Alarcón, M. Albrecht, G.K.S. Andersson, S. Bazarian, K. Böhning-Gaese, R. Bommarco, B. Dalsgaard, D.M. Dehling, A. Gotlieb, M. Hagen, T. Hickler, A. Holzschuh, C.N. Kaiser-Bunbury, H. Kreft, R.J. Morris, B. Sandel, W.J. Sutherland, J-C. Svenning, T. Tscharntke, S. Watts, C.N. Weiner, M. Werner, N.M. Williams, C. Winqvist, C.F. Dormann and N. Blüthgen	Specialization of Mutualistic Interaction Networks Decreases toward Tropical Latitudes	Current Biology 22	(PR)(CO)

J62	2012	B. Sandel and E. Dangremond	Climate change and the invasion of California by grasses	Global Change Biology 18	(PR)(CO)
J63	2012	P. Afshani, P. K. Agarwal, L. Arge, K. G. Larsen and J. M. Phillips	(Approximate) Uncertain Skylines	Theory of Computing Systems	(PR)(CO)
J64	2012	P. K. Agarwal, L. Arge, H. Kaplan, E. Molad, R. E. Tarjan and K Yi	An Optimal Dynamic Data Structure for Stabbing-Semigroup Queries	SIAM Journal on Computing 41(1)	(PR)(CO)
J65	2012	L. Arge, G.S. Brodal and S. S. Rao	External memory planar point location with logarithmic updates	Algorithmica 63(1-2)	(PR)(CO)
J66	2012	G. S. Brodal, P. Davoodi and S. S. Rao	On Space Efficient Two Dimensional Range Minimum Data Structures	Algorithmica 63(4)	(PR)(CO)
J67	2012	G.S. Brodal, G. Moruz and A. Negoescu	OnlineMin: A Fast Strongly Competitive Randomized Paging Algorithm	Theory of Computing Systems	(PR)
J68	2012	H.L. Chan, T.W. Lam, L.K. Lee and H.F. Ting	Continuous monitoring of distributed data streams over a time-based sliding window	Algorithmica 62(3-4)	(PR)(CO)
J69	2012	G. Cormode, S. Muthukrishnan, K. Yi and Q. Zhang	Continuos sampling from distributed streams	Journal of the ACM 59(2)	(PR)(CO)
J70	2012	U. Meyer and N. Zeh	I/O-efficient shortest path algorithms for undirected graphs with random and bounded edge lengths	ACM Transactions on algorithms 8(3)	(PR)(CO)
J71	2012	F. Gieseke, G. Moruz and J. Vahrenhold	Resilient K-d Trees: K-Means in Space Revisited.	Frontiers of Computer Science 6(2)	(PR)(CO)
J72	2012	E.D. Demaine, M. Hajiaghayi, H. Mahini and M. Zadimoghaddam	The Price of Anarchy in Network Creation Games	ACM Transactions on Algorithms 8(2)	(PR)(CO)
J73	2012	O. Aichholzer, F. Aurenhammer, E.D. Demaine, F. Hurtado, P. Ramos and J. Urrutia	On k-convex polygons	Computational Geometry: Theory and Applications 45(3)	(PR)(CO)
J74	2012	T.G. Abbott, Z. Abel, D. Charlton, E.D. Demaine, M.L. Demaine and S.D. Kominers	Hinged Dissections Exist	Discrete & Computational Geometry 47(1)	(PR)(CO)
J75	2012	M. Greve, A.M. Lykke, C.W. Fagg, J. Bogaert, I. Friis, R. Marchant, A.R. Marshall, J. Ndayishimiye, B. Sandel, C. Sandom, M. Schmidt, J.R. Timberlake, J.J. Wieringa, G. Zizka and J.-C. Svenning	Continental-scale variability in browser diversity is a major driver of diversity patterns in acacias across Africa	Journal of Ecology 100	(PR)(CO)
J76	2012	R. Gupta, P. Indyk, E. Price and Y. Rachlin	Compressive Sensing with Local Geometric Features	International Journal of Computational Geometry and Applications 22(4)	(PR)(CO)
J77	2012	D. Charlton, E.D. Demaine, M.L. Demaine, V. Dujmovic, P. Morin and R. Uehara	Ghost Chimneys	International Journal of Computational Geometry and Applications 47(1)	(PR)(CO)
J78	2012	E.D. Demaine, M.L. Demaine and R. Uehara	Any Monotone Boolean Function Can Be Realized by Interlocked Polygons	Algorithms 5(1)	(PR)(CO)

J79	2012	E.D. Demaine and M. Zadimoghaddam	Constant Price of Anarchy in Network-Creation Games via Public-Service Advertising	Internet Mathematics 8(1-2)	(PR)
J80	2012	L. Moll, S. Tazari and M. Thurley	Computing hypergraph width measures exactly	Information Processing Letters 112(6)	(PR)(CO)
J81	2012	S. Tazari	Faster approximation schemes and parameterized algorithms on (odd-) H-minor-free graphs	Theoretical Computer Science 417	(PR)
J82	2012	D. Wu, G. Cong and C. S. Jensen	A Framework for Efficient Spatial Web Object Retrieval	VLDB Journal 21(6)	(PR)(CO)
J83	2012	D. Wu, M. L. Yiu, G. Cong and C. S. Jensen	Joint Top-K Spatial Keyword Query Processing	IEEE Transaction on Knowledge and Data Engineering 24(10)	(PR)(CO)
J84	2012	X. Cao, G. Cong, B. Cui, C. S. Jensen and Q. Yuan	Approaches to Exploring Category Information for Question Retrieval in Community Question Answer Archives	ACM Transactions on Information Systems 30(2)	(PR)(CO)
J85	2012	M. Yiu, L., I. Assent, C. S. Jensen and P. Kalnis	Outsourced Similarity Search on Metric Data Assets	IEEE Transactions on Knowledge and Data Engineering 24(2)	(PR)(CO)
J86	2012	X. Cao, G. Cong, C. S. Jensen, J. J. Ng, B. C. Ooi, N.-T. Phan and and D. Wu	SWORS: A System for the Efficient Retrieval of Relevant Spatial Web Objects	Proceedings of the VLDB Endowment 5(12)	(PR)(CO)

Thesis

T1	2007	I. Brudaru	Heuristics for Average Diameter Approximation with External Memory Algorithms	MPI	MS Thesis
T2	2007	G. Moruz	Hardware-Aware Algorithms and Data Structures	AU	PhD Thesis
T3	2008	M. Patrascu	Lower Bound Techniques for Data Structures	MIT	PhD Thesis
T4	2008	A. Sidiropoulos	Computational metric embeddings	MIT	PhD Thesis
T5	2008	D. Ajwani	Traversing large graphs in realistic settings	MPI	PhD Thesis
T6	2008	K. Do Ba	Testing closeness of distributions under the EMD metric	MIT	MS Thesis
T7	2008	K. Lai	Complexity of Union-Split-Find Problems	MIT	MS Thesis
T8	2008	J. M. Larsen og M. Nielsen	En undersøgelse af algoritmer til løsning af generalized movers problem i 3D	AU	MS Thesis
T9	2008	C. Andersen	An optimal minimum spanning tree algorithm	AU	MS Thesis
T10	2008	M. Revsbæk	I/O-efficient Algorithms for Batched Union-Find with Dynamic Set Properties and its Applications to Hydrological Conditioning	AU	MS Thesis

T11	2008	A. H. Jensen	I/O-efficient Processing of LIDAR Data	AU	MS Thesis
T12	2009	M. Olsen	Link Building	AU	PhD Thesis
T13	2009	T. Mølhave	Handling Massive Terrains and Unreliable Memory, AU	AU	PhD Thesis
T14	2009	H. B. Kirk	Searching with Dynamic Optimality: In Theory and Practice	AU	MS Thesis
T15	2009	K. Piatkowski	Implementering og udvikling af maksimum delsum algoritmer	AU	MS Thesis
T16	2009	O. Weimann	Accelerating Dynamic Programming	MIT	PhD Thesis
T17	2009	V. Weichert	Radiation parameterization of the climate model COSMO/CLM in CUDA	FRA	MS Thesis
T18	2009	R. Berinde	Advances in Sparse Signal Recovery Methods	MIT	MS Thesis
T19	2009	P. Davoodi	Two Dimensional Range Minimum Queries	AU	MS Thesis
T20	2009	K. Tsakalidis	External Memory 3-sided Planar Range Reporting and Persistent B-Trees	AU	MS Thesis
T21	2009	L. Deleuran	Polygonal Line Simplification	AU	MS Thesis
T22	2010	A. G. Jørgensen	Data Structures: Sequence Problems, Range Queries, and Fault Tolerance	AU	PhD Thesis
T23	2010	J. Moeslund	Fine-resolution geospatial modelling of contemporary and potential future plant diversity in Denmark	AU	MS Thesis
T24	2010	J. Truelsen	Working Set Implicit Dictionaries and Range Mode Lower Bounds and Approximations	AU	MS Thesis
T25	2010	M. Greve	Online Sorted Range Reporting and Approximating the Mode	AU	MS Thesis
T26	2010	D. Kjær	Range Media Algorithms	AU	MS Thesis
T27	2010	J. Suhr Christensen	Experimental Study of Kinetic Geometric t-Spanner Algorithms	AU	MS Thesis
T28	2011	K. G. Larsen	Optimal Orthogonal Range Reporting in 3-d	AU	MS Thesis
T29	2011	C. Kejlberg-Rasmussen	On Implicit Dictionaries with the Working-Set Property and Catenable Priority Queues with Attrition	AU	MS Thesis
T30	2011	P. Davoodi	Data Structures: Range Queries and Space Efficiency	AU	PhD Thesis
T31	2011	K. Tsakalidis	Dynamic Data Structures: Orthogonal Range Queries and Update Efficiency	AU	PhD Thesis
T32	2011	J. Nelson	Sketching and Streaming High-Dimensional Vectors	MIT	PhD Thesis

T33	2012	J. E. Moeslund	The role of topography in determining local plant diversity patterns across Denmark	AU	PhD Thesis
T34	2012	F. van Walderveen	External Memory Graph Algorithms and Range Searching Data Structures	AU	PhD Thesis
T35	2012	L. Deleuran	Homotopic Polygonal Line Simplification	AU	PhD Thesis
T36	2012	C. Neumann	Practical Paging Algorithms	FRA	MS Thesis
T37	2012	D. Veith	Implementation of an External-Memory Diameter Approximation	FRA	MS Thesis
T38	2012	M. Sturmann	k-Dimensionale Orthogonale Bereichsanfragen für GPUs auf großen Instanzen	FRA	MS Thesis
T39	2012	P. Wollstadt	A Graph Algorithmic Approach to Separate Direct from Indirect Neural Interactions by Identifying Alternative Paths with Similar Weights	FRA	BS Thesis
T40	2012	E. Deza	An efficient implementation of the optimal paging algorithm	FRA	BS Thesis
T41	2012	T. Morgan	Map Folding	MIT	MS Thesis
T42	2012	R. Gupta	A Compressive Sensing Algorithm for Attitude Determination	MIT	MS Thesis
T43	2012	A. Koefoed-Hansen	Representations for Path Finding in Planar Environments	AU	MS Thesis

Other

O1	2008	E. Demaine, B. Gassend, J. O'Rourke, and G. T. Toussaint	All Polygons Flip Finitely ... Right?	In "Surveys on Discrete and Computational Geometry: Twenty Years Later", Contemporary Mathematics 453	(CO)
O2	2008	A. Andoni and P. Indyk	Near-Optimal Hashing Algorithms for Approximate Nearest Neighbor in High Dimensions	Communications of the ACM, 51(1)	(CO)
O3	2008	K. Mehlhorn and P. Sanders	Algorithms and Data Structures: The Basic Toolbox	Springer Verlag	(CO)
O4	2009	D. Ajwani and U. Meyer	Design and Engineering of External Memory Traversal Algorithms for general graphs	In Algorithmic of Large and Complex Networks, Springer Verlag	(PR)
O5	2009	L. Arge and N. Zeh	External-memory Algorithms and Data Structures	In Algorithms and Theory of Computation Handbook, CRC Press	(PR)(CO)
O6	2009	R. Hearn and E. Demaine	Games, Puzzles, and Computation	A.K. Peters	(CO)

O7	2010	D. Ajwani and H. Meyerhenke	Realistic Computer Models	In Algorithm Engineering. Bridging the Gap Between Algorithm Theory and Practice, Springer Verlag	(CO)
O8	2011	H. Balslev, L. Arge, J.-C. Svenning, M. H. Schierup and C. S. Jensen	Abstracts of Royal Danish Academy of Sciences Symposium on Biodiversity in the Silicon Age		(CO)
O9	2012	L. Arge and K. G. Larsen	I/O-Efficient Spatial Data Structures for Range Queries	Invited abstract in SIGSPATIAL Special, July, 2012.	
O10	2012	B. Sandel, L. Arge, B. Dalsgaard, R.G. Davies, K.J. Gaston, W.J. Sutherland and J.-C. Svenning	Response - Global endemism needs spatial integration	Science 335	(CO)

MADALGO List of Personel 2012 *01.01.-31.12.2012*

Personel		Hiring	Finansing (fraction of year) *)			Forign	For PhD and	For PhD:
Name	**Position**	**period in 2012 **)**	**Foundation**	**AU**	**Other finan-sing ***)**	**employee**	**Post Doc: Previous education**	**Finished degree**
Centerleder								
Lars Arge (AU)	Professor	all period	0,1	0,9				
Faculty								
Gerth S. Brodal (AU)	Associate Professor	all period		1				
Christian S. Jensen (AU)	Professor	01.03-		0,8				
Peyman Afshani (AU)	Assistant Professor	15.03-		0,8				
Piotr Indyk (MIT)	Professor	all period	0,1		0,1	x		
Erik Demaine (MIT)	Professor	all period	0,1		0,1	x		
Kurt Mehlhorn (MPI)	Professor	all period			0,1	x		
Ulrich Meyer (FRA)	Professor	all period			0,2	x		
Brody Sandel (AU)	Assistant Professor	all period	0,2		0,8	x	PhD	
Qin Zhang (AU)	Post Doc	-31.07	0,6			x	PhD	
Elad Verbin (AU)	Post Doc	-31.07	0,2		0,4	x	PhD	
Lap-Kei Lee (AU)	Post Doc	-31.03	0,3			x	PhD	
Cicimol Alexander (AU)	Post Doc	all period			1	x	PhD	
Wei Yu (AU)	Post Doc	all period			1	x	PhD	
Constantinos Tsirogiannis (AU)	Post Doc	all period	0,2		0,8	x	PhD	
Hossein Jowhari (AU)	Post Doc	01.04-	0,8			x	PhD	
Zhewei Wei (AU)	Post Doc	01.09-	0,3			x	PhD	
Darius Sidlauskas (AU)	Post Doc	20.08-	0,3			x	PhD	
Gabriel Moruz (FRA)	Post Doc	all period			1	x	PhD	
Christian Sommer (MIT)	Post Doc	-31.12			1	x	PhD	
Guests								
Djamal Belazzougui	Post Doc	01.02-01.07	0,1		0,3	x	PhD	
Stijn Koopal	MS student	27.08-			0,3	x		
Libor Sarga	MS student	01.09-			0,3	x		
Tehnical staff								
Mathias Rav	Programmer	all period	1					
Administrative staff								
Else Magård	Center manager	all period	0,5	0,5				
Ellen Lindstrøm	Accountant	all period		0,5				
Matie Bach Søgaard	Student assistant	all period		1				
Ph.d.-studerende								
Lasse Deleuran (AU)	PhD student	-17.09			0,8		BS + 1 year	x
Jesper Erenskjold Moeslund (AU)	PhD student	-17.12			1		BS + 1 year	x
Freek van Walderveen (AU)	PhD student	-31.07	0,2	0,4		x	MS	x
Morten Revsbæk (AU)	PhD student	all period		1			MS	
Jacob Truelsen (AU)	PhD student	01.08-		0,4			BS + 1 year	On leave in 2011
Kasper G. Larsen (AU)	PhD student	all period	0,2	0,8			BS	
Casper Kejlberg-Rasmussen (AU)	PhD student	all period	0,2	0,8			BS	
Vaida Ceikute (AU)	PhD student	all period		1		x	MS	
Jesper Asbjørn Sindahl Nielsen (AU)	PhD student	all period			1		BS + 1/2 year	
Anders Skovsgaard (AU)	PhD student	all period		1			MS	
Jungwoo Yang (AU)	PhD student	01.03-	0,8			x	MS	
Bryan Wilkinson (AU)	PhD student	01.08-		0,4		x	MS	
Andreas Beckmann (MPI/FRA)	PhD student	all period	0,2		0,8	x	MS	
Andrei Negoescu (MPI/FRA)	PhD student	all period			1	x	MS	
Volker Weichert (MPI/FRA)	PhD student	all period			1	x	MS	
David Veith (MPI/FRA)	PhD student	01.03-	0,8			x	MS	
Khan Do Ba (MIT)	PhD student	-30.06			0,5	x	BS	x
Eric Price (MIT)	PhD student	all period			1	x	BS	
Morteza Zadimoghaddam (MIT)	PhD student	all period	0,3		0,7	x	BS	
Ludwig Schmidt (MIT)	PhD student	01.01-	0,1		0,9	x	BS	
Haitham Hassanieh (MIT)	PhD student	01.10-	0,3		0,7	x	BS	

*) Approximation. Max one decimal.

**) More then three weeks.

***) Including no financing.