

Stanford



David Mazieres

Professor of Computer Science

Bio

BIO

Mazieres investigates ways to improve the security of operating systems, file systems, and distributed systems. In addition, he has worked on large-scale peer-to-peer systems and e-mail privacy.

ACADEMIC APPOINTMENTS

- Professor, Computer Science

HONORS AND AWARDS

- Alfred P. Sloan Research Fellow, Alfred P. Sloan Research Foundation (2002)
- CAREER Award, National Science Foundation (2001)
- MIT George R. Sprowls award for best thesis in computer science, Massachusetts Institute of Technology (2000)

PROFESSIONAL EDUCATION

- PhD, MIT , Computer Science (2000)

LINKS

- More up-to-date information: <http://www.scs.stanford.edu/~dm/>

Teaching

COURSES

2023-24

- Advanced Topics in Operating Systems: CS 240 (Spr)
- Distributed Systems: CS 244B (Spr)
- Operating Systems and Systems Programming: CS 212 (Win)
- Operating systems kernel implementation project: CS 112 (Win)

2022-23

- Advanced Topics in Operating Systems: CS 240 (Spr)
- Operating Systems and Systems Programming: CS 212 (Win)
- Operating systems kernel implementation project: CS 112 (Win)

2021-22

- Distributed Systems: CS 244B (Spr)
- Operating Systems and Systems Programming: CS 140 (Win)
- Operating Systems and Systems Programming: CS 212 (Win)
- Operating systems kernel implementation project: CS 112 (Win)

2020-21

- Operating Systems Principles: CS 111 (Spr)
- Operating Systems and Systems Programming: CS 140 (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Joachim Neu, Ertem Tas

Postdoctoral Faculty Sponsor

Nirvan Tyagi

Doctoral Dissertation Advisor (AC)

Geoff Ramseyer

Orals Evaluator

Geoff Ramseyer

Master's Program Advisor

Chris Kay, Gavin Li, Bihan Liu, Brandon Lou, Langston Nashold, Miles President, Aaron Reed, Will Roberts, Adam Siwiec, Kelechi Uhegbu, Andy Wang

Doctoral Dissertation Co-Advisor (AC)

Gina Yuan

Doctoral (Program)

Evan Laufer, Geoff Ramseyer, Zachary Yedidia

Publications

PUBLICATIONS

- **Shinjuku: Preemptive Scheduling for μ second-scale Tail Latency**
Kaffes, K., Chong, T., Humphries, J., Belay, A., Mazieres, D., Kozyrakis, C., *USENIX Assoc USENIX ASSOC*.2019: 345–59
- **Towards Practical Default-On Multi-Core Record/Replay** *ACM SIGPLAN NOTICES*
Mashtizadeh, A. J., Garfinkel, T., Terei, D., Mazieres, D., Rosenblum, M.
2017; 52 (4): 693-708
- **Flexible dynamic information flow control in the presence of exceptions** *JOURNAL OF FUNCTIONAL PROGRAMMING*
Stefan, D., Mazieres, D., Mitchell, J. C., Russo, A.
2017; 27
- **The Case For Secure Delegation**
Kogan, D., Stern, H., Tolbert, A., Mazieres, D., Winstein, K., *Assoc Comp Machinery ASSOC COMPUTING MACHINERY*.2017: 15–21
- **Hails: Protecting data privacy in untrusted web applications** *JOURNAL OF COMPUTER SECURITY*
Giffin, D., Levy, A., Stefan, D., Terei, D., Mazieres, D., Mitchell, J., Russo, A.

2017; 25 (4-5): 427–61

- **Building Secure Systems with LIO (Demo)** *ACM SIGPLAN NOTICES*
Stefan, D., Levy, A., Russo, A., Mazieres, D.
2014; 49 (12): 93-94
- **Millions of Little Minions: Using Packets for Low Latency Network Programming and Visibility** *SIGCOMM Conference*
Jeyakumar, V., Alizadeh, M., Geng, Y., Kim, C., Mazieres, D.
ASSOC COMPUTING MACHINERY.2014: 3–14
- **A Brief Overview of the NEBULA Future Internet Architecture** *ACM SIGCOMM COMPUTER COMMUNICATION REVIEW*
Anderson, T., Birman, K., Broberg, R., Caesar, M., Comer, D., Cotton, C., Freedman, M. J., Haebleren, A., Ives, Z. G., Krishnamurthy, A., Lehr, W., Loo, B. T., Mazieres, et al
2014; 44 (3): 81-86
- **Dynamic Space Limits for Haskell** *35th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI)*
Yang, E. Z., Mazieres, D.
ASSOC COMPUTING MACHINERY.2014: 588–98
- **Eliminating Cache-Based Timing Attacks with Instruction-Based Scheduling.**
Stefan, D., Buiras, P., Yang, Edward, Z., Levy, A., Terei, D., Russo, A., Mazieres, D.
2013
- **Toward principled browser security.**
Yang, Edward, Z., Stefan, D., Mitchell, J., Mazières, D., Marchenko, P., Karp, B.
2013
- **Replication, History, and Grafting in the Ori File System.**
Mashtizadeh, A. J., Bittau, A., Huang, Y. F., Mazières, D.
2013
- **EyeQ: Practical network performance isolation at the edge.**
Jeyakumar, V., Alizadeh, M., Mazières, D., Prabhakar, B., Kim, C., Greenberg, A.
2013
- **Safe Haskell** *ACM SIGPLAN NOTICES*
Terei, D., Marlow, S., Jones, S. P., Mazieres, D.
2012; 47 (12): 137-148
- **Addressing Covert Termination and Timing Channels in Concurrent Information Flow Systems** *ACM SIGPLAN NOTICES*
Stefan, D., Russo, A., Buiras, P., Levy, A., Mitchell, J. C., Mazieres, D.
2012; 47 (9): 201-213
- **Disjunction Category Labels** *16th Nordic Conference on Secure IT-Systems (NordSec)*
Stefan, D., Russo, A., Mazieres, D., Mitchell, J. C.
SPRINGER-VERLAG BERLIN.2012: 223–239
- **Where is the debugger for my Software-Defined Network?**
Handigol, N., Heller, B., Jeyakumar, V., Mazières, D., McKeown, N.
2012
- **Hails: Protecting data privacy in untrusted web applications.**
Giffin, Daniel, B., Levy, A., Stefan, D., Terei, D., Mazières, D., Mitchell, J.
2012
- **Dune: Safe user-level access to privileged CPU features.**
Belay, A., Bittau, A., Mashtizadeh, A., Terei, D., Mazières, D., Kozyrakis, C.
2012
- **EyeQ: Practical Network Performance Isolation for the Multi-tenant Cloud.**
Jeyakumar, V., Alizadeh, M., Mazières, D., Prabhakar, B., Kim, C.

2012

- **Flexible Dynamic Information Flow Control in Haskell** *ACM SIGPLAN NOTICES*
Stefan, D., Russo, A., Mitchell, J. C., Mazieres, D.
2011; 46 (12): 95-106
- **Making Information Flow Explicit in HiStar** *COMMUNICATIONS OF THE ACM*
Zeldovich, N., Boyd-Wickizer, S., Kohler, E., Mazieres, D.
2011; 54 (11): 93-101
- **The Case for RAMCloud** *COMMUNICATIONS OF THE ACM*
Ousterhout, J., Agrawal, P., Erickson, D., Kozyrakis, C., Leverich, J., Mazieres, D., Mitra, S., Narayanan, A., Ongaro, D., Parulkar, G., Rosenblum, M., Rumble, S. M., Stratmann, et al
2011; 54 (7): 121-130
- **Energy Management in Mobile Devices with the Cinder Operating System** *6th ACM EuroSys Conference on Computer Systems (EuroSys 2011)*
Roy, A., Rumble, S. M., Stutsman, R., Levis, P., Mazieres, D., Zeldovich, N.
ASSOC COMPUTING MACHINERY.2011: 139–152
- **Disjunction category labels.**
Stefan, D., Russo, A., Mazières, D., Mitchell, John, C.
2011
- **Verifying and enforcing network paths with ICING.**
Naous, J., Walfish, M., Nicolosi, A., Mazières, D., Miller, M., Seehra, A.
2011
- **Making information flow explicit in HiStar.** *Communications of the ACM*
Zeldovich, N., Boyd-Wickizer, S., Kohler, E., Mazières, D.
2011; 11 (54): 93-101
- **Apprehending Joule Thieves with Cinder** *COMPUTER COMMUNICATION REVIEW*
Rumble, S. M., Stutsman, R., Levis, P., Mazieres, D., Zeldovich, N.
2010; 40 (1): 106-111
- **Defining and Enforcing Transit Policies in a Future Internet.** *Technical Report TR-10-07 Department of Computer Sciences, The University of Texas at Austin*
Naous, J., Seehra, A., Walfish, M., Mazières, D., Nicolosi, A., Shenker, S.
2010
- **The case for ubiquitous transport-level encryption.**
Bittau, A., Hamburg, M., Handley, M., Mazières, D., Boneh, D.
2010
- **Apprehending Joule Thieves with Cinder** *1st ACM Workshop on Networking, Systems, and Applications for Mobile Handhelds*
Rumble, S. M., Stutsman, R., Levis, P., Mazieres, D., Zeldovich, N.
ASSOC COMPUTING MACHINERY.2009: 49–54
- **Apprehending Joule Thieves with Cinder.**
Rumble, Stephen, M., Stutsman, R., Levis, P., Mazières, D., Zeldovich, N.
2009
- **A Policy Framework for the Future Internet.**
Seehra, A., Naous, J., Walfish, M., Mazières, D., Nicolosi, A., Shenker, S.
2009
- **Delegating Network Security with More Information** *1st Workshop Research on Enterprise Networking*
Naous, J., Stutsman, R., Mazieres, D., McKeown, N., Zeldovich, N.
ASSOC COMPUTING MACHINERY.2009: 19–26
- **Securing distributed systems with information flow control.**
Zeldovich, N., Boyd-Wickizer, S., Mazières, D.

2008

- **Labels and event processes in the Asbestos operating system** *ACM TRANSACTIONS ON COMPUTER SYSTEMS*
Vandebogart, S., Efstathopoulos, P., Kohler, E., Krohn, M., Frey, C., Ziegler, D., Kaashoek, F., Morris, R., Mazieres, D.
2007; 25 (4)
- **Beyond One-third Faulty Replicas in Byzantine Fault Tolerant Systems.**
Li, J., Mazières, D.
2007
- **Making information flow explicit in HiStar** *7th USENIX Symposium on Operating Systems Design and Implementation*
Zeldovich, N., Boyd-Wickizer, S., Kohler, E., Mazieres, D.
USENIX ASSOC.2006: 263–278
- **RE: Reliable email.**
Garriss, S., Kaminsky, M., Freedman, Michael, J., Karp, B., Mazières, D., Yu, H.
2006
- **OASIS: Anycast for any service.**
Freedman, Michael, J., Lakshminarayanan, K., Mazières, D.
2006
- **Making information flow explicit in HiStar.**
Zeldovich, N., Boyd-Wickizer, S., Kohler, E., Mazières, D.
2006
- **Group therapy for systems: Using link attestations to manage failures.**
Freedman, Michael, J., Stoica, I., Mazières, D., Shenker, S.
2006
- **Labels and event processes in the Asbestos operating system.**
VanDeBogart, S., Efstathopoulos, P., Kohler, E., Krohn, M., Frey, C., Ziegler, D., Mazieres, D.
2005
- **Shark: Scaling file servers via cooperative caching.**
Annapureddy, S., Freedman, Michael, J., Mazières, D.
2005
- **Make Least Privilege a Right (Not a Privilege).**
Krohn, M., Efstathopoulos, P., Frey, C., Kaashoek, F., Kohler, E., Mazières, D.
2005
- **Blocking unwanted mail with mail avenger.** *Virus Bulletin*
Mazières, D.
2005: S2-S4
- **REX: Secure, extensible remote execution.**
Kaminsky, M., Peterson, E., Giffin, Daniel, B., Fu, K., Mazières, D., Kaashoek, M., Frans
2004
- **Secure Untrusted Data Repository (SUNDR).**
Li, J., Krohn, Maxwell, N., Mazières, D., Shasha, D.
2004
- **Secure acknowledgment of multicast messages in open peer-to-peer networks.**
Nicolosi, A., Mazières, D.
2004
- **On-the-fly verification of rateless erasure codes for efficient content distribution.**
Krohn, Maxwell, N., Freedman, Michael, J., Mazières, D.

2004

- **Democratizing content publication with Coral.**
Freedman, Michael, J., Freudenthal, E., Mazières, D.
2004
- **Multiprocessor support for event-driven programs** *USENIX Annual Technical Conference*
Zeldovich, N., Yip, A., Dabek, F., Morris, R. T., Mazieres, D., Kaashoek, F.
USENIX ASSOC.2003: 239–252
- **Sloppy hashing and self-organizing clusters.**
Freedman, M., Mazières, D.
2003
- **Rateless codes and big downloads.**
Maymounkov, P., Mazières, D.
2003
- **Decentralized user authentication in a global file system.**
Kaminsky, M., Savvides, G., Mazières, D., Kaashoek, M., Frans
2003
- **REX: Secure, modular remote execution through file descriptor passing.** *Technical Report MIT-LCSTR-884, MIT Laboratory for Computer Science*
Kaminsky, M., Peterson, E., Fu, K., Mazières, D., Kaashoek, M., Frans
2003
- **Proactive two-party signatures for user authentication.**
Nicolosi, A., Krohn, M., Dodis, Y., Mazières, D.
2003
- **Using SFS for a secure network file system.** *In ;login: The Magazine of Usenix & Sage*
Fu, K., Kaminsky, M., Mazières, D.
2002; 6 (27): 6-16
- **Kademia: A peer-to-peer information system based on the XOR metric.**
Maymounkov, P., Mazières, D.
2002
- **Event-driven programming for robust software.**
Dabek, F., Zeldovich, N., Kaashoek, M., Frans, Mazières, D., Morris, R.
2002
- **Fast and secure distributed read-only file system.** *In ACM Transactions on Computer Systems*
Fu, K., Kaashoek, M., Frans, Mazières, D.
2002; 1 (20): 1-24
- **Building secure file systems out of Byzantine storage.**
Mazières, D., Shasha, D.
2002
- **Position Summary: Censorship Resistant Publishing Through Document Entanglements.**
Waldman, M., Mazières, D.
2001
- **Don't trust your file server.**
Mazières, D., Shasha, D.
2001
- **A toolkit for user-level file systems.**
Mazières, D.

2001

- **A low-bandwidth network file system.**
Muthitacharoen, A., Chen, B., Mazières, D.
2001
- **Tangler: A Censorship-Resistant Publishing System Based On Document Entanglements.**
Waldman, M., Mazières, D.
2001
- **Self-certifying file system.** *PhD thesis, MIT*
Mazières, D.
2000
- **Fast and secure distributed read-only file system.**
Fu, K., Kaashoek, M., Frans, Mazières, D.
2000
- **A future-adaptable password scheme.**
Provos, N., Mazières, D.
1999
- **Separating key management from file system security.**
Mazières, D., Kaminsky, M., Kaashoek, M., Frans, Witchel, E.
1999
- **Escaping the evils of centralized control with self-certifying pathnames.**
Mazières, D., Kaashoek, M., Frans
1998
- **The design, implementation and operation of an email pseudonym server.**
Mazières, D., Kaashoek, M., Frans
1998
- **Application performance and flexibility on exokernel systems.**
Kaashoek, M., Frans, Engler, Dawson, R., Ganger, Gregory, R., Briceño, Héctor, M., Hunt, R., Mazières, D.
1997
- **Secure applications need flexible operating systems.**
Mazières, D., Kaashoek, M., Frans
1997
- **Security and Decentralized Control in the SFS Global File System.** *Master's thesis, MIT*
Mazières, D.
1997
- **The Measured Performance of Personal Computer Operating Systems.** *In ACM Transactions on Computer Systems*
Chen, J., Bradley, Endo, Y., Chan, K., Mazières, D., Dias, A., Smith, M.
1996; 1 (14): 3-40
- **The Measured Performance of Personal Computer Operating Systems.**
Chen, J., Bradley, Endo, Y., Chan, K., Mazières, D., Dias, A., Smith, M.
1995
- **Abstract execution in a multi-tasking environment.** *Technical Report TR-31-94. Harvard University*
Mazières, D., Smith, Michel, D.
1994