

Jeff Kinne

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Current Position

Indiana State University

- Associate Professor of Computer Science 2016–
- Faculty Fellow, College of Graduate and Professional Studies 2016
- Program Director for Computer Science 2015–
- Assistant Professor of Computer Science 2010–2016

Education

Ph.D in Computer Sciences, University of Wisconsin-Madison 2010
M.S. in Computer Sciences, University of Wisconsin-Madison 2005
B.S. in Computer Science, Mathematics, and Spanish, Xavier University 2002

Teaching

Indiana State University, Computer Science 2010–

- CS 151 Introduction to Programming
- CS 201 Computer Science I
- CS 202 Computer Science II
- CS 220 Java Programming
- CS 420 Theory of Computation
- CS 440 Graphics Programming
- CS 458 Algorithms
- CS 457 Database Processing
- CS 459 Independent Study
- CS 459 Computational Software Packages and Tools
- CS 473 Computer Networks
- CS 475 Artificial Intelligence
- CS 559 Advanced Topics in CS (graduate course)
- CS 620 Advanced Theory of Computation (graduate course)
- CS 650 Web Programming and Applications (graduate course)
- CS 658 Advanced Algorithms (graduate course)
- CS 670 Concurrent Programming (graduate course)
- CS 695 Computer Science Research (graduate course)

University of Wisconsin-Madison, Computer Science 2003–2007

- CS 240 Intro. to Discrete Mathematics, Instructor
- CS 310 Problem Solving using Computers, Teaching Assistant
- CS 799 Complexity Theory, Co-Instructor (graduate course)

- CS 810 Complexity Theory, Teaching Assistant (graduate course)

Research Interests

Computational complexity and algorithms

- Proving lower bounds on the resources – time, space, randomness, etc. – needed to solve computational problems
- Randomized algorithms, converting randomized algorithms into deterministic algorithms
- Algorithms and lower bounds for optimization problems

Interdisciplinary projects such as

- Distributed searches for large primes
- Bioinformatics – analysis of NGS gene sequences

Publications

Notes: All papers published after 2010 were authored while at Indiana State University. In Computer Science, conference publications are peer-reviewed and competitive. Author listing is alphabetical for all papers except (Bai et al. 2015).

Journal Articles

- Ruiwen Chen, Valentine Kabanets, and Jeff Kinne. Lower Bounds against Weakly-Uniform Threshold Circuits. In the special issue of *Algorithmica* for invited papers from the 18th International Computing and Combinatorics Conference, volume 70, issue 1, pages 47–75, 2014.
- George Karakostas, Jeff Kinne, and Dieter van Melkebeek. On Derandomization and Average-Case Complexity of Monotone Functions. *Theoretical Computer Science*, volume 434, pages 35–44, 2012.
- Jeff Kinne, Dieter van Melkebeek, and Ronen Shaltiel. Pseudorandom Generators, Typically-Correct Derandomization, and Circuit Lower Bounds. *Computational Complexity*, special issue for selected papers from the *13th International Workshop on Randomization and Computation* (RANDOM), volume 21(1), pages 3–61, 2012.
- Jeff Kinne and Dieter van Melkebeek. Space Hierarchy Results for Randomized and Other Semantic Models. *Computational Complexity*, volume 19(3), pages 423–475, 2010.

Conference Papers

- Jeff Kinne. On TC^0 Lower Bounds for the Permanent. In *Proceedings of the 18th International Computing and Combinatorics Conference (COCOON)*, LNCS 7434, pages 420–432, 2012.
- Jeff Kinne, Dieter van Melkebeek, and Ronen Shaltiel. Pseudorandom Generators and Typically-Correct Derandomization. In *Proceedings of the 13th International Workshop on Randomization and Computation (RANDOM)*, LNCS 5687, pages 574–587, 2009.
- Jeff Kinne and Dieter van Melkebeek. Space Hierarchy Results For Randomized Models. In *Proceedings of the 25th Annual Symposium on Theoretical Aspects of Computer Science (STACS)*, pages 433–444, 2008.

In Submission

- Yongsheng Bai, Jeff Kinne, Brandon Donham, Justin R. Hassler , Randal J. Kaufman. Read-Split-Run: An improved bioinformatics pipeline for identification of genome-wide non-canonical spliced regions using RNA-Seq data. In submission, 17 pages, 2015.
- Jeff Kinne, Ján Maňuch, Akbar Rafiey, and Arash Rafiey. Ordering with precedence constraints and budget minimization. In submission, 20 pages, 19 pages, 2015.

Research Presentations

On Beating Large Prime Records

- Indiana Academy of Sciences, Annual Meetings Mar. 2014
- Midwest Theory Day, Indiana University, Bloomington Nov. 2013

Factoring Sieves

- Indiana State University, Math & CS Dept. Seminar Mar. 2013

Randomized and De-randomized Algorithms

- Dept. seminars – Capital University, Ohio Northern University Feb. 2013

On TC^0 Lower Bounds for the Permanent

- 18th Intl. Computing and Combinatorics Conference, Sydney AU Aug. 2012

Lower Bounds against Weakly Uniform Circuits

- 18th Intl. Computing and Combinatorics Conference, Sydney AU Aug. 2012

Lower Bounds in Theory of Computing

- Indiana State University, Math & CS Dept. Seminar Mar. 2012

The Joy of Computational Complexity

- Rose-Hulman Institute of Technology, Mathematics Dept. Seminar Apr. 2011

Algebraic P versus NP

- Indiana State University, Math & CS Dept. Seminar Feb. 2011

P versus NP and Cryptography

- Wabash College, Invited Lecture Nov. 2010

Pseudorandom Generators, Typically-Correct Derandomization, and Circuit Lower Bounds

- The 13th International Workshop on Randomization and Computation (RANDOM) Aug. 2009
Berkeley, California
- Midwest Theory Day, DePaul University Dec. 2009

Space Hierarchy Results for Randomized Models

- The 25th Symposium on Theoretical Aspects of Computer Science (STACS) Apr. 2007
Bordeaux, France
- Midwest Theory Day, University of Notre Dame Feb. 2008

Theory Reading Group

- Multiple presentations per year, UW-Madison Theory of Computing group 2004–2009

Exact and Approximation Algorithms for the 3-Dimensional Matching Problem

- National Conferences on Undergraduate Research, UW-Whitewater Apr. 2002

Research with Students

Research Presentations

- Brandon Donham – Improvements to Read-Split-Walk Pipeline
 - Bai Lab research group Spring 2015
- Lizhi Xiang – Extremely Large Prime Numbers with Repeated Digits
 - Indiana State University Exposium Oct. 2014
 - SURE Symposium, ISU Jul. 2014
- Ali Salman, Soutcho Toure – Computational Search for Very Large Prime Numbers
 - CSUI Research Conference and Argonne Symposium for Undergraduates in Science, Engineering, and Mathematics Nov. 2013
 - SURE Symposium, ISU Jul. 2013
- Po-Ching Liu, Ali Salman, Troy Schotter, Karthik Tottempudi, Soutcho Toure – Computational Search for Very Large Prime Numbers
 - Math and CS Dept. Seminar, ISU Sep. 2013
- Ian Burry, Nancy DeGot, Michael Rose – Pseudorandom Number Generators
 - Indiana State University Exposium Apr. 2013
 - SURE Symposium, ISU Jul. 2012

Research/Independent Projects

- Brandon Donham – Bioinformatics 2014–2015
 - Analysis of Novel Splice Junctions in NGS Gene Sequences
 - Project website: <http://bioinfl.indstate.edu/RSR>
- Troy Schotter – Computational Linguistics 2014
 - Analysis of Distance Distributions Between Words
- Lizhi Xiang – Extremely Large Prime Numbers with Repeated Digits 2014
- Po-Ching Liu, Ali Salman, Troy Schotter, Karthik Tottempudi, Soutcho Toure – Computational Search for Very Large Prime Numbers 2013
- Dillon Bender – Brain and Spine Oxygen Research Group 2012
- Ian Burry, Nancy DeGot, Po-Ching Liu, Michael Rose – Pseudorandom Generators and Derandomization 2012
- Dillon Bender – Artificial Neural Networks 2011
- Veera Venkata Surya Subrahmanyam Pendyala – Attacks on Keylog's 2011
- Ananda Basavanakote Revanasiddappa – Attacks on RSA 2011
- Steve Baker – Bin Packing Approximation Algorithms 2010

Grants and Funding

Awarded

- Indiana State University, COMPETE grant 2015
“Operations Research in Computer Science”
- National Science Foundation, “Student Travel Support for the IEEE Conference on Computational Complexity 2014” 2013
- Indiana State University, Center for Community Engagement, Course-related travel 2013–
“ACM Inter-Collegiate Programming Contest”
- Indiana State University, RESUBMIT travel award 2013
- National Science Foundation, “Student Travel Support for the IEEE Conference on Computational Complexity 2013” 2012
- Indiana Academy of Sciences, Senior Research Grant, “Computational Complexity Meets the Real World” 2012
- Indiana State University, CSRC support for undergraduate research 2012
- Indiana State University, University Research Committee grant 2012
“Computational Complexity Theory Meets the Real World” (URC # 12-18)
- Indiana State University, Presidential Student Employment funding 2011–2014
- Indiana State University, University Research Committee grant 2010
“Is NP Hard-on-Average, and is Cryptography Possible?” (URC # 11-07)

Service to the field of Computer Science

Computational Complexity Foundation, Inc. and Computational Complexity Conference

- Secretary 2014–
- Founding Board Member 2014

ACM Inter-Collegiate Programming Contest

- Problem contributor, ICPC North America Qualifier 2015–
- Problem reviewer, ICPC North America Qualifier 2013–

National Science Foundation

- Grant selection panel

Indiana Celebration of Women in Computing (InWIC)

- ISU School Coordinator 2012–

IEEE Conference on Computational Complexity

- Publicity Chairperson 2012–2014
- Student Travel Grant Awards 2012–2014

Midwest Graph Theory Conference (MIGHTY)

- Organizing Committee 2012

Session Chairperson

- 30th Computational Complexity Conference (CCC) 2015
- 18th International Computing and Combinatorics Conference (COCOON) 2012
- 52nd Midwest Graph Theory Conference (MIGHTY) 2012

Referee

- ACM Technical Conference on Computer Science Education (SIGCSE), ACM Transactions on Computation Theory, Annals of Pure and Applied Logic, Computational Complexity, Descriptive Complexity of Formal Systems, IEEE Conference on Computational Complexity, International Workshop on Randomization and Computation, Rose-Hulman Undergraduate Mathematics Journal, SIAM Journal on Computing

Faculty Advisor

Indiana State University

- Transfer New Student Advising 2014–
- ACM ICPC Programming contest 2012–
- Summer Undergraduate Research Experience (SURE) 2012–2014
- Computer Science Graduate Assistants 2011–
- ACM, Indiana State University student chapter 2011–
- Computer Science graduate students 2010–

Other Service

Indiana State University, Committees

- University Faculty Senate 2015–2017
- Ad-Hoc University Committee to Develop Course-Evaluation Questions 2014
- Administrative and Faculty Affairs Committee, College of Arts and Sciences Chairperson 2014–2015, Vice chairperson 2013–2014
- Instructional Tools Support Advisory Committee (ITSAC) Focus Group 2013–
- Alternate, Faculty Economic Benefits Committee (FEBC) 2013–2014
- Strategic Plan Task Force, College of Arts and Sciences 2012–2013
- Assistantships and Fellowships Committee, Graduate Council Chairperson 2012–2013, Member 2011–2012

Indiana State University, Math & CS Department

- Master's Thesis Defense Committees – Jason Huffman, Eric Graves 2014
- Chairperson, CS Search Committee, Math and CS dept. 2013–2014
- Department seminar organizer 2011–2014
- Undergraduate admissions liaison, Computer Science 2011–
- Search Committee, Math and CS Dept. chairperson 2010–2011
- Admissions Committee, CS Master's program 2010–
- Curriculum Committee, Computer Science Chairperson 2015–, Member 2010–
- Assessment planning/coordination, Computer Science 2010–
- Department website administrator 2010–

Indiana State University

- LEAP, presentation to prospective CS majors 2015
- Ph.D. preliminary defense committee for Yanhua Xie in EES Dept. 2015

- Ph.D. thesis committee for Yitong Jiang in EES Dept. 2014–2015
 - Presidential Scholarship, Interviewer for Interview Day 2014–
 - “Undergraduate Research in Mathematics and Computer Science”, presentation and panel discussions for faculty interested in undergraduate research 2012
 - Working group exploring a Media Computation/Multimedia program 2011
 - Computer Science faculty liaison to Career Center 2010–
- State of Indiana
- ISU Day at the Statehouse, faculty advisor for student poster 2015
 - Indiana Commission for Higher Education, ISU CS liaison 2014–
- Community
- Technology Interviewee for Local News 2014–
 - Cub Scout Leader (pack leader 2014–, den leader 2013–2014) 2013–
 - Saint Patrick School and Parish, Terre Haute, website administrator 2014–
 - Saint Patrick Parish, Terre Haute, IT Committee 2013–
 - Saint Patrick Parish, Terre Haute, Parish Pastoral Council Secretary 2014–, Member 2012– 2012–
 - Youth sports coach 2009, 2011–
 - DOE National Science Bowl, Middle School Indiana Regional Co-Coordinator 2015– 2011–
 - Coach of Saint Patrick School 2013–
 - Moderator and Scientific Judge 2011–
 - James Madison Memorial High School, Madison WI, “Computer Science: Theory and Practice”, guest lectures to Computer Science classes 2007–2009
 - Madison East High School, Madison WI, “Cryptography: Secrets Concealed”, guest lecture for Math Week 2007
- University of Wisconsin-Madison
- “Hot Topics in CS/Theory”: presentation for those on job market, CS Dept. 2009
 - Review Committee, Vilas Travel Grant 2008
 - Theory group website administrator, Dept. of Computer Sciences 2007–2009
 - Theory reading group organizer, Dept. of Computer Sciences 2005–2009

Inter-disciplinary

Projects

- Bioinformatics, Analysis of Novel Splice Junctions in NGS Gene Sequences 2014–
– With Dr. Y. Bai, Department of Biology, and student Brandon Donham
- Computational Linguistics, Analysis of Distance Distributions Between Words 2014
– With E. Anderson, Department of Psychology, and student Troy Schotter
- Brain and Spine Oxygen Research Group 2012
– With Dr. Gabi Waite, IU School of Medicine, Dr. Pradeep Narotam, M.D., Union Hospital, students Henry Owegi and Dillon Bender

Consultation

- Rural-Urban Entrepreneurship Development Institute (RUEDI) 2013
- Dr. Tom Derrick, Professor of English, ISU, programming and math aspects of his research and coursework 2010–2012

Professional Development Related to Teaching

- ACM Technical Symposium on Computer Science Education (SIGCSE) 2010–
Referee 2012–
Attendee 2010, 2011, 2014
- Indiana Great Lakes National Girls Collaborative Project conference, “Where ARE the Girls?” 2010
- New Faculty Orientation, Indiana State University 2010
- University of Wisconsin-Madison Delta Program, discussions and presentations regarding teaching practices and pedagogy 2009–2010
- University of Wisconsin-Madison Workshop on Scientific Teaching 2009
- University of Wisconsin-Madison Teaching and Learning Symposium 2008

Industry Experience

Constellation Data Systems, Inc., Cincinnati, Ohio USA

- Software engineer 1999–2005
 - Develop device drivers and applications for custom hardware
 - Worked on projects for many clients, including General Electric, Boeing, LifeSafer Interlock, and QRS Diagnostic
 - Technologies used: Microsoft Visual C++, Microsoft Macro-assembler, InstallShield, INF, ASP, Microsoft Visual Basic, logic analyzer

Personal Interests

scouts, photography, backyard astronomy, running (2009 Columbus marathon, annual Crossroads half marathon), cycling, science and other projects with my children, backyard vegetable gardening, foreign languages and culture, volleyball, science fiction

References

Available upon request