Natacha Crooks

Assistant Professor - Computer Science

ncrooks@berkeley.edu

Education

PhD - Distributed Systems
Supervised by Lorenzo Alvisi — *2015 - 2019*
University of Texas at Austin & Cornell University, USA

Certificate of Postgraduate Studies
Supervised by Steven Hand — *2012 - 2013*
Systems Research Group, Computer Laboratory, Cambridge, UK

Bachelors (Computer Science) - 1st Class Degree - Ranked 1st in year
Dissertation: Data-centric Concurrency Control in Databases — *June 2012*
University of Cambridge, Cambridge, UK

Double Maitrise (French & British Law) - 2.i - Ranked 1st in French Law — *June 2009*
University of Cambridge, Cambridge, UK and *University Paris 2 - Assas*, Paris, France

French Baccalaureate - Scientific Section 18.5/20 — *June 2008*
Ecole Alsacienne, Paris, France

Awards and Honours

VMWare Early Career Award, *VMWare Research*
Recognises most promising early career faculty members — *September 2022*

Jim Gray Doctoral Dissertation Award (Honorable Mention),
For best dissertation in the field of database systems, *ACM SIGMOD* — *May 2021*

Google Research Award,
Technical leadership and achievements in systems research — *November 2020*

Dennis Ritchie Doctoral Dissertation Award (Winner),
For best dissertation in the field of operating and distributed systems, *ACM SIGOPS* — *October 2020*

Invitation to the Rising Star Workshop,
For top graduating women in computer science and electrical engineering, *Stanford* — *October 2017*

Microsoft Research Fellowship for Women in CS,
Awarded to women in computer science, *Microsoft Research* — *2016-2017*

Harrington Fellowship,
Awarded to outstanding incoming graduate students, *UT Austin* — *2015-2020*

Google Doctoral Fellowship in Distributed Computing,
Awarded for duration of PhD, *Google* — *2014-2017*

Redgate Prize for the Best Student, Awarded to the student with the highest marks in the Computer Science Undergraduate Course, *University of Cambridge* — *June 2012*

Science, Engineering and Technology Student of the Year Awards,
Shortlisted as part of 3 British and Irish undergraduates *London, United Kingdom* — *September 2012*

Peer-Reviewed Publications

PODC'23 BeeGees: Strenghtened Liveness in Chained BFT
*Ittai Abraham, **Natacha Crooks**, Neil Giridharan, Heidi Howard, Florian Suri-Payer*
OSDI'23 Take Out the TraChe: Maximising Transactional Cache Hit Rate
*Audrey Cheng, David Chu, Terrance Li, Jason Chan, **Natacha Crooks**, Joseph M. Hellerstein, Ion Stoica, Xiangyao Yu*
NSDI'23 LOCA: A Location-Oblivious Cellular Architecture
*Zhihong Luo, Silvery Fu, **Natacha Crooks**, Shaddi Hasan, Christian Maciocco, Sylvia Ratsanamy, Scott Shenker*
VLDB'23 Keep Calm and CRDT On

Shadaj Laddad, Conor Power, Mae Milano, Alvin Cheung, ***Natacha Crooks****, Joseph M. Hellerstein*
Eurosys'23 Disserting BFT Consensus: In Trusted Components We Trust!
Suyash Gupta, Sajjad Rahnama, Shubham Pandey, ***Natacha Crooks****, Mohammad Sadoghi*
Eurosys'23 Morty: Scaling Concurrency Control with Re-Execution
Matthew Burke, Florian Suri-Payer, Jeffrey Helt, Lorenzo Alvisi, ***Natacha Crooks***
HotNets'22 Reflections on Trusting Distributed Trust
Emma Dauterman, Vivian Fang, ***Natacha Crooks****, Raluca Popa*
DISC'22 Brief Announcement: Siesta: It's not easy to relax. Liveness in BFT Protocols
Ittai Abraham, ***Natacha Crooks****, Neil Giridharan, Heidi Howard, Florian Suri-Payer*
VLDB'22 TAOBench: An End-To-End Benchmark for Social Networking Workloads
Audrey Cheng, Xiao Shi, Aaron Kabcenell, Shilpa Lawande, Hamza Qadeer, Harrison Tin, Ryan Zhao, Peter Bailis, Mahesh Balakrishnan, Nathan Bronson, ***Natacha Crooks****, Ion Stoica*
DSN'22, Treaty: Secure Distributed Transactions
Dimitra Giantsidi, Maurice Bailleu, Pramod Bhatotia, ***Natacha Crooks***
SOSP'21, Basil: Breaking up BFT through ACID (transactions)
Florian Suri-Payer, Matthew Burke, Yunhao Zhang, Lorenzo Alvisi, ***Natacha Crooks***
SOSP'21, Snoopy: Surpassing the scalability bottleneck in oblivious storage
Emma Dauterman, Vivian Fang, Ioannis Demertzis, ***Natacha Crooks****, Raluca Ada Popa*
VLDB'21, RAMP-TAO: Layering Atomic Transactions on Facebook's Online TAO Data Store
Audrey Cheng, Xiao Shi, Lu Pan, Anthony Simpson, Neil Wheaton, Shilpa Lawande, Nathan Bronson, Peter Bailis, ***Natacha Crooks****, Ion Stoica*
CIDR'21 New Directions in Cloud Programming
Alvin Cheung, ***Natacha Crooks****, Joseph Hellerstein, Matthew Milano*
OSDI'18 Obladi: Oblivious Serializable Transactions In The Cloud
Natacha Crooks*, Matthew Burke, Ethan Cecchetti, Sitar Harel, Lorenzo Alvisi and Rachit Agarwal*
PODC'17 Seeing is Believing: A client-centric specification of database isolation
Natacha Crooks*, Youer Pu, Lorenzo Alvisi and Allen Clement*
SIGMOD'17, Tebaldi: Taking Modular Concurrency Control To The Next Level
Chunzhi Su, ***Natacha Crooks****, Cong Ding, Lorenzo Alvisi and Chao Xie*
NSDI'17, I Can't Believe it's Not Causal: Scalable Causal Consistency Without Slowdown Cascades
Akbar Syed Mehdi, Cody Littley, ***Natacha Crooks****, Lorenzo Alvisi, Nathan Bronson and Wyatt Lloyd*
OOPSLA'17 Geo-Distribution of Actor-based Services
Phil Bernstein, Sebastian Burckhardt, Sergey Bykov, ***Natacha Crooks****, Jose Faleiro, Gabriel Kliot, Alok Kumbhare, Muntasir Raihan Rahman, Vivek Shak, Adriana Szekeres and Jorgen Thelin*
SIGMOD'16, TARDiS: A Branch and Merge Approach to Weak Consistency
Natacha Crooks*, Youer Pu, Nancy Estrada, Trinabh Gupta, Lorenzo Alvisi and Allen Clement*
NSDI'16, Popcorn: Scalable and Private Media Consumption
Trinabh Gupta, ***Natacha Crooks****, Whitney Mulhern, Lorenzo Alvisi and Michael Walfish*
Eurosys'15, Musketeer, One for All Data Processing Frameworks
Ionel Gog, Malte Schwarzkopf, ***Natacha Crooks****, Matthew Grosvenor, Allen Clement and Steven Hand*

Relevant Experience

UC Berkeley, *Assistant Professor*
Berkeley, USA *July 2020 -*

- Data Systems and Foundation Group.

Improbable, *Lead Research Consultant*
London, UK *May 2022-December 2022*

- Development of a decentralized game financial ecosystem.

Astronomer, *Strategic Advisor*
Berkeley, USA *March 2021-March 2022*

- Work on data orchestration and data pipelines.

Materialize Inc., *Technical Advisor*
New York, USA *August 2020 -*

- Work on database incremental view maintenance.

Materialize Inc., *Visiting Scientist*
New York, USA *January 2020 - July 2020*
- Work on database incremental view maintenance.

Cornell University, *Visiting Researcher*
Ithaca, USA *August 2016-December 2019*
- Laboratory for Advanced Systems Research, supervised by Lorenzo Alvisi
- Work on concurrency control for distributed databases.
- Work on oblivious databases and scalable blockchain systems.

INRIA (joint with LIP6/CNRS), *Visiting Researcher*
Paris, France *May 2016- August 2016*
- WHISPER team, supervised by Gilles Muller
- Implementation of a DSL for verified Linux multi-core schedulers

University of Texas at Austin, *Graduate Researcher*
Austin, USA *August 2015 - May 2016*
- Laboratory for Advanced Systems Research, supervised by Lorenzo Alvisi
- Work on weakly consistent geo-distributed storage.
- Work on theoretical foundations for database isolation/consistency.

Microsoft Research, *PhD Research Intern*
Redmond, USA *May 2015- August 2015*
- Data Management and Mining Group, supervised by Phil Bernstein
- Design of a framework for building geo-distributed applications

University of Texas at Austin, *Research Scholar*
Austin, USA *August 2014 - May 2015*
- Laboratory for Advanced Systems Research, supervised by Lorenzo Alvisi
- Work on weakly consistent geo-distributed storage.
- Work on private media streaming systems.

Max Planck Institute For Software Systems, *Graduate Researcher*
Saarbruecken, Germany *July 2013 - August 2014*
- Robust Systems Group, supervised by Allen Clement
- Work on large scale processing systems.

Imperial College, *Undergraduate Research Fellowship*
London, UK *June 2012-September 2012*
- Distributed Systems Group, supervised by Dr. Peter Pietzuch
- Analysis of Lightweight Virtualisation Strategies for Stream-Processing Systems

MPI-SWS, *Undergraduate Research Fellowship*
Saarbruecken, Germany *June 2011-September 2011*
- Dependable Systems Group, supervised by Dr. Rodrigo Rodrigues and Dr. Allen Clement
- Implementation of an eventually consistent centralised MySQL database

Materna Gmbh, Research & Development Division, *Developer*
Dortmund, Germany *June 2010-September 2010*
- Developed Bluetooth Support for the JMEDS Framework for Web Services (Java edition for DPWS Stack)

Relevant Teaching Experience

Operating Systems (CS162), UC Berkeley, *Instructor* *2023*
Research Culture and Community Norms (CS298), UC Berkeley, *Instructor* *2023*
(Grad) Distributed Systems (CS294), UC Berkeley, *Instructor* *2023*
Operating Systems (CS162), UC Berkeley, *Instructor* *2022*
(Grad) Decentralization Technologies (CS294), Berkeley, *Instructor* *2022*
Research Culture and Community Norms (CS298), UC Berkeley, *Instructor* *2021*
(Grad) Privacy-Preserving Systems (CS298), UC Berkeley, *Instructor* *2021*
Operating Systems (CS162), UC Berkeley, *Co-Instructor* *2021*
Research Culture and Community Norms (CS294), UC Berkeley, *Instructor* *2020*
(Grad) Privacy-Preserving Systems (CS298), UC Berkeley, *Instructor* *2020*
Object-oriented programming and data-structures (CS2110), Cornell, *Instructor* *2018*
Distributed Computing (CS5414), Cornell, *Teaching Assistant* *2016, 2017, 2018*
Databases, Second Year Undergraduate Course, Cambridge, *Supervisor (Teaching Assistant)* *2012-2013*
Prolog, Second Year Undergraduate Course, Cambridge, *Supervisor (Teaching Assistant)* *2012-2013*

Service

Steering Committee	2023 -
Program Committee	SIGMOD'2024
Program Committee	OSDI'2023
Program Committee	Eurosys'2023
Program Committee	Eurosys'2022
Program Committee	SIGMOD'2022
Program Committee	SOSP'2021
Program Committee	HotOS'2021
Poster Chair	Eurosys'2021
Program Committee	Eurosys'2021
Program Committee	FAST'2021
Program Committee	OSDI'2020
Poster Chair	OSDI'2020
Program Committee	VLDB'2020
Program Committee	HotStorage'2020
Program Committee	Student Research Competition SIGMOD'2019
Program Committee	Student Research Competition SOSP'2019
Program Committee	OPODIS'2019
Program Committee	ICDCS'2018, ICDCS'2019
Program Committee	PaPoC'2018, PaPoC'2019, PaPoC'2020
Program Committee	PPoPP'2016 Artefact Evaluation
Reviewer	Distributed Computing (2015)

Journals and Book Chapters

IEEE Data Engineering Bulletin (Dec. 2017), The Dirty Secret of Causal Consistency: Writes
Lorenzo Alvisi, Natacha Crooks, and Akbar Syed Mehdi
Encyclopedia of Big Data Technologies (Book Chapter), TARDiS: A Branch and Merge Approach to Weak Consistency
Natacha Crooks

Languages

English, French: Native. German, Spanish: Proficient, Chinese: European Level B2.

Referees

Available on request