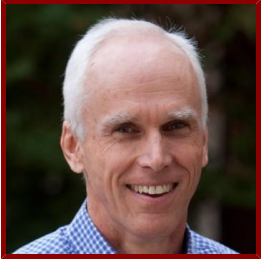


Stanford



John Ousterhout

Leonard Bosack and Sandy K. Lerner Professor of Engineering, Professor of Computer Science and, by courtesy, of Electrical Engineering

CONTACT INFORMATION

- **Administrator**

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Bio

BIO

John Ousterhout is Professor of Computer Science at Stanford University. His research addresses a wide range of topics related to infrastructure for building software systems, including distributed systems, operating systems, storage systems, development frameworks, and programming languages. His current research is in the area of granular computing: new software stack layers that allow the execution of large numbers of very small tasks (as short as a few microseconds) in a datacenter. His current projects are developing new techniques for thread management, network communication, and logging. Ousterhout's prior positions include 14 years in industry, where he founded two companies (Scriptics and Electric Cloud), preceded by 14 years as Professor of Computer Science at U.C. Berkeley. He is the creator of the Tcl scripting language and is also well known for his work in distributed operating systems and file systems. Ousterhout received a BS degree in Physics from Yale University and a PhD in Computer Science from Carnegie Mellon University. He is a member of the National Academy of Engineering and has received numerous awards, including the ACM Software System Award, the ACM Grace Murray Hopper Award, the National Science Foundation Presidential Young Investigator Award, and the U.C. Berkeley Distinguished Teaching Award.

ACADEMIC APPOINTMENTS

- Professor, Computer Science
- Professor (By courtesy), Electrical Engineering

HONORS AND AWARDS

- Distinguished Teaching Award, U.C. Berkeley (1985)
- Grace Murray Hopper Award, ACM (1987)
- Software System Award, ACM (1997)
- Member, National Academy of Engineering (2001)
- Reynold B. Johnson Information Storage Systems Award, IEEE (2014)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, National Academy of Engineering (2013 - present)
- Fellow, Association for Computing Machinery (1980 - present)

- Member, IEEE Computer Society (1980 - present)

PROFESSIONAL EDUCATION

- PhD, Carnegie Mellon , Computer Science (1980)
- BS, Yale University , Physics (1975)

PATENTS

- John Ousterhout. "United States Patent 8,042,089 Process Automation System and Method Employing Multi-Stage Report Generation", Electric Cloud, Inc., Oct 18, 2011
- John Ousterhout. "United States Patent 7,886,265 Process Automation System and Method Employing Property Attachment Techniques", Electric Cloud, Inc., Feb 8, 2011
- John Ousterhout. "United States Patent 7,725,524 Process Automation System and Method Having a Hierarchical Architecture With Multiple Tiers", Electric Cloud, Inc., May 25, 2010
- John Ousterhout. "United States Patent 7,676,788 An Architecture and Method for Executing Program Builds", Electric Cloud, Inc., Mar 9, 2010
- John Ousterhout. "United States Patent 7,539,976 A System and Method for Intelligently Distributing Source Files Within a Distributed Program Build Architecture", Electric Cloud, Inc., May 26, 2009
- John Ousterhout. "United States Patent 7,395,529 Conflict Detection and Correction in a Program Build Environment", Electric Cloud, Inc., Jul 1, 2008
- John Ousterhout. "United States Patent 7,168,064 System and Method for Supplementing Program Builds with File Usage Information", Electric Cloud, Inc., Jan 23, 2007
- John Ousterhout. "United States Patent 7,086,063 System and Method for File Caching in a Distributed Program Build Environment", Electric Cloud, Inc., Aug 1, 2006

LINKS

- My Home Page: <https://web.stanford.edu/~ouster>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Ousterhout's research ranges across a variety of topics in system software, software development tools, and user interfaces. His current research is in the area of granular computing: new software stack layers that allow the execution of large numbers of very small tasks (as short as a few microseconds) in a datacenter. Current projects are developing new techniques for thread management, network communication, and logging.

Teaching

COURSES

2022-23

- Operating Systems Principles: CS 111 (Spr)
- Problem Solving Lab for CS111: CS 111A (Spr)
- Software Design Studio: CS 190 (Win)

2021-22

- Operating Systems Principles: CS 111 (Spr)
- Problem Solving Lab for CS111: CS 111A (Spr)
- Software Design Studio: CS 190 (Win)

2020-21

- Departmental Lecture Series: CS 300 (Aut)
- Operating Systems Principles: CS 111 (Spr)

- Software Design Studio: CS 190 (Win)

2019-20

- Departmental Lecture Series: CS 300 (Aut)
- Operating Systems and Systems Programming: CS 140 (Spr)
- Software Design Studio: CS 190 (Win)

STANFORD ADVISEES

Master's Program Advisor

Nirvik Baruah, Drew Kaul, Griffin Miller, Maxim Mints, Nandita Naik, Shashank Rammooorthy, Coleman Smith, Russell Tran, Qinchen Wang, Julia Xu

Publications

PUBLICATIONS

- **Always Measure One Level Deeper** *COMMUNICATIONS OF THE ACM*
Ousterhout, J.
2018; 61 (7): 74–83
- **A Philosophy of Software Design**
Ousterhout, J.
Yaknyam Press.2018
- **Homa: A Receiver-Driven Low-Latency Transport Protocol Using Network Priorities**
Montazeri, B., Li, Y., Alizadeh, M., Ousterhout, J., ACM
ASSOC COMPUTING MACHINERY.2018: 221–35
- **In Search of an Understandable Consensus Algorithm** *Proceedings of the 2014 USENIX Annual Technical Conference*
Ongaro, D., Ousterhout, J.
2014
- **Homa: A Receiver-Driven Low-Latency Transport Protocol Using Network Priorities** *Proceedings of the ACM SIGCOMM 2018 Conference*
Montazeri, B., Li, Y., Alizadeh, M., Ousterhout, J.
2018
- **MilliSort and MilliQuery: Large-Scale Data-Intensive Computing in Milliseconds**
Li, Y., Park, S., Ousterhout, J., USENIX Assoc
USENIX ASSOC.2021: 593-612
- **A Linux Kernel Implementation of the Homa Transport Protocol**
Ousterhout, J., USENIX ASSOC
USENIX ASSOC.2021: 773-787
- **EPaxos Revisited**
Tollman, S., Park, S., Ousterhout, J., USENIX Assoc
USENIX ASSOC.2021: 613-632
- **Granular Computing**
Lee, C., Ousterhout, J., ACM
ASSOC COMPUTING MACHINERY.2019: 149–54
- **Exploiting Commutativity For Practical Fast Replication**
Park, S., Ousterhout, J., USENIX Assoc
USENIX ASSOC.2019: 47–64
- **NanoLog: A Nanosecond Scale Logging System**
Yang, S., Park, S., Ousterhout, J., USENIX Assoc

USENIX ASSOC.2018: 335-349

- **SLIK: Scalable Low-Latency Indexes for a Key-Value Store**
Kejriwal, A., Gopalan, A., Gupta, A., Jia, Z., Yang, S., Ousterhout, J., USENIX Assoc
USENIX ASSOC.2016: 57-70
- **The RAMCloud Storage System** *ACM TRANSACTIONS ON COMPUTER SYSTEMS*
Ousterhout, J., Gopalan, A., Gupta, A., Kejriwal, A., Lee, C., Montazeri, B., Ongaro, D., Park, S. J., Qin, H., Rosenblum, M., Rumble, S., Stutsman, R., Yang, et al
2015; 33 (3)
- **Implementing Linearizability at Large Scale and Low Latency**
Lee, C., Park, S., Kejriwal, A., Matsushita, S., Ousterhout, J. K., Assoc Comp Machinery
ASSOC COMPUTING MACHINERY.2015: 71-86
- **Copysets: Reducing the Frequency of Data Loss in Cloud Storage**
Cidon, A., Rumble, S., Stutsman, R., Katti, S., Ousterhout, J., Rosenblum, M.
2013
- **Toward Common Patterns for Distributed, Concurrent, Fault-Tolerant Code** *14th Workshop on Hot Topics in Operating Systems*
Stutsman, R., Ousterhout, J.
2013
- **Technical Perspective Is Scale Your Enemy, Or Is Scale Your Friend?** *COMMUNICATIONS OF THE ACM*
Ousterhout, J.
2011; 54 (7): 110-110
- **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.
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- **Fast Crash Recovery in RAMCloud** *23rd ACM Symposium on Operating Systems Principles (SOSP 2011)*
Ongaro, D., Rumble, S. M., Stutsman, R., Ousterhout, J., Rosenblum, M.
ASSOC COMPUTING MACHINERY.2011: 29-41
- **Integrating Long Polling with an MVC Web Framework** *USENIX Conference on Web Application Development*
Stratmann, E., Ousterhout, J., Madan, S.
2011: 113-124
- **Is Scale Your Enemy, Or Is Scale Your Friend?** *Technical Perspective, Communications of the ACM*
Ousterhout, J.
2011; 54 (7): 110
- **It's Time for Low Latency** *13th Workshop on Hot Topics in Operating Systems*
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2011
- **Managing State for Ajax-Driven Web Components** *USENIX Conference on Web Application Development*
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- **Fiz: A Component Framework for Web Applications** *Stanford Computer Science Department Technical Report*
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Ousterhout, J.
1996
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- **Transparent Process Migration: Design Alternatives and the Sprite Implementation** *Software Practice and Experience*
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- **1986 VLSI Tools, technical report UCB/CSD 86/272**
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1985
- **Magic's Circuit Extractor**
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- **A Switch-Level Timing Verifier for Digital MOS VLSI** *IEEE Transactions on Computer-Aided Design*
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- **The User Interface and Implementation of an IC Layout Editor** *IEEE Transactions on Computer-Aided Design*
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- **Switch-Level Delay Models for Digital MOS VLSI**
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- **A Switchbox Router with Obstacle Avoidance**
Hamachi, G., Ousterhout, J.
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- Ousterhout, J.
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 - **Crystal: A Timing Analyzer for nMOS VLSI Circuits**
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1983
 - **Scheduling Techniques for Concurrent Systems**
Ousterhout, J.
1982
 - **Measurements of a VLSI Design**
Ousterhout, J., Ungar, D.
1982
 - **Lyra: A New Approach to Geometric Layout Rule Checking**
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1982
 - **Caesar: An Interactive Editor for VLSI Layouts** *VLSI Design*
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