

William Jannen

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Education

Ph.D, Stony Brook University, Computer Science	2017
BA, Williams College, Computer Science and Economics	2009

Awards, Fellowships, and Grants

NSF CNS-1938709 , “ABR: CSR: Medium: Collaborative Research: FTFS: A Read/Write Optimized Fractal Tree File System”, Collaborative with Michael Bender (Stony Brook University), Martin Farach-Colton (Rutgers), Donald Porter (UNC Chapel Hill), and Jun Yuan (Pace University)	2019
Best Paper Nominee , 16th USENIX Conference on File Systems and Storage Technologies	2018
Best Paper , 14th USENIX Conference on File Systems and Storage Technologies	2016
Best Paper Nominee , 13th USENIX Conference on File Systems and Storage Technologies	2015
Six-month Studio Residency , Triangle Arts Association (as part of Talk Is Cheap: Unincorporated Language Laboratories)	2015–2016
Sigma Xi , Williams College	2010

Professional Experience

Associate Professor , Computer Science, Williams College	2023–Present
Assistant Professor , Computer Science, Williams College	2017–2023
Visiting Lecturer , Computer Science, Williams College	2016–2017
Intern , Advanced Technology Group, NetApp Inc.	Summer 2015
Research Assistant , OSCAR Lab, Stony Brook University	2010–2016
Scientific Programmer , Department of Physics, Williams College	Summer 2011
Teaching Assistant , Stony Brook University	2010–2011
Scientific Programmer , Department of Physics, Williams College	2009–2010

Professional Activities

Associate Editor, ACM Transactions on Storage	(ACM TOS)
Program Committee, 2023 SIAM Symposium on Algorithmic Principles of Computer Systems	(APOCS '23)
Program Committee, 2022 USENIX Annual Technical Conference	(ATC '22)
Program Committee, 2021 USENIX Annual Technical Conference	(ATC '21)
Program Committee, 19th USENIX Conference on File and Storage Technologies	(FAST '21)
Program Committee, 2020 USENIX Annual Technical Conference	(ATC '20)
Program Committee, 18th USENIX Conference on File and Storage Technologies	(FAST '20)
Program Committee, 2019 USENIX Annual Technical Conference	(ATC '19)
• Deduplication session chair	
Program Committee, 17th USENIX Conference on File and Storage Technologies	(FAST '19)
• Work-in-progress session co-chair	
• Poster session co-chair	

Publications

Conference, Journal, and Magazine

Alex Conway, Ainesh Bakshi, Arghya Bhattacharya, Rory Bennett, Yizheng Jiao, Eric Knorr, Yang Zhan, Michael A. Bender, William Jannen, Rob Johnson, Bradley C. Kuzmaul, Donald E. Porter, Jun Yuan, and Martin Farach-Colton. File system aging. arXiv, 2024.	2024
Julian M Hess, William K Jannen, and Daniel P Aalberts. The four mRNA bases have quite different (un)folding free energies, applications to RNA splicing and translation initiation with BindOligoNet. <i>Journal of Molecular Biology</i> , page 167578, 2022.	2022
Yizheng Jiao, Simon Bertron, Sagar Patel, Luke Zeller, Rory Bennett, Nirjhar Mukherjee, Michael A Bender, Michael Conduct, Alex Conway, Martín Farach-Colton, Xiongzi Ge, William Jannen, Rob Johnson, Donald E Porter, and Jun Yuan. BetrFS: a compleat file system for commodity SSDs. In <i>Proceedings of the ACM European Conference on Computer Systems (EuroSys)</i> , pages 610–627, 2022.	2022
Michael A Bender, Alex Conway, Martín Farach-Colton, William Jannen, Yizheng Jiao, Rob Johnson, Eric Knorr, Sara Mcallister, Nirjhar Mukherjee, Prashant Pandey, Donald E Porter, Jun Yuan, and Yang Zhan. External-memory dictionaries in the affine and PDAM models. <i>ACM Transactions on Parallel Computing (TOPC)</i> , 8(3):1–20, 2021.	2021
Yang Zhan, Alex Conway, Yizheng Jiao, Nirjhar Mukherjee, Ian Groombridge, Michael A Bender, Martin Farach-Colton, William Jannen, Rob Johnson, Donald E Porter, and Jun Yuan. Copy-on-abundant-write for nimble file system clones. <i>Transactions on Storage (TOS)</i> , 17(1):1–27, January 2021.	2021

Yang Zhan, Alex Conway, Nirjhar Mukherjee, Ian Groombridge, Martin Farach-Colton, Rob Johnson, Yizheng Jiao, Michael A Bender, William Jannen, Donald E Porter, et al. How to not copy files. <i>:login; Magazine</i> , page 12, 2020.	2020
Daniel W. Barowy and William K. Jannen. Infrastructor: Flexible, no-infrastructure tools for scaling CS. In <i>Proceedings of the ACM SIGCSE technical symposium on Computer science education (SIGCSE)</i> , pages 1005–1011, March 2020.	2020
Yang Zhan, Alexander Conway, Yizheng Jiao, Nirjhar Mukherjee, Ian Groombridge, Michael A. Bender, Martin Farach-Colton, William Jannen, Rob Johnson, Donald E. Porter, and Jun Yuan. How to copy files. In <i>18th USENIX Conference on File and Storage Technologies (FAST 20)</i> , pages 75–89, February 2020.	2020
Alex Conway, Eric Knorr, Yizheng Jiao, Michael A. Bender, William Jannen, Rob Johnson, Donald Porter, and Martin Farach-Colton. Filesystem aging: It’s more usage than fullness. In <i>Proceedings of the USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage)</i> , 2019.	2019
Michael A. Bender, Alexander Conway, Martin Farach-Colton, William Jannen, Yizheng Jiao, Rob Johnson, Eric Knorr, Sara McAllister, Nirjhar Mukherjee, Prashant Pandey, Donald E. Porter, Jun Yuan, and Yang Zhan. The dictionary problem, optimal searching, and asymptotic distortions of the DAM model. In <i>Proceedings of the ACM symposium on Parallelism in algorithms and architectures (SPAA)</i> , 2019.	2019
Yang Zhan, Yizheng Jiao, Donald E. Porter, Alex Conway, Eric Knorr, Martin Farach-Colton, Michael A. Bender, Jun Yuan, William Jannen, and Rob Johnson. Efficient directory mutations in a full-path-indexed file system. <i>Transactions on Storage (TOS)</i> , 14(3):22:1–22:27, 2018.	2018
Yang Zhan, Alexander Conway, Eric Knorr, Yizheng Jiao, Michael A. Bender, Martin Farach-Colton, William Jannen, Rob Johnson, Donald E. Porter, and Jun Yuan. The full path to full-path indexing. In <i>Proceedings of the USENIX Conference on File and Storage Technologies (FAST)</i> , 2018. Best paper nominee.	2018
Alexander Conway, Ainesh Bakshi, Yizheng Jiao, William Jannen, Yang Zhan, Jun Yuan, Michael A. Bender, Rob Johnson, Bradley C. Kuzmaul, Donald E. Porter, and Martin Farach-Colton. How to age your file system. <i>:login; Magazine</i> , 42(2):6–11, 2017.	2017
Jun Yuan, Yang Zhan, William Jannen, Prashant Pandey, Amogh Akshintala, Kanchan Chandnani, Pooja Deo, Zardosht Kasheff, Leif Walsh, Michael Bender, Martin Farach-Colton, Rob Johnson, Bradley C. Kuzmaul, and Donald E. Porter. Writes wrought right, and other adventures in file system optimization. <i>Transactions on Storage (TOS)</i> , 13(1):3:1–3:26, 2017.	2017
Alexander Conway, Ainesh Bakshi, Yizheng Jiao, Yang Zhan, Michael A. Bender, William Jannen, Rob Johnson, Bradley C. Kuzmaul, Donald E. Porter, Jun Yuan, and Martin Farach-Colton. File systems fated for senescence? nonsense, says science! In <i>Proceedings of the USENIX Conference on File and Storage Technologies (FAST)</i> , 2017.	2017
William Jannen, Michael Bender, Martin Farach-Colton, Rob Johnson, Bradley C. Kuzmaul, and Donald E. Porter. Lazy analytics: Let other queries do the work for you. In <i>Proceedings of the USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage)</i> , 2016.	2016

Jun Yuan, Yang Zhan, William Jannen, Prashant Pandey, Amogh Akshintala, Kanchan Chandnani, Pooja Deo, Zardosht Kasheff, Leif Walsh, Michael Bender, Martin Farach-Colton, Rob Johnson, Bradley C. Kuzmaul, and Donald E. Porter. Optimizing every operation in a write-optimized file system. In <i>Proceedings of the USENIX Conference on File and Storage Technologies (FAST)</i> , pages 1–14, 2016. Awarded Best Paper.	2016
Michael A. Bender, Martin Farach-Colton, William Jannen, Rob Johnson, Bradley C. Kuzmaul, Donald E. Porter, Jun Yuan, and Yang Zhan. An introduction to B ^e -trees and write-optimization. <i>.login; Magazine</i> , 40(5):22–28, 2015.	2015
William Jannen, Jun Yuan, Yang Zhan, Amogh Akshintala, John Esmet, Yizheng Jiao, Ankur Mittal, Prashant Pandey, Phaneendra Reddy, Leif Walsh, Michael Bender, Martin Farach-Colton, Rob Johnson, Bradley C. Kuzmaul, and Donald E. Porter. BetrFS: Write-optimization in a kernel file system. <i>Transactions on Storage (TOS)</i> , 11(4):18:1–18:29, 2015.	2015
Cata Mariaelena Elisabeth, Silvia Juliana Mantilla Ortiz, and Bill Jannen. Moving toward lucha and liberación. <i>Journal of Curriculum and Pedagogy</i> , 12(2):152–3, 2015.	2015
William Jannen, Jun Yuan, Yang Zhan, Amogh Akshintala, John Esmet, Yizheng Jiao, Ankur Mittal, Prashant Pandey, Phaneendra Reddy, Leif Walsh, Michael Bender, Martin Farach-Colton, Rob Johnson, Bradley C. Kuzmaul, and Donald E. Porter. BetrFS: A right-optimized write-optimized file system. In <i>Proceedings of the USENIX Conference on File and Storage Technologies (FAST)</i> , pages 301–315, 2015. Best paper nominee.	2015
Chia-Che Tsai, Kumar Saurabh Arora, Nehal Bandi, Bhushan Jain, William Jannen, Jitin John, Harry A Kalodner, Vrushali Kulkarni, Daniela Oliveira, and Donald E. Porter. Cooperation and security isolation of library OSES for multi-process applications. In <i>Proceedings of the ACM European Conference on Computer Systems (EuroSys)</i> , 2014.	2014
Julian M. Hess, William K. Jannen, and Daniel P. Aalberts. Modeling unpairing costs for fast computation of the net binding free energy of an oligo to an mRNA target. <i>Biophysical Journal</i> , 106(2):285a, 2014.	2013
William Jannen, Chia-Che Tsai, and Donald E. Porter. Virtualize storage, not disks. In <i>Proceedings of the USENIX Workshop on Hot Topics in Operating Systems (HotOS)</i> , 2013.	2013
Daniel P. Aalberts and William K. Jannen. Visualizing RNA base-pairing probabilities with RNAbow diagrams. <i>RNA</i> , 19(4):475–478, 2013.	2013

Newspaper

Bill Jannen. What is net neutrality and why is it important? <i>The Berkshire Eagle</i> , Jan 2018.	2017
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Conference Posters

Jun Yuan, Yang Zhan, William Jannen, Prashant Pandey, Amogh Akshintala, Kan- chan Chandnani, Pooja Deo, Zardosht Kasheff, Leif Walsh, Michael A. Bender, Martin Farach-Colton, Rob Johnson, Bradley C. Kuszmaul, and Donald E. Porter. Opti- mizing every write in a write-optimized file system. Poster at the ACM SIGOPS Symposium on Operating Systems Principles (SOSP), 2015.	2015
William Jannen, Jun Yuan, Yang Zhan, Amogh Akshintala, Yizheng Jiao, Ankur Mittal, Prashant Pandey, Phaneendra Reddy, Leif Walsh, Johnathan Esmet, Michael Bender, Martin Farach-Colton, Rob Johnson, Bradley C. Kuszmaul, and Donald E. Porter. BetrFS: Moving in the write direction. Poster at New England Networking Systems day (NENS), 2014.	2014
Nehal Bandi, Gurpreet Chadha, Chia che Tsai, William Jannen, and Donald Porter. Graphene: Ultra-lightweight virtualization of a library OS. Poster at CEWIT Con- ference, 2011.	2011
William K. Jannen, Rami Al-Rfou', and Nikhil Patwarhan. Trackmenot-so-good- after-all. Poster at CEWIT Conference, 2011.	2011
Julian Hess, William K. Jannen, and Daniel P. Aalberts. Computing effective free energy to bind an oligo to an mRNA: the BINDIGO-MFT algorithm. Poster at RNA Science and Its Applications: A Look Toward the Future, 2011.	2011
Daniel P. Aalberts and William K. Jannen. RNAbows: an intuitive tool for visualizing RNA secondary structures. Poster at Gordon Conference: Post-Transcriptional Gene Regulation, The Biology of, 2010.	2010

Patents

William K Jannen, Peter Macko, Stephen Michael Byan, James F Lentini, and Keith Arnold Smith. Using a tree-based data structure to map logical addresses to physical addresses on a storage device, May 2017.	2017
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Institutional Service

Athletics Committee (Chair)	2023–Present
Lecture Committee	2022–2023
Group Co-coordinator, Inclusive Williams faculty roundtable program	2020–2021
Committee on Priorities and Resources	2019–2020
Calendar and Schedule Committee	2018–2019
Science Center Executive Committee	2018–2019

Community Engagement

Willinet Community Television , Board Member	2022–Present
Faculty Affiliate , Williams College Men’s Basketball Team	2022–Present
Mobile Print Power , a multi-generational printmaking collective that uses silkscreen printmaking to engage communities and explore social and cultural situations. Mobile Print Power engages the community during its many public projects, and collaboratively develops artwork at weekly open workshops based on discussions about these community exchanges. Members range in age from middle school to adult, and we challenge ourselves to be a truly collaborative group despite differences in age, gender, race, education, and experience as we engage issues of social justice.	2013–2016
Books, Beats, and Visions , a multilingual reading group for <i>Octavia’s Brood</i> , an English-only speculative fiction anthology. Using simultaneous interpretation and translation of reading group materials, we facilitated an English/Spanish multilingual reading group in a community that includes both bilinguals and English or Spanish monolinguals.	Aug 2015–Jan 2016
La Ruedada , a weekly open workshop that taught the basics of Casino Rueda, a popular Cuban dance form. Together with youth at Immigrant Movement International, we explored immigration narratives, and we collaboratively developed new dance steps and poetry to catalog these experiences. We challenged traditional gender roles, rejecting the notion that males “lead” and females “follow,” and instead treated dance couples as a partnership. The group has performed publicly, led a workshop at the 2015 <i>Open Engagement</i> public art conference, and published an article in the <i>Journal of Curriculum and Pedagogy</i> to share our experiences.	2013–2015