Jedidiah McClurg

Curriculum Vitæ *

✉ *jrmcclurg@gmail.com*
🖥 *http://www.jrmcclurg.com*
🎓 *scholar.jrmcclurg.com*
🦋 *dblp.jrmcclurg.com*
Ⓢ *skype:jedmcclurg*
in *linkedin.jrmcclurg.com*
📚 *stackoverflow.jrmcclurg.com*

Executive Summary

○ **Research:** *My research focuses on* synthesis/verification of software-defined network (SDN) programs, *and my overall goal is to develop tools and techniques to help programmers write better code. I have (co-)authored 11 peer-reviewed papers since 2012, including first-author conference papers at top venues like* **CAV'17**, **PLDI'16**, *and* **PLDI'15**. *My total citation count is currently 126, with an h-index of 6 and i10-index of 4. I received an Outstanding Research Award from the CU Boulder CS Department in Spring 2017.*

○ **Teaching:** *Since 2007, I have served as an undergraduate/graduate teaching assistant 8 times. I received an Outstanding Teaching Assistant Award from CU Boulder CS in Fall 2013.*

○ **Service:** *I served as an Artifact Evaluation Committee (AEC) member for POPL'18 and '16, and wrote reviews for ATVA'18, ESOP'17, TACAS'16, ASE'14, CAV'14, etc.*

Education

2013 – 2018 **Ph.D. Computer Science**, *University of Colorado Boulder*, Boulder, CO, USA.
- ○ Research Group: CUPLV (Programming Languages and Verification)
- ○ Topic: *Program Synthesis for Software-Defined Networking*
- ○ Advisor: Prof. Pavol Černý

2011 – 2013 **M.S. Computer Science**, *Northwestern University*, Evanston, IL, USA.

2004 – 2009 **B.S.E. Electrical & Computer Eng.**, *University of Iowa*, Iowa City, IA, USA.

Professional Experience

Aug 2018 – present **Assistant Professor**, *University of New Mexico*, Albuquerque, NM, USA.
Tenure-track faculty in the Computer Science department.

Mar – Jun 2014 **Research Intern**, *Microsoft Research*, Redmond, WA, USA.
Worked in the RiSE group, building support for realtime collaborative code-editing into the TouchDevelop project.

Jun – Aug 2013 **Graduate Intern**, *Rockwell Collins*, Cedar Rapids, IA, USA.
Worked in the Advanced Technology Center building a translator from LLVM assembly code into ACL2 to facilitate reasoning about binaries.

Jan – Aug 2011 **Graduate Intern**, *Rockwell Collins*, Cedar Rapids, IA, USA.
Worked in the Advanced Technology Center developing and using verification tools in an avionics context.

Nov '09 – Jun '10	**Graduate Co-op**, *Rockwell Collins*, Cedar Rapids, IA, USA.
	Worked in the SATCOM department developing test software for a military satellite terminal waveform and writing various scripts and documentation.
Sep – Dec 2008	**Graduate Co-op**, *Rockwell Collins*, Cedar Rapids, IA, USA.
	Worked in the Panels department designing hardware/software for commercial airliner cockpit panels and designing/configuring panel test equipment.
Jun – Aug 2004	**Technical Intern**, *Rockwell Collins*, Cedar Rapids, IA, USA.
	Worked in the Advanced Technology Center developing GUI frontends related to testing and benchmarking of a software-defined radio.
Jun – Aug 2002	**Technical Intern**, *aJile Systems*, Cedar Rapids, IA, USA.
	Developed benchmark applications for a JAVA bytecode processor.

Awards

Sep 2017	ARCS Scholarship, ARCS Foundation Colorado	*$6500*
Apr 2017	Outstanding Research Award, CS Dept., CU Boulder	*$600*
Apr 2014	Outstanding Teaching Assistant Award, CS Dept., CU Boulder	*$500*
Oct 2013	Research Community Development (RCD) Award, CU Boulder	*$1850*
Aug '13 – Jul '14	Dean's Fellowship, University of Colorado Boulder	*$5000*
Aug '13 – Jul '14	University Fellowship, University of Colorado Boulder	*$1000*
Sep '11 – Aug '12	Walter P. Murphy Fellowship, Northwestern University	*$16000*
May 2011	Innovation Disclosure, Rockwell Collins Advanced Tech. Center	*$600*
Aug '04 – May '08	Presidential Scholarship, University of Iowa	*$28000*
Aug '04 – May '08	National Merit Scholarship, University of Iowa	*$9500*
Aug 2004	National Merit Scholarship, Rockwell Collins	*$2500*
Aug 2004	Engineering Excellence Scholarship, University of Iowa	*$1000*

Travel Grants

Jun 2017	Travel Grant, CAV Student Fellowship	*$2021*
May 2016	Travel Grant, SIGPLAN, PLDI Conference	*$510*
Feb 2016	CS/Dean's Travel Grant, University of Colorado Boulder	*$1300*
Apr 2015	Travel Grant, NSF, PLDI/FCRC Conference	*$1028*
Feb 2015	CS Travel Grant, University of Colorado Boulder	*$1000*
Sep 2012	TGS/EECS Travel Grant, Northwestern University	*$800*
May 2011	Travel Grant, NSF, Summer School on Formal Techniques at SRI	*$500*

Publications

📑 Conference Papers In Progress

[12] Jedidiah McClurg, Nate Foster, and Pavol Cerny. Data-Plane Mechanisms for Distributed SDN Programming. 2017.

🖹 Peer-reviewed Conference Papers

CAV '17 ✅ [11] Jedidiah McClurg, Hossein Hojjat, and Pavol Cerny. Synchronization Synthesis for Network Programs. In *the 29th Intl. Conference on Computer-Aided Verification*. Acceptance rate: **57 / 191 = 30%**. Heidelberg, Germany, 2017.

FMCAD '16 [10] Hossein Hojjat, Philipp Ruemmer, Jedidiah McClurg, Pavol Cerny, and Nate Foster. Optimizing Horn Solvers for Network Repair. In *the 16th Intl. Conf. on Formal Methods in Computer-Aided Design*. Acceptance rate: **23 / 64 = 36%**. Mountain View, CA, USA, 2016.

DISC '16 [9] Pavol Cerny, Nate Foster, Nilesh Jagnik, and Jedidiah McClurg. Optimal Consistent Network Updates in Polynomial Time. In *the 30th Intl. Symp. on Distrib. Computing*. Acceptance rate: **32 / 132 = 24%**. Paris, France, 2016.

PLDI '16 ✅ [8] Jedidiah McClurg, Hossein Hojjat, Nate Foster, and Pavol Cerny. Event-Driven Network Programming. In *the 37th ACM SIGPLAN Conference on Programming Language Design and Implementation*. Acceptance rate: **49 / 304 = 16%**. Santa Barbara, CA, USA, 2016.

SecureComm'15 [7] Vaibhav Rastogi, Zhengyang Qu, Jedidiah McClurg, Yinzhi Cao, and Yan Chen. Uranine: Real-time Privacy Leakage Monitoring without System Modification for Android. In *the 11th EAI Intl. Conf. on Security and Privacy in Communication Networks*. Acceptance rate: **30 / 108 = 28%**. Dallas, TX, USA, 2015.

PLDI '15 ✅ [6] Jedidiah McClurg, Hossein Hojjat, Pavol Cerny, and Nate Foster. Efficient Synthesis of Network Updates. In *the 36th ACM SIGPLAN Conf. on Programming Language Design and Implementation*. Acceptance rate: **58 / 303 = 19%**. Portland, OR, USA, 2015.

🖹 Peer-reviewed Workshop/Demo Papers

MobileDeLi '15 [5] J. Protzenko, S. Burckhardt, M. Moskal, and Jedidiah McClurg. Implementing Real-time Collaboration in TouchDevelop using AST Merges. In *the 3rd Intl. Workshop on Mobile Dev. Lifecycle*. Pittsburgh, PA, USA, 2015.

PLVNET '15 [4] Hossein Hojjat, Jedidiah McClurg, Pavol Cerny, and Nate Foster. Network Updates for the Impatient: Eliminating Unnecessary Waits. In *the 1st Workshop on Programming Languages and Verification Technology for Networking*. Mumbai, India, 2015.

ACL2 '14 [3] David S Hardin, Jennifer A Davis, David A Greve, and Jedidiah R McClurg. Development of a Translator from LLVM to ACL2. In *the 12th International Workshop on the ACL2 Theorem Prover*. Vienna, Austria, 2014.

LAW '13 [2] Jennifer Davis, David Hardin, and Jedidiah McClurg. Creating Formally Verified Components for Layered Assurance with an LLVM-to-ACL2 Translator. In *the 7th Layered Assurance Workshop*. New Orleans, LA, USA, 2013.

Sensys '12 [1] Jedidiah McClurg, Goce Trajcevski, and Jesse Yanutola. Demo Abstract: Collaborative Reactive Behavior in Heterogeneous Wireless Sensor Networks. In *the 10th ACM Conference on Embedded Networked Sensor Systems*. Toronto, ON, Canada, 2012.

Teaching Experience

University of Colorado Boulder, Boulder, CO, USA

Aug – Dec 2013 *Graduate Teaching Assistant*.
Taught discussion section, created/graded exams, and held office hours for the *CSCI 3155 Principles of Programming Languages* class.

Northwestern University, Evanston, IL, USA

Sep '12 – Mar '13 *Graduate Teaching Assistant*.
Assisted with grading, office hours, etc. for *EECS 317 Data Management and Information Processing*, and *EECS 211 Fundamentals of Computer Programming II*.

University of Iowa, Iowa City, IA, USA

Jan – May 2010 *Graduate Teaching Assistant*.
Provided general lab support and assisted the *055:089 EE Senior Design* class instructor with grading.

Aug '07 – May '09 *Undergraduate Teaching Assistant*, *3 semesters (Fall'07, Spring'08, Spring'09)*.
Provided instruction and assistance to students in the lab, maintained/updated lab equipment, and graded lab reports and homeworks for the *055:032 Digital Design* (introduction to digital logic) class.

Jan – May 2007 *Undergraduate Teaching Assistant*.
Hosted weekly tutorial/discussion sessions with students, graded homeworks, wrote exam questions, and presented exam review sessions for the *059:006 Engineering Problem Solving II* (introduction to C programming) class.

Talks

● *Synchronization Synthesis for Network Programs*

Jul 27, 2017	CAV 2017	*Heidelberg, Germany*
Jun 30, 2017	CU Boulder, CUPLV Group	*Boulder, CO, USA*

● *Event-Driven Network Programming*

Jun 16, 2016	PLDI 2016	*Santa Barbara, CA, USA*
May 27, 2016	CU Boulder, CUPLV Group	*Boulder, CO, USA*

● *Efficient Synthesis of Network Updates*

Jun 16, 2015	PLDI 2015	*Portland, OR, USA*
Jun 5, 2015	CU Boulder, CUPLV Group	*Boulder, CO, USA*
Mar 6, 2015	(with Pavol Černý) CU Boulder, NGN Group	*Boulder, CO, USA*

● *AST-based Collaborative Editing*

June 25, 2014	Microsoft Research, RiSE Group	*Redmond, WA, USA*

	🎤 *Reasoning About LLVM Assembly Code via .LL-to-ACL2 Translation*
Aug 8, 2013	Rockwell Collins, Advanced Technology Center $\qquad$ *Cedar Rapids, IA, USA*
	🎤 *Virtual Machine Support for Parallel Language Runtimes*
May 30, 2012	Northwestern EECS 441 Class Final Presentation $\qquad$ *Evanston, IL, USA*
	🎤 *Detecting Android Privacy Leaks via Dynamic Taint Analysis*
May 28, 2012	(with J. Friedman and W. Ng) Northwestern EECS 450 $\qquad$ *Evanston, IL, USA*
	🎤 *Industrial Verification Using the KIND Model Checker*
Jun 14, 2011	(with Lucas Wagner) AFRL S5 Symposium $\qquad$ *Dayton, OH, USA*

Academic Service

- **Artifact Evaluation Committee (AEC) Member**: POPL '18, POPL '16
- **Reviewer**: ATVA '18, IEEE Transactions on Networking (ToN) '17, ESOP '17, TACAS '16, CAV '14, ASE '14

Skills

desktop environments	Ubuntu (Linux), Solaris, Windows, Cygwin
embedded platforms	Android, SunSPOT, TelosB, Microchip, Freescale
programming langs.	OCaml, Scala, Java, C, C++, Perl, Python, SML, Racket
formal verification	Z3, Yices, SPIN, NuSMV, MiniSat, ACL2, HOL, Lustre, Alloy
compiler construction	Xtext, OCamlLex/Yacc, LLVM, X86
hardware design	VHDL, Verilog, Xilinx, PSpice, I^2C, SPI, SD/MMC, USB
networking	nesC, TinyOS, Sockets, TCP/IP, ZigBee (802.15)
web development	PHP, MySQL, HTML, CSS, JavaScript, Apache, JSP, Tomcat
mathematical tools	Mathematica, MATLAB, LATEX, Gnuplot

Miscellaneous

memberships	Association for Computing Machinery (ACM)
citizenship	United States
relationship status	married (spouse is self-employed in the apparel design industry)
Erdős number	≤ 4
typing speed	80 wpm
StackOverflow level	3900+ reputation, 19 badges (member since Aug 2012)
AskUbuntu level	450+ reputation, 7 badges (member since Aug 2012)
hobbies	hiking, rock climbing, unicycling

References

Professional references available on request