Jed Liu, Ph.D.

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Employment

Postman, Inc., fully remote   (via acquisition of Akita Software in June 2023)   March 2021 – present

Staff software engineer	Jun 2023 – present
Founding engineer	Mar 2021 – Jun 2023

Intel Corporation, fully remote   (via acquisition of Barefoot Networks in July 2019)   November 2017 – March 2021
Barefoot Switch Division, Compilers and Tools

Staff software engineer	Nov 2019 – Mar 2021
Senior software engineer	Feb 2019 – Nov 2019
Software engineer	Nov 2017 – Feb 2019

Cornell University, Ithaca, NY   June 2003 – November 2017
Applied Programming Languages Research Group

Postdoctoral researcher	Aug 2012 – Nov 2017
Research assistant	Jun 2003 – Aug 2012

Education

Doctor of Philosophy, Computer Science, Cornell University

Thesis: *Towards a Secure Federated Information System*

Master of Science, Computer Science, Cornell University

Master of Engineering, Computer Science, Cornell University

Thesis: *JMatch: Java plus Pattern Matching*

Bachelor of Arts, Computer Science and Mathematics, Cornell University

Awards: *magna cum laude* in Computer Science, *cum laude* in Mathematics, with distinction in all subjects
Phi Beta Kappa, Golden Key International Honour Society

Patent

Data plane program verification. Jeongkeun Lee, Cole Schlesinger, Nate Foster, Han Wang, Robert Soulé, William Hallahan, Steffen Smolka, **Jed Liu**. Granted August 8, 2023. US-11720373-B2.

Peer-Reviewed Publications

SIGCOMM
September 2023
22% acceptance rate

P4Testgen: An extensible test oracle for P4. Fabian Ruffy, **Jed Liu,** Prathima Kotikalapudi, Vojtěch Havel, Hanneli Tavante, Rob Sherwood, Vladyslav Dubina, Volodymyr Peschanenko, Anirudh Sivaraman, Nate Foster. In *Proc. 2023 ACM SIGCOMM Conference*, pages 136–151, New York, NY, USA, September 2023.

NSDI
April 2021
16% acceptance rate

Avenir: Managing data plane diversity with control plane synthesis. Eric Hayden Campbell, William T. Hallahan, Priya Srikumar, Carmelo Cascone, **Jed Liu,** Vignesh Ramamurthy, Hossein Hojjat, Ruzica Piskac, Robert Soulé, Nate Foster. In *Proc. 18th USENIX Symposium on Networked Systems Design and Implementation*, pages 133–153, April 2021.

Eurosys
March 2019
22% acceptance rate

Efficient, consistent distributed computation with predictive treaties. Tom Magrino, **Jed Liu,** Nate Foster, Johannes Gehrke, Andrew C. Myers. In *Proc. 2019 ACM SIGOPS/EuroSys European Conference on Computer Systems*, pages 31:1–36:16, Dresden, Germany, March 2019.

CPS-SPC **award paper** October 2018 36% acceptance rate	Secure autonomous cyber-physical systems through verifiable information flow control. **Jed Liu,** Joe Corbett-Davies, Andrew Ferraiuolo, Alexander Ivanov, Mulong Luo, G. Edward Suh, Andrew C. Myers, Mark Campbell. In *Proc. 2018 ACM Workshop on Cyber-Physical Systems Security and Privacy*, pages 48–59, Toronto, ON, Canada, October 2018. Best paper award.
SIGCOMM August 2018 18% acceptance rate	p4v: Practical verification for programmable data planes. **Jed Liu,** William Hallahan, Cole Schlesinger, Milad Sharif, Jeongkeun Lee, Robert Soulé, Han Wang, Călin Caşcaval, Nick McKeown, Nate Foster. In *Proc. 2018 ACM SIGCOMM Conference*, pages 490–503, Budapest, Hungary, August 2018.
JCS May 2017	Fabric: Building open distributed systems securely by construction. **Jed Liu,** Owen Arden, Michael D. George, and Andrew C. Myers. Journal of Computer Security, May 2017, Vol. 25, Issue 4/5, pages 367–426.
CCS October 2016 16% acceptance rate	Safe serializable secure scheduling: transactions and the trade-off between security and consistency. Isaac Sheff, Tom Magrino, **Jed Liu,** Andrew C. Myers, and Robbert van Renesse. In *Proc. 23rd ACM Conference on Computer and Communications Security*, pages 229–241, Vienna, Austria, October 2016.
CSF July 2015 34% acceptance rate	Flow-limited authorization. Owen Arden, **Jed Liu,** and Andrew C. Myers. In *Proc. 28th IEEE Computer Security Foundations Symposium*, pages 569–583, Verona, Italy, July 2015.
POST April 2014 26% acceptance rate	Defining and enforcing referential security. **Jed Liu** and Andrew C. Myers. In *Proc. 3rd Conference on Principles of Security and Trust*, pages 199–219, Grenoble, France, April 2014.
NSDI April 2014 17% acceptance rate	Warranties for faster strong consistency. **Jed Liu,** Tom Magrino, Owen Arden, Michael D. George, and Andrew C. Myers. In *Proc. 11th USENIX Symposium on Networked Systems Design and Implementation*, pages 503–517, Seattle, WA, USA, April 2014.
Oakland May 2012 13% acceptance rate	Sharing mobile code securely with information flow control. Owen Arden, Michael D. George, **Jed Liu,** K. Vikram, Aslan Askarov, and Andrew C. Myers. In *Proc. 33rd IEEE Symposium on Security and Privacy*, pages 191–205, San Francisco, CA, USA, May 2012.
SOSP October 2009 16% acceptance rate	Fabric: A platform for secure distributed computation and storage. **Jed Liu,** Michael D. George, K. Vikram, Xin Qi, Lucas Waye, and Andrew C. Myers. In *Proc. 22nd ACM Symposium on Operating Systems Principles*, pages 321–334, Big Sky, MT, USA, October 2009.
SOSP **award paper** October 2007 19% acceptance rate	Secure web applications via automatic partitioning. Stephen Chong, **Jed Liu,** Andrew C. Myers, Xin Qi, K. Vikram, Lantian Zheng, and Xin Zheng. In *Proc. 21st ACM Symposium on Operating Systems Principles*, pages 31–44, Stevenson, WA, USA, October 2007. Best paper award.
POPL January 2006 20% acceptance rate	Interruptible iterators. **Jed Liu,** Aaron Kimball, and Andrew C. Myers. In *Proc. 33rd ACM Symposium on Principles of Programming Languages*, pages 283–294, Charleston, SC, USA, January 2006.
PADL January 2003 40% acceptance rate	JMatch: Iterable abstract pattern matching for Java. **Jed Liu** and Andrew C. Myers. In *Proc. 5th International Symposium on Practical Aspects of Declarative Languages*, pages 110–127, New Orleans, LA, USA, January 2003.

Technical Reports

Safe serializable secure scheduling: transactions and the trade-off between security and consistency. Isaac Sheff, Tom Magrino, **Jed Liu,** Andrew C. Myers, and Robbert van Renesse. arXiv:1608.04841, August 2016.

Flow-limited authorization: technical report. Owen Arden, **Jed Liu,** and Andrew C. Myers. Technical Report 1813-40138, Computer Science Department, Cornell University, Ithaca, NY, USA, May 2015.

A language for securely referencing persistent information in a federated system. **Jed Liu** and Andrew C. Myers. Technical Report 1813-35150, Computer Science Department, Cornell University, Ithaca, NY, USA, January 2014.

JMatch: Java plus pattern matching. **Jed Liu** and Andrew C. Myers. Technical Report TR2002-1878, Computer Science Department, Cornell University, Ithaca, NY, USA, October 2002.

Dissertation

Towards a secure federated information system. Jed Liu. Cornell University, Ithaca, NY, USA, August 2012. Ph.D. thesis.

Honours and Awards

Best Paper Award, ACM Workshop on Cyber-Physical Systems Security & Privacy (CPS-SPC), 2018

Graduate Teaching Award, Department of Computer Science, Cornell University, 2007-2008

Best Paper Award, ACM Symposium on Operating Systems Principles (SOSP), 2007

Winner, IBM Linux Scholar Challenge, 2002

Graduate Teaching Award, Department of Computer Science, Cornell University, 2001-2002

Second Place, ACM Programming Contest, Greater New York Region, 1999 and 2000

Academic Medal, Governor General of Canada, 1997
    For graduating top of class

Research Experience

Postdoctoral Researcher, Cornell University   August 2012 – November 2017

Research Assistant, Cornell University   June 2003 – August 2012

Research Assistant, Cornell University   August 2000 – October 2002

Teaching Experience

Teaching Assistant, Cornell University

    CS 6110, *Advanced Programming Languages,* Spring 2009
    CS 316, *Computer System Organization and Programming,* Fall 2007
    CS 411, *Programming Languages,* Fall 2003

Teaching Assistant, University of Washington

    CSE 341, *Programming Languages,* Spring 2003
    CSE 142, *Computer Programming I,* Winter 2003
    CSE 341, *Programming Languages,* Fall 2002

Teaching Assistant, Cornell University

    CS 212, *Computers and Programming (Practicum),* Spring 2002
    CS 513, *System Security,* Spring 2002
    CS 472, *Foundations of Artificial Intelligence,* Fall 2001
    CS 312, *Structure and Interpretation of Computer Programs,* Fall 2000

Professional Activities

Technical Program Committee, 2020 ACM Symposium on SDN Research (SOSR)

Artifact Evaluation Committee, 2019 ACM Programming Language Design and Implementation (PLDI)

Artifact Evaluation Committee, 2018 ACM SIGCOMM Conference

External Review Committee, 2016 ACM Programming Language Design and Implementation (PLDI)

Artifact Evaluation Committee, 2015 ACM Principles of Programming Languages (POPL)

Reviewed papers for TIFS 2018, Euro S&P 2016, Oakland 2015, CSF 2015, CCS 2014, EuroSys 2013, CCS 2013, PLAS 2011, PLDI 2010, CSF 2010, SOSP 2009, Oakland 2008, ECOOP 2008, SOSP 2007, TISSEC 2006, OOPSLA 2006, ESOP 2006, POPL 2005