

# Stanford

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## David Mazieres

Professor of Computer Science

### CONTACT INFORMATION

- **Administrator**

Mary Jane Swenson - Executive Assistant

Tel (650) 723-0748

### Bio

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#### 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

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#### COURSES

##### 2019-20

- Distributed Systems: CS 244B (Spr)
- Operating Systems and Systems Programming: CS 140 (Win)

##### 2018-19

- Cryptocurrencies and blockchain technologies: CS 251 (Aut)
- Operating Systems and Systems Programming: CS 140 (Win)

#### 2017-18

- Distributed Systems: CS 244B (Aut)
- Operating Systems and Systems Programming: CS 140 (Win)

#### 2016-17

- Advanced Topics in Operating Systems: CS 240 (Spr)
- Operating Systems and Systems Programming: CS 140 (Win)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Kostis Kaffes, Riad Wahby

#### Doctoral Dissertation Co-Advisor (AC)

Sergio Benitez, Dima Kogan, Geoff Ramseyer, Gina Yuan

#### Master's Program Advisor

Changyu Bi, Santi Gutierrez, Jack Humphries, Ruben Rodriguez Buchillon, Tommy Tang

## Publications

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### PUBLICATIONS

- **Shinjuku: Preemptive Scheduling for mu 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., Haeberlen, 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
- **Kademlia: 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