

Curriculum Vitæ

Erik Saule

(last update on July 6, 2018)

Personal Information

Last, First, and Middle Names: Saule, Erik, Jonathan.

Date of Birth: 09-14-1984

Place of Birth: Suresnes (Hauts de Seine 92), France

Nationality: French

Marital Status: Single

Business Address: University of North Carolina at Charlotte.
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Education and Professional Experience

Aug 2013-: Assistant Professor, University of North Carolina at Charlotte (Dept. Computer Science), USA.

Jan 2009-Aug 2013: Post-Doctoral researcher, The Ohio-State University (Dept. Biomedical Informatics). Columbus, Ohio, USA.

Oct 2005-Sep 2008: Teaching Assistant at ENSIMAG, Grenoble, France

Oct 2005-Dec 2008: Ph.D. Computer Science, Grenoble INP. Laboratoire d'Informatique de Grenoble, France.
Thesis: *Approximation Algorithms for Multi-Objective Scheduling. Application to Parallel and Embedded Systems*
Advisor: Prof. Denis TRYSTRAM

2004-2005: Master 2 Research in Computer Science ("Operation Research and Combinatorial Optimization" section), Grenoble INPG, France.
Thesis: *Reliable Schedules for Real-Time Embedded Systems*.
Advisors: Dr. Alain GIRAULT and Prof. Denis TRYSTRAM.

June-September 2004: Four month internship at University of Versailles, France.

Thesis: *Scheduling Arithmetic Instructions On Finite Registers*.

Advisors: Dr. Edith NAUDIN and Prof. William JALBY.

2000-2004: License and Master 1 in Computer Science ; University of Versailles, France

May-September-2002: Technical support level 2 for ISP's customer; Club-Internet (T-Online) ; Paris ; France

Research Interest

The research I conduct are centered on solving combinatorial optimization problem to efficiently use High Performance Computing systems. My interest includes the following topics : Multi-objective optimization, Models for High Performance Computing, Approximation Algorithm, Scheduling, Load Balancing, Graph Mining, Parallel Graph Algorithm, Distributed Computing and Runtime Systems.

Publications

Journals

- [J1] Ahmet Erdem Sariyüce, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek. Graph manipulations for fast centrality computation. *ACM Transactions on Knowledge Discovery from Data (TKDD)*, 11, 2017.
- [J2] T. Dytrych, P. Maris, K. D. Launey, J. P. Draayer, J. P. Vary, D. Langr, E. Saule, M. A. Caprio, Ü. Çatalyürek, and M. Sosonkina. Efficacy of the su(3) scheme for ab initio large-scale calculations beyond the lightest nuclei. *Computer Physics Communications*, 207:202–210, October 2016.
- [J3] Ahmet Erdem Sariyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Regularizing graph centrality computations. *Journal of Parallel and Distributed Computing*, 76:106–119, February 2015.
- [J4] Ahmet Erdem Sariyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Incremental closeness centrality in distributed memory. *Parallel Computing*, 47:3–18, August 2015.
- [J5] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Diversifying citation recommendations. *ACM Transactions on Intelligent Systems and Technology*, 5(4), 2014.
- [J6] Myoungsoo Jung, Ellis H. Wilson III, Wonil Choi, John Shalf, Hasan Metin Aktulga, Chao Yang, Erik Saule, Ümit V. Çatalyürek, and Mahmut Kandemir. Exploring the future of out-of-core computing with compute-local non-volatile memory. *Scientific Programming*, 22(2):125–139, 2014.
- [J7] Pieter Maris, H Metin Aktulga, Sven Binder, Angelo Calci, Ümit V Çatalyürek, Joachim Langhammer, Esmond Ng, Erik Saule, Robert Roth, James P Vary, and Chao Yang. No core ci calculations for light nuclei with chiral 2- and 3-body forces. *Journal of Physics: Conference Series*, 454(1):012063, 2013.
- [J8] Onur Küçüktunç, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek. Fast recommendation on bibliographic networks with sparse-matrix ordering and partitioning. *Social Network Analysis and Mining*, 3(4):1097–1111, December 2013.
- [J9] T. Dytrych, K. D. Launey, J. P. Draayer, P. Maris, J. P. Vary, E. Saule, Ü. Çatalyürek, M. Sosonkina, D. Langr, and M. A. Caprio. Collective modes in light nuclei from first principles. *Physical Review Letters*, 111(25), December 2013.

- [J10] Anne Benoit, Ümit Çatalyürek, Yves Robert, and Erik Saule. A Survey of Pipelined Workflow Scheduling: Models and Algorithms. *ACM Computing Surveys*, 45(4), August 2013.
- [J11] Erik Saule, Doruk Bozdog, and Ümit V. Çatalyürek. Optimizing the maximum stretch of independent tasks on a cluster : From sequential tasks to moldable tasks. *Journal of Parallel and Distributed Computing*, 72(4):489–503, April 2012.
- [J12] Erik Saule, Erdeniz O. Bas, and Umit V. Catalyurek. Load-balancing spatially located computations using rectangular partitions. *Journal of Parallel and Distributed Computing*, 2012.
- [J13] Emmanuel Jeannot, Erik Saule, and Denis Trystram. Optimizing performance and reliability on heterogeneous parallel systems: Approximation algorithms and heuristics. *Journal of Parallel and Distributed Computing*, 72(2):268 – 280, February 2012.
- [J14] Timothy D. R. Hartley, Erik Saule, and Umit V. Catalyurek. Improving performance of adaptive component-based dataflow middleware. *Parallel Computing*, 38(6-7):289–309, 2012.
- [J15] Erik Saule and Denis Trystram. Analyzing scheduling with transient failures. *Information Processing Letters*, 109(11):539–542, May 2009.
- [J16] Alain Girault, Erik Saule, and Denis Trystram. Reliability versus performance for critical applications. *Journal of Parallel and Distributed Computing*, 69(3):326–336, March 2009.

Book Chapters

- [B1] Erik Saule, Hasan Metin Aktulga, Chao Yang, Esmond G. Ng, and Ümit V. Çatalyürek. *An Out-of-Core Task-based Middleware for Data-Intensive Scientific Computing*. Handbook on Data Centers. Springer, 2015. ISBN 978-1-4939-2091-4.
- [B2] Pierre-Francois Dutot, Krzysztof Rzadca, Erik Saule, and Denis Trystram. *Multi-objective scheduling*, chapter 9. Introduction to scheduling. Chapman and Hall/CRC Press, November 2009. ISBN: 978-1420072730.
- [B3] Xavier Besseron, Slim Bouguerra, Thierry Gautier, Erik Saule, and Denis Trystram. *Fault tolerance and availability awareness in computational grids*, chapter 5. Fundamentals of Grid Computing. Chapman and Hall/CRC Press, December 2009. ISBN: 978-1439803677.

Conference Proceedings

- [C1] Erik Saule. Experiences on teaching parallel and distributed computing for undergraduates. In *Proc of IPDPSW 2018*, May 2018. EduPar best paper.
- [C2] Matthew McQuaigue, David Burlinson, Kalpathi Subramanian, Erik Saule, and Jamie Payton. Integrating visualization, assessment and analytics in data structures learning modules. In *Proc of SIGCSE*, 2018.
- [C3] Haofeng Jia and Erik Saule. Local is good: A fast citation recommendation approach. In *Proc of ECIR*, 2018. acceptance rate: 35%.
- [C4] Haofeng Jia and Erik Saule. Addressing overgeneration error: An effective and efficient approach to keyphrase extraction from scientific papers. In *Proc. of BIRNDL 2018*, July 2018.
- [C5] Mustafa Kemal Taş, Kamer Kaya, and Erik Saule. Greed is good: Optimistic algorithms for bipartite-graph partial coloring on multicore architectures. In *Proc of ICPP 2017*, 2017. acceptance rate: 28.4%.

- [C6] Erik Saule, Dinesh Panchananam, Alexander Hohl, Wenwu Tang, and Eric Delmelle. Parallel space-time kernel density estimation. In *Proc of ICPP 2017*, 2017. acceptance rate: 28.4%.
- [C7] Haofeng Jia and Erik Saule. An analysis of citation recommender systems: Beyond the obvious. In *Proc of ASONAM*, 2017. acceptance rate: 17.2%.
- [C8] Pierre-Francois Dutot, Erik Saule, Abhinav Srivastav, and Denis Trystram. Online non-preemptive scheduling to optimize max stretch on a single machine. In *proc of COCOON 2016*, August 2016.
- [C9] Pierre-Francois Dutot, Erik Saule, Abhinav Srivastav, and Denis Trystram. Online non-preemptive scheduling to optimize stretch. In *12th Workshop on Models and Algorithms for Planning and Scheduling Problems*, June 2015.
- [C10] Nathanaël Cherièr and Erik Saule. Distributed load balancing for fully heterogeneous machines. In *29th International Symposium on Parallel and Distributed Processing, Workshops and PhD Forum (IPDPSW), Workshop on Heterogeneity in Computing Workshop (HCW)*, May 2015.
- [C11] Manmohan Chaubey and Erik Saule. Replicated data placement for uncertain scheduling. In *29th International Symposium on Parallel and Distributed Processing, Workshops and PhD Forum (IPDPSW), Workshop on Advances in Parallel and Distributed Computational Models (APDCM)*, May 2015.
- [C12] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Hardware/software vectorization for closeness centrality on multi-/many-core architectures. In *28th International Symposium on Parallel and Distributed Processing, Workshops and PhD Forum (IPDPSW), Workshop on Multithreaded Architectures and Applications (MTAAP)*, 2014.
- [C13] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Computing the closeness centrality of evolving networks on clusters. In *SIAM Workshop on Network Science (NS14)*, July 2014.
- [C14] Gordon Erlebacher, Erik Saule, Natasha Flyer, and Evan Bollig. Acceleration of derivative calculations with application to radial basis function - finite-differences on the Intel MIC architecture. In *Proc. of International Conference on Supercomputing (ICS)*, 2014. acceptance rate: 20%.
- [C15] P. Calyam, A. Berryman, Erik Saule, H. Subramoni, P. Schopis, G. Springer, Ümit V. Çatalyürek, and D.K. Panda. Wide-area overlay networking to manage science DMZ accelerated flows. In *Computing, Networking and Communications (ICNC), 2014 International Conference on*, pages 269–275, February 2014.
- [C16] Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Performance evaluation of sparse matrix multiplication kernels on Intel Xeon Phi. In *Proc of the 10th Int'l Conf. on Parallel Processing and Applied Mathematics (PPAM)*, page 10, September 2013.
- [C17] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Shattering and compressing networks for betweenness centrality. In *SIAM International Conference on Data Mining, SDM*, May 2013. acceptance rate: 25.5%.
- [C18] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Streamer: a distributed framework for incremental closeness centrality computation. In *Proc of IEEE Cluster 2013*, September 2013. acceptance rate: 31%.
- [C19] Ahmet Erdem Sarıyüce, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek. Incremental algorithms for closeness centrality. In *Proc. of IEEE BigData 2013*, October 2013. acceptance rate: 37%.

- [C20] Ahmet Erdem Sarıyüce, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek. Betweenness centrality on GPUs and heterogeneous architectures. In *Workshop on General Purpose Processing Using GPUs (GPGPU), in conjunction with ASPLOS*, page 10, March 2013.
- [C21] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Towards a personalized, scalable, and exploratory academic recommendation service. In *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, August 2013. acceptance rate: 28%.
- [C22] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. TheAdvisor: A webservice for academic recommendation. In *ACM/IEEE Joint Conference on Digital Libraries (JCDL 2013)*, page 2, July 2013. (poster).
- [C23] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Result diversification in automatic citation recommendation. In *iConference Workshop on Computational Scientometrics: Theory and Applications*, page 4, February 2013.
- [C24] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Diversified recommendation on graphs: Pitfalls, measures, and algorithms. In *22nd International World Wide Web Conference (WWW)*, May 2013. acceptance rate: 15%.
- [C25] Myoungsoo Jung, Ellis H. Wilson III, Wonil Choi, John Shalf, Hasan Metin Aktulga, Chao Yang, Erik Saule, Ümit V. Çatalyürek, and Mahmut Kandemir. Exploring the future of out-of-core computing with compute-local non-volatile memory. In *Proc. of Conference on High Performance Computing Networking, Storage and Analysis (SC '13)*, November 2013. acceptance rate: 20%.
- [C26] Anas Abu-Doleh, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Masher: Mapping long(er) reads with hash-based genome indexing on GPUs. In *Proc of ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (BCB)*, September 2013.
- [C27] Zheng Zhou, Erik Saule, Hasan Metin Aktulga, Chao Yang, Esmond G. Ng, Pieter Maris, James P. Vary, and Ümit V. Çatalyürek. An out-of-core eigensolver on SSD-equipped clusters. In *Proc. of IEEE Cluster*, September 2012.
- [C28] Zheng Zhou, Erik Saule, Hasan Metin Aktulga, Chao Yang, Esmond G. Ng, Pieter Maris, James P. Vary, and Ümit V. Çatalyürek. An out-of-core dataflow middleware to reduce the cost of large scale iterative solvers. In *2012 International Conference on Parallel Processing (ICPP) Workshops, Fifth International Workshop on Parallel Programming Models and Systems Software for High-End Computing (P2S2)*, September 2012.
- [C29] Erik Saule and Ümit V. Çatalyürek. An early evaluation of the scalability of graph algorithms on the Intel MIC architecture. In *26th International Symposium on Parallel and Distributed Processing, Workshops and PhD Forum (IPDPSW), Workshop on Multithreaded Architectures and Applications (MTAAP)*, 2012.
- [C30] Ahmet Erdem Sarıyüce, Erik Saule, and Umit V. Catalyurek. Scalable hybrid implementation of graph coloring using MPI and OpenMP. In *26th International Symposium on Parallel and Distributed Processing, Workshops and PhD Forum (IPDPSW), Workshop on Parallel Computing and Optimization (PCO)*, May 2012.
- [C31] Y.A. Omelchenko, H. Karimabadi, M. Brown, U. V. Catalyurek, and E. Saule. Adaptive multi-scale electromagnetic particle simulations. In *Bulletin of the American Physical Society, 52nd Annual Meeting of the APS Division of Plasma Physics, Volume 55, Number 15*, November 2012. (poster).

- [C32] Pieter Maris, H Metin Aktulga, Mark A Caprio, Ümit V. Çatalyürek, Edmong Ng, Dossay Oryspayev, Hugh Potter, Erik Saule, Masha Sosonkina, James P Vary, Chao Yang, and Zheng Zhou. Large-scale ab initio configuration interaction calculations for light nuclei. In *Journal of Physics: Conference Series. HITES 2012: 'Horizons of Innovative Theories, Experiments, and Supercomputing in Nuclear Physics'*, volume 403, 2012.
- [C33] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Direction awareness in citation recommendation. In *Proceedings of the 6th International Workshop on Ranking in Databases (DBRank)*, page 6, 2012.
- [C34] Onur Küçüktunç, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek. Fast recommendation on bibliographic networks. In *IEEE/ACM International Conference on Social Networks Analysis and Mining (ASONAM)*, August 2012. acceptance rate: 16%.
- [C35] Kamer Kaya, Erik Saule, Onur Küçüktunç, and Umit Catalyurek. Algorithms for offline tracking of connected components in large evolving networks. In *Proceeding of the first SDM Workshop on Dynamic Network Analysis (DNA-SDM)*, April 2012.
- [C36] Erik Saule, Erdeniz O. Bas, and Umit V. Catalyurek. Partitioning spatially located computations using rectangles. In *the 25th IEEE International Parallel and Distributed Processing Symposium*, 2011. acceptance rate: 19.6%.
- [C37] Ahmet Erdem Sarıyüce, Erik Saule, and Umit V. Catalyurek. Improving graph coloring on distributed memory parallel computers. In *18th Annual International Conference on High Performance Computing*, 2011. acceptance rate: 19.4%.
- [C38] Y.A. Omelchenko, H. Karimabadi, M. Brown, U. V. Catalyurek, and E. Saule. Asynchronous multi-dimensional hybrid simulations of magnetized plasmas. In *Bulletin of the American Physical Society, 53rd Annual Meeting of the APS Division of Plasma Physics, Volume 56, Number 16*, November 2011. (poster).
- [C39] Erik Saule, Doruk Bozdog, and Ümit V. Çatalyürek. A moldable online scheduling algorithm and its application to parallel short sequence mapping. In Springer, editor, *15th Workshop on Job Scheduling Strategies for Parallel Processing*, volume 6253 of LNCS, 2010.
- [C40] Y. A. Omelchenko, H. Karimabadi, E. Saule, and U. V. Catalyurek. Parallel Event-Driven Global Magnetospheric Hybrid Simulations. In *AGU Fall Meeting Abstracts*, page A1756, December 2010. (abstract).
- [C41] Timothy D. R. Hartley, Erik Saule, and Umit V. Catalyurek. Automatic dataflow application tuning for heterogeneous systems. In *Proceedings of The 17th International Conference on High Performance Computing (HiPC 2010)*, 2010. acceptance rate: 19.2%.
- [C42] Florent Blachot, Guillaume Huard, Jonathan Pecero, Erik Saule, and Denis Trystram. Scheduling instructions on hierarchical machines. In *The 11th IEEE International Workshop on Parallel and Distributed Scientific and Engineering Computing (PDSEC 2010)*, April 2010.
- [C43] Brice Videau, Erik Saule, and Jean-François Méhaut. Pastel : Parallel runtime and algorithms for small datasets. In *proc of MuCoCos*, March 2009.
- [C44] Erik Saule and Denis Trystram. Multi-users scheduling in parallel systems. In *Proc. of IEEE International Parallel and Distributed Processing Symposium 2009*, May 2009. acceptance rate : 22.7%.
- [C45] Y. Omelchenko, H. Karimabadi, U. Catalyurek, E. Saule, and M. R. Brown. HYPERS: First Ever Multi-Dimensional Asynchronous Hybrid Simulations. page A1316, December 2009. (abstract).

- [C46] Y.A. Omelchenko, H. Karimabadi, M. Brown, U. V. Catalyurek, and E. Saule. Enabling global kinetic simulations of the magnetosphere via petascale computing. In *Bulletin of the American Physical Society, 51st Annual Meeting of the APS Division of Plasma Physics, Volume 54, Number 15*, November 2009. (poster).
- [C47] Erik Saule and Brice Videau. PaSTeL. Une implantation parallèle de la STL pour les architectures multi-coeurs : une analyse des performances. In *Proceedings électronique de RenPar 18*, February 2008.
- [C48] Erik Saule, Pierre-François Dutot, and Gregory Mounié. Scheduling With Storage Constraints. In *Proc of IPDPS'08*, April 2008. acceptance rate: 25.6%.
- [C49] Emmanuel Jeannot, Erik Saule, and Denis Trystram. Bi-objective approximation scheme for makespan and reliability optimization on uniform parallel machines. In *Euro-Par 2008*, volume 5168 of *LNCS*, pages 877–886. Springer, August 2008. acceptance rate: 33.7%.
- [C50] Jack J. Dongarra, Emmanuel Jeannot, Erik Saule, and Zhiao Shi. Bi-objective scheduling algorithms for optimizing makespan and reliability on heterogeneous systems. In *SPAA '07: Proceedings of the nineteenth annual ACM symposium on Parallelism in algorithms and architectures*, pages 280–288. ACM press, June 2007. acceptance rate: 28%.
- [C51] Florent Blachot, Guillaume Huard, Jonathan Pecero, Erik Saule, and Denis Trystram. Scheduling instructions on processors with incomplete bypass. In *Proceedings of 8th Workshop on Models and Algorithms for Planning and Scheduling Problems*. Koç University, July 2007.

Invited Talks

- [T1] Erik Saule. Parallel space-time kernel density estimation. LIG Seminar, April 2018.
- [T2] Erik Saule. Parallel space-time kernel density estimation. The 12th Scheduling for Large Scale Systems Workshop, May 2017.
- [T3] Erik Saule. Computing graph centrality. SIAM CSE 2017, March 2017.
- [T4] Erik Saule. Time-cost trade-offs of pipelined dataflow applications. New Challenges in Scheduling Theory, April 2016.
- [T5] Erik Saule. GPU-accelerated network centrality. GPU Technology Conference, March 2015.
- [T6] Erik Saule. Centrality of evolving networks. IEEE seminar at North Carolina A&T State University, November 2015.
- [T7] Erik Saule. Parallel dataflow graph coloring. Dagstuhl seminar on Algorithms and Scheduling Techniques for Exascale Systems, September 2013.
- [T8] Erik Saule. Large scale graph analysis. UMass Boston seminar, March 2013.
- [T9] Erik Saule. Large scale graph analysis. UNCC seminar, February 2013.
- [T10] Erik Saule. Academic recommendation using citation analysis with theAdvisor. Keynote talk at "Computational Scientometrics: Theory and Applications", February 2013.
- [T11] Erik Saule. Partitioning spatially located load with rectangles: Algorithms and simulations. New Challenges on Scheduling Theory, September 2010.

- [T12] Erik Saule. Optimizing the maximum stretch of online tasks on a parallel system without preemption. 3rd "Scheduling in Aussois" Workshop, June 2010.
- [T13] Erik Saule. Load balancing of spatially located computation - the one dimensional case. GRAAL group meeting, March 2010.
- [T14] Erik Saule. Multi-objective optimization/approximation in scheduling. Workshop/Summer school on Algorithms and Techniques for Scheduling on Clusters and Grids (ASTECC), June 2009.
- [T15] Erik Saule. The multi user scheduling problem. Journée GOTHa, January 2009.
- [T16] Erik Saule. A moldable online scheduling algorithm and its application to parallel short sequence mapping. Scheduling for large-scale systems, May 2009.
- [T17] Erik Saule. User centered scheduling for multi-users parallel systems. New Challenges on Scheduling Theory, May 2008.
- [T18] Erik Saule. Scheduling instructions on processors with incomplete bypass. Journée GOTHa, April 2008.
- [T19] Erik Saule. Scheduling instructions on processors with incomplete bypass. IPIPAN hpc group meeting, December 2007.
- [T20] Emmanuel Jeannot and Erik Saule. Ordonnancement sur machine heterogene a but de makespan et de fiabilite. Journée Mao, January 2007.
- [T21] Erik Saule. Une approche d'équilibrage de charge par théorie des jeux. Journées Théorie des jeux AlGorithmique et Applications Dans les réseAux (TAGADA), February 2006.
- [T22] Erik Saule. Reliability versus performance for embedded real-time applications. Scheduling Algorithms for new Emerging Applications, June 2006.

Research Reports

- [R1] Erik Saule, Dinesh Panchananam, Alexander Hohl, Wenwu Tang, and Eric Delmelle. Parallel space-time kernel density estimation. Technical Report arXiv:1705.09366, ArXiv, May 2017.
- [R2] Ahmet Erdem Sarıyüce, Erik Saule, and Ümit V. Çatalyürek. On distributed graph coloring with iterative recoloring. Technical Report arXiv:1407.6745, ArXiv, July 2014.
- [R3] Hugh Potter, Dossay Oryspayev, Pieter Maris, Masha Sosonkina, James Vary, Sven Binder, Angelo Calci, Joachim Langhammer, Robert Roth, Ümit Çatalyürek, and Erik Saule. Accelerating ab initio nuclear physics calculations with gpus. Technical Report arXiv:1412.5989, ArXiv, December 2014.
- [R4] Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Performance evaluation of sparse matrix multiplication kernels on intel xeon phi. Technical Report arXiv:1302.1078, ArXiv, February 2013.
- [R5] Ahmet Erdem Sarıyüce, Kamer Kaya, Erik Saule, and Ümit V. Çatalyürek. Incremental algorithms for network management and analysis based on closeness centrality. Technical Report arXiv:1303.0422, ArXiv, February 2013.
- [R6] Ahmet Erdem Sarıyüce, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Shattering and compressing networks for centrality analysis. Technical Report arXiv:1209.6007, ArXiv, September 2012.

- [R7] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Recommendation on academic networks using direction aware citation analysis. Technical Report arXiv:1205.1143, ArXiv, April 2012.
- [R8] Onur Küçüktunç, Erik Saule, Kamer Kaya, and Ümit V. Çatalyürek. Diversifying citation recommendations. Technical Report arXiv:1209.5809, ArXiv, September 2012.
- [R9] Erik Saule, Erdeniz O. Bas, and Ümit V. Çatalyürek. Load-balancing spatially located computations using rectangular partitions. Technical Report arXiv:1104.2566v1, ArXiv, April 2011.
- [R10] Anne Benoit, Umit Catalyurek, Yves Robert, and Erik Saule. A Survey of Pipelined Workflow Scheduling: Models and Algorithms. Technical Report RR-LIP-2010-28, LIP, ENS Lyon, France, September 2010.
- [R11] Brice Videau, Erik Saule, and Jean-François Méhaut. PaSTeL : Parallel Runtime and Algorithms for Small Datasets. Technical Report 6650, INRIA, 2008.

Under Review

- [U1] Ahmet Erdem Sarıyüce, Erik Saule, and Ümit V. Çatalyürek. Coloring distributed graphs using greedy and iterative algorithms. 20 pages.

Funding

Active

- National Science Foundation (NSF); [CNS-1740398](#); NSF/CISE Computer Systems Research 2017 PI Meeting ; 04/15/2017-03/31/2018; \$212,946
- National Science Foundation (NSF); [CCF-1652442](#); CAREER: Machine and Structure Oblivious Graph Analytics ; 04/15/2017-04/14/2022 ; \$281,305
- National Science Foundation (NSF); [DUE-1726809](#); Collaborative Research: Retaining and Engaging Computer Science majors By Solving and Visualizing Algorithmic Problems on Real-world Data Sets; 08/15/2017-07/31/2020 ; \$541,616 (with Kalpathi Subramanian, PI)

Inactive

- National Consortium for Data Science (NCDS); Toward Machine and Problem Oblivious Graph Analysis ; 01/01/2015-12/31/2016 ; \$50,000
- NVIDIA; Densifying Sparse Computation for Efficient GPU Execution ; 05/01/2014-04/30/2015; \$1,489

Scientific Community Service

2019

- Workshops chair for IPDPS 2019
- Graduate Poster committee member for SC19

2018

- Program Chair for EduHPC 2018
- Workshops chair for IPDPS 2018
- PC member for International Conference on Contemporary Computing ([IC3 2018](#))
- PC member for the 16th International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms ([HeteroPar 2018](#))

2017

- General Chair for Heterogeneity in Computing Workshop ([HCW 2017](#))
- Chair of the HPC 4 Undergraduate program of SC17 ([HPC4UG17](#))
- Vice-chair of workshop for IPDPS 2017
- Organizer of the NSF/CISE Computer Systems Research 2017 PI Meeting
- PC member for the International Symposium on Computer Architecture and High Performance Computing [SBAC-PAD 2017](#)
- PC member for [Cluster 17](#)
- PC member for High Performance Graph Data Mining and Machine Learning Workshop [HPGDML17](#)
- PC member for IEEE International Conference on High Performance Computing [HiPC17](#)
- PC member for IEEE International Conference on High Performance Computing and Communications [HPCC17](#)
- PC member for International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms [Heteropar 2017](#)
- PC member for International Conference on Parallel Processing ([ICPP 2017](#))
- PC member for IEEE International Parallel & Distributed Processing Symposium ([IPDPS 2017](#))
- PC member for International Workshop on High Performance Computing for Big Data ([HPC4BD 2017](#))
- PC member for The International Conference on High Performance Computing, Network, Storage and Analysis ([SC 2017](#))
- PC member for First Workshop on the Intersection of Graph Algorithms and Machine Learning ([GRAML'17](#))
- PC member for Workshop on Irregular Applications: Architectures and Algorithms ([IA³ 2017](#))
- PC member for International Conference on Contemporary Computing ([IC3 2017](#))
- PC member for [Edu-HPC 2017](#)
- Panelist for an NSF CISE program
- Panelist for an NSF CISE program

2016

- Program Chair for Heterogeneity in Computing Workshop ([HCW 2016](#))
- Vice-chair of the HPC 4 Undergraduate program of SC16 ([HPC4UG16](#))
- Co vice chair of the algorithm track of [HiPC 2016](#)
- PC member for International ACM Conference on Management of Digital EcoSystems ([MEDES 2016](#))
- PC member for IEEE International Parallel & Distributed Processing Symposium ([IPDPS 2016](#))
- PC member for International Workshop on High Performance Computing for Big Data ([HPC4BD 2016](#))
- PC member for International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms ([HeteroPar'2016](#))
- PC member for [Euro-Par 2016](#)
- PC member for The International Conference on High Performance Computing, Network, Storage and Analysis ([SC 2016](#))
- PC member for [Edu-HPC 2016](#)
- PC member for Workshop on Irregular Applications: Architectures and Algorithms ([IA³ 2016](#))
- Panelist for an NSF CISE program

2015

- PC member for IEEE International Parallel & Distributed Processing Symposium ([IPDPS 2015](#))
- PC member for International Workshop on High Performance Computing for Big Data ([HPC4BD 2015](#))
- PC member for IEEE International Conference on High Performance Computing ([HiPC 2015](#))
- PC member for International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms ([HeteroPar'2015](#))
- PC member for Workshop on Irregular Applications: Architectures and Algorithms ([IA³ 2015](#))
- PC member for [Euro-Par 2015](#)
- PC member for The International Conference on High Performance Computing, Network, Storage and Analysis ([SC 2015](#))
- PC member for [Edu-HPC 2015](#)
- PC member for [BigGraphs 2015](#)

2014

- PC member for IEEE International Parallel & Distributed Processing Symposium ([IPDPS 2014](#))
- PC member for International Workshop on High Performance Computing for Big Data ([HPC4BD 2014](#))
- PC member for IEEE International Conference on High Performance Computing ([HiPC 2014](#))
- PC member for International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms ([HeteroPar'2014](#))
- PC member for Workshop on Irregular Applications: Architectures and Algorithms ([IA³ 2014](#))

2013

- PC member for IEEE International Conference on High Performance Computing and Communications ([HPCC 2013](#))
- PC member for International Conference on Parallel Processing ([ICPP 2013](#))
- PC member for IEEE International Parallel & Distributed Processing Symposium ([IPDPS 2013](#))
- PC member for IEEE International Conference on High Performance Computing ([HiPC 2013](#))

2012

- PC member for IEEE International Conference on Advanced Information Networking and Applications ([AINA 2012](#))
- PC member for International Conference on Parallel Processing ([ICPP 2012](#))

2011

- PC member for International Conference on Contemporary Computing ([IC3 2011](#))
- PC member for International Conference on Parallel Processing ([ICPP 2011](#))

2008

- Local organization of the NCST workshop (International workshop on New Challenges in Scheduling Theory) in 2008. <http://www-id.imag.fr/NCST08/index.php>

2005-2008

- Organization of MAO meeting (Model, Algorithm and Scheduling), sub-group of the french national research group ASR: twice a year 2005-2008. <http://mao.imag.fr/>

Reviews

I frequently review communications for the following journals and conference.

Journals:

- CLUSTER : Journal of Cluster Computing
- FGCS : Journal on Future Generation Computing Systems
- GRID : Journal of Grid Computing
- IPL : Information Processing Letters
- IJHPCA : International Journal of High Performance Computing Applications
- JoSh : Journal of Scheduling
- JoSC : Journal of SuperComputing
- JPDC : Journal of Parallel and Distributed Computing
- ParCo : Parallel Computing
- TPDS : IEEE Transaction on Parallel and Distributed Systems

Co-guest editor of a ParCo Special issue on Heterogeneous Computing (to appear in 2018).

Teaching

I taught for 3 years at ENSIMAG from October 2005 to September 2008 while I was holding a Teaching Assistant position. I was mainly giving lecture, recitations and projects in database and recitations and projects in Operating Systems. Since August 2013, I am teaching at UNC Charlotte. The following table summarizes my teaching.

Year	Title	Audience	Location	Duration (hours)
Spring 2018	ITCS 3145: Parallel and Distributed Programming	UG	UNCC	38 hours
Fall 2017	ITCS 3145: Parallel and Distributed Programming	UG	UNCC	38 hours
Fall 2017	ITCS 5145: Parallel Computing	UG	UNCC	38 hours
Spring 2017	ITCS 4182: Introduction to HPC	UG	UNCC	38 hours
Fall 2016	ITCS 5145: Parallel Computing	G	UNCC	38 hours
Fall 2016	ITCS 3145: Intro to Parallel Programming	UG	UNCC	38 hours
Spring 2016	ITCS 4010/5010: Special Topics: Performance Optimization	UG/G	UNCC	38 hours
Fall 2015	ITCS 6614/8114: Algorithms and Data Structures	G	UNCC	38 hours
Fall 2015	ITCS 2214: Data Structures	UG	UNCC	38 hours
Spring 2015	ITCS 2215: Design and Analysis of Algorithms	UG	UNCC	38 hours
Fall 2014	ITCS 6114/8114: Algorithms and Data Structures	G	UNCC	38 hours
Spring 2014	ITCS 6010/8010: Special Topics: High Performance Computing	G	UNCC	38 hours
Fall 2013	ITCS 6114/8114: Algorithms and Data Structures	G	UNCC	38 hours
2006-2008	Principles of DataBase Management Systems (Lectures)	4 th Y	ENSIMAG	40 hours per year
2006-2007	Introduction to UNIX (Applications)	3 rd Y	ENSIMAG	9 hours
2006-2007	Introduction to Networking (Applications)	3 rd Y	ENSIMAG	18 hours
2006-2007	Operating Systems and Concurrent Programming (Lesson)	4 th Y	ENSIMAG	26 hours
2005-2006	Principles of DataBase Management Systems (Applications)	4 th Y	ENSIMAG	64 hours
2003-2004	Tutorials on Computers	1 st Y	UVSQ	8 hours

Academic Service at UNC Charlotte

2017-2018

- Member of the (CS) faculty search committee
- Member of the (CS) Graduate Education Committee
- Member of the CCI Technology and Infrastructure Committee
- Member of the CCI ad hoc committee on security for all
- CCI representative on the University College Faculty Council
- CS representative on the faculty council
- CCI representative on the Faculty Information and Technology Services Advisory Committee
- Member of the (CS) committee for concentration Software, Systems, and Network
- Member of the (CS) Computing Facilities Committee
- Member of Saman Mostafavi (ECE) PhD Dissertation Proposal committee
- Member of Arnab Ardhendu Purkayastha (ECE) PhD Qualifier committee
- Member of Abhinav Mohanty (SIS) PhD Qualifier committee
- Member of Pourya Naderi Yeganeh (CS) PhD Dissertation Proposal committee
- Member of Abhishek Nikam (ECE) MS Thesis committee
- Member of Shalaka Thombare (CS) MS Thesis committee
- Member of Suhas Ashok Shiddibhavi (ECE) MS Thesis committee
- Chair of the MS thesis committee of Abhishek Chandrate (CS)

2016-2017

- Member of the (CS) faculty search committee
- Member of the (CS) Graduate Education Committee
- Member of the (CS) committee for concentration Software, Systems, and Network
- Member of the (CCI) Faculty Executive Committee
- Chair of the CCI Technology and Infrastructure Committee
- CCI representative on the University College Faculty Council

2015-2016

- Member of the (CS) Graduate Education Committee
- Member of the (CS) PhD Admission and Review Committee
- Member of the (CS) faculty search committee
- Member of the (CS) committee for concentration Software, Systems, and Network
- Member of the CCI Technology and Infrastructure Committee

2014-2015

- Member of the (CS) PhD Admission and Review Committee
- Member of the CCI Technology and Infrastructure Committee
- Member of the (CCI) ad hoc UG subcommittee on 3181, 3155, 3146

2013-2014

- Member of the (CS) PhD Admission and Review Committee

Misc.

Hobbies Dancing, Cooking, Science Fiction

Languages French (native), English (fluent), Korean(beginner)