Frank Austin Nothaft

fnothaft@berkeley.edu ● http://www.fnothaft.net ● 202.340.0466

Education	**University of California, Berkeley**
	Doctor of Philosophy, Computer Science. August 2013–present. GPA: 3.81.
	Advanced to candidacy, May 2016. Advisors: Dave Patterson and Anthony Joseph.
	Masters of Science, Computer Science. August 2013–May 2015. GPA: 3.79.
	Stanford University
	Bachelor of Science with Honors, Electrical Engineering. September 2007–June 2011.
	Minor in Management Science & Engineering. GPA: 3.24.
Honors	**NSF Graduate Research Fellowship**
	National Science Foundation, August 2013–May 2016
	Hugh Hildreth Skilling Award for Teaching Excellence
	Stanford University Department of Electrical Engineering, June 2011
	Departmental Honors
	Stanford University Department of Electrical Engineering, June 2011
Publications	*Peer-Reviewed Journal Articles*

1. John Vivian, Arjun Rao, **Frank Austin Nothaft**, Christopher Ketchum, Joel Armstrong, Adam Novak, Jacob Pfeil, Jake Narkizian, Alden D. Deran, Audrey Musselman-Brown, Hannes Schmidt, Peter Amstutz, Brian Craft, Mary Goldman, Kate Rosenbloom, Melissa Cline, Brian O'Connor, Megan Hanna, Chet Birger, W. James Kent, David A. Patterson, Anthony D. Joseph, Jingchun Zhu, Sasha Zaranek, Gad Getz, David Haussler, and Benedict Paten. "Rapid and efficient analysis of 20,000 RNA-seq samples with Toil." In *Nature Biotechnology*. Originally posted as *BioRχiv:062497*, July 7, 2016.

2. Zhao Zhang, Kyle Barbary, **Frank Austin Nothaft**, Evan Sparks, Oliver Zahn, Michael J. Franklin, David A. Patterson, and Saul Perlmutter. "Kira: Processing Astronomy Imagery Using Big Data Technology." To appear in *IEEE Transactions on Big Data*, (IEEE TBD), 2016. Extended version of Zhang BigData '15.

3. Benedict Paten, Mark Diekhans, Brian J. Druker, Stephen Friend, Justin Guinney, Nadine Gassner, Mitchell Guttman, W. James Kent, Patrick Mantey, Adam A. Margolin, Matt Massie, Adam M. Novak, **Frank Austin Nothaft**, Lior Pachter, David Patterson, Maciej Smuga-Otto, Joshua M. Stuart, Laura Vant Veer, Barbara Wold, and David Haussler. "The NIH BD2K Center for Big Data in Translational Genomics." In *Journal of the American Medical Informatics Association (JAMIA)*, July 2015. Invited.

Peer-Reviewed Conference Proceedings

4. Zhao Zhang, Kyle Barbary, **Frank Austin Nothaft**, Evan Sparks, Oliver Zahn, Michael J. Franklin, David A. Patterson, and Saul Perlmutter. "Scientific computing meets big data technology: An astronomy use case." In *Proceedings of the International Conference on Big Data*, November 2015 (BigData '15). Originally posted as *ArXiv:1507.03325*.

Publications (con't)	***Peer-Reviewed Conference Proceedings (con't)***

5. **Frank Austin Nothaft**, Matt Massie, Timothy Danford, Zhao Zhang, Uri Laserson, Carl Yeksigian, Jey Kottalam, Arun Ahuja, Jeff Hammerbacher, Michael Linderman, Michael J. Franklin, Anthony D Joseph, and David A. Patterson. "Rethinking data-intensive science using scalable analytics systems." In *Proceedings of the International Conference on Management of Data*, May 2015 (SIGMOD '15).

6. **Frank Austin Nothaft**, Luis Fernandez, Stephen Cefali, Nishant Shah, Luke Darnell, and Jacob Rael. "Pragma-based floating-to-fixed point conversion for the emulation of analog behavioral models." In *Proceedings of the International Conference on Computer-Aided Design*, November 2014 (ICCAD '14).

7. Krishna Malladi, **Frank Austin Nothaft**, Kartika Periythambi, Benjamin Lee, Christos Kozyrakis, and Mark Horowitz. "Towards energy-proportional datacenter memory with mobile DRAM." In *Proceedings of the International Symposium on Computer Architecture*, June 2012 (ISCA '12).

Technical Reports

8. Matthew Massie, **Frank Austin Nothaft**, Christopher Hartl, Christos Kozanitis, Anthony D. Joseph, and David A. Patterson. "ADAM: Genomics formats and processing patterns for cloud scale computing." *University of California, Berkeley Technical Report UCB/EECS-2013-207.* November 2013.

Theses

9. **Frank Austin Nothaft**, "Scalable genome resequencing with `ADAM` and `avocado`." Masters Thesis, May 2015. *University of California, Berkeley Technical Report UCB/EECS-2015-65.*

10. **Frank Austin Nothaft**, "Design strategies for compiler managed instruction stores." Honors Thesis, Stanford University, June 2011.

Presentations	***Conference Talks***

"Processing 70TB of Genomic Data with ADAM and Toil"
Spark Summit, Boston, MA, February 2017
Biological Data Science (BIODATA '16), Cold Spring Harbor, NY, October 2016
Genome Informatics (GI '16), Hinxton, UK, September 2016
Bioinformatics Open Source Conference (BOSC '16), Orlando, FL, July 2016
Spark Summit, San Francisco, CA, June 2016

"Rethinking data-intensive science using scalable analytics systems."
International Conference on Management of Data (SIGMOD '15),
Melbourne, Australia, June 2015

"Reproducible Emulation of Analog Behavioral Models."
International Conference on Computer Aided Design (ICCAD '14),
San Jose, CA, November 2014

"ADAM: Fast, Scalable Genome Analysis"
Bioinformatics Open Source Conference (BOSC '14), Boston, MA, July 2014
Spark Summit, San Francisco, CA, June 2014

Presentations (con't)	***Invited Talks***

"Processing 70TB of Genomic Data with ADAM and Toil"
CROSS Research Symposium, Santa Cruz, CA, October 2016
VA Palo Alto, Palo Alto, CA, October 2016

"ADAM: Fast, Scalable Genome Analysis"
Color Genomics, Millbrae, CA, July 2016
Johnson and Johnson, Belgium, December 2015
Human Longevity, Mountain View, CA, June 2015
DNANexus, Mountain View, CA, December 2014
Novartis Institutes, Cambridge, MA, October 2014
Wellcome Trust Genome Center, Hinxton, UK, July 2014

"Fast Variant Calling with ADAM and avocado"
KTH Kista/SICS, Kista, Sweden, February 2015

"Automation For Validating Behavioral Models Against Schematics"
With Nishant Shah, *Cadence Mixed Signal Design Summit*, San Jose, CA, September 2012

Work Experience

Broadcom, R&D Engineer, IC Design 2	**March 2016–June 2016**
Broadcom, Engineer, Staff 1—IC Design	**April 2012–March 2016**
Broadcom, Engineer—IC Design	**June 2011–April 2012**

Design verification and automation for RF/mixed-signal integrated circuits

Internships

NVIDIA, ASIC Intern	**Summer 2010**

Design validation, test, and characterization for GPU systems

SAIC, Systems Engineering Intern	**Summer/Winter 2008**

Evaluation of technologies for high-reliability emergency telecommunications

AJ Engineers, Inc., Electrical Engineering Intern	**Summer 2007**

Design and drafting of electrical systems for dwellings

Teaching

CS162: Operating Systems	**Summer 2015, Spring 2016**

Course Assistant for Dr. Charles Reiss, and Professor Anthony D. Joseph, University of California, Berkeley

EE109: Digital Systems Design Lab	**Spring 2011**

Course Assistant for Dr. James Weaver, Stanford University

EE108A: Digital Systems Design 1	**Fall 2009, 2010, Winter 2010, 2011**

Course Assistant for Professor Subhasish Mitra, Stanford University

Service	***Standards Bodies***
	Co-chair, GA4GH Containers and Workflows Working Group, 2015
	Member, GA4GH Data Working Group, 2014–present
	Conference Organization
	New Frontiers in Computing (NFIC)
	Co-Chair, Stanford, CA, 2010
	Organizing Committee Member, Stanford, CA, 2009
	Reviewing
	Bioinformatics Open Source Conference (BOSC), 2015–2016
	Hot Topics in Networks Workshop (HotNets), 2014
Service (con't)	***Professional Society Leadership***
	Chair, IEEE Orange County Computer Society, 2013
	Vice Chair, IEEE Orange County Computer Society, 2012
	Chair, Stanford University IEEE Student Branch, June 2009–June 2011
	Outreach
	Project Mentor
	Techbridge, Oakland, CA, 2014
	Panel on Careers in Science, Technology, Engineering, and Mathematics
	The Wooden Floor, Santa Ana, CA, May 2012
	Professional Society Membership
	IEEE: Graduate Student Member: 2014–present, Member: 2011–2013, Student Member: 2007–2011
	ACM: Member: 2011–present, Student Member: 2011
	ISCB: Student Member: 2014–present
	Students Mentored
	Eric Tu, UC Berkeley, Undergraduate/Masters
	Niranjan Kumar, UC Berkeley, Undergraduate
	Ananth Pallaseni, UC Berkeley, Undergraduate