Daniel Smullen

Curriculum Vitae

"Don't have good ideas if you aren't willing to be responsible for them." —Alan Perlis

Education

Since 2014

Doctor of Philosophy in Software Engineering, *Carnegie Mellon University*, Pittsburgh PA, *in progress*.
Advisor: Norman Sadeh

2009
2014

Bachelor of Engineering (Honours with Distinction) in Software Engineering, *University of Ontario Institute of Technology*, Oshawa ON.

Work Experience

Academic

Since 2014

Graduate Research Assistant, *Carnegie Mellon University*, Pittsburgh PA, Institute for Software Research.
Advisor: Norman Sadeh

Spring 2016

Teaching Assistant, *Carnegie Mellon University*, Pittsburgh PA, Institute for Software Research.
17-655/17-755: Architectures for Software Systems

Spring 2014

Research Associate, *University of Ontario Institute of Technology*, Oshawa ON, Software Quality Research Lab.
Supervisor: Jeremy Bradbury
- Investigated privacy in meta-data released unknowingly through Internet traffic, in a board approved user study.
- Investigated the software testing coupling effect using a variety of mutation testing tools and automation.

FUNDING AGENCY NSERC/CRSNG (Canada)

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Undergraduate Researcher, *University of Ontario Institute of Technology*, Oshawa ON, Software Engineering Lab.

Supervisor: Ramiro Liscano

- Studied tinyOS-based wireless sensor networks, applying policy-based programming to create a new development environment (Policy IDE).
- Developed remote development environments for embedded ubiquitous computing on tinyOS using IPv6.
- Published and presented work at EUSPN 2013.
- Presented at UOIT Student Research Showcase 2013.
- Developed TOSServ and Finger2IPv6 projects on Github.

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Industrial

334F Affiliate, *NASA Jet Propulsion Laboratory*, Pasadena CA, Radar Science and Instrument Engineering.

Supervisor: Razi Ahmed

- Developed a high-performance distributed image processing system.
- Developed a highly efficient filtering algorithm; processing time reduced from weeks to minutes.
- Portable implementation for for heterogeneous computing platforms; HPC clusters (NASA Ames), and desktop hardware.
- Deployed in production radar applications for UAVSAR program.

Engineer in Training, *SNC-Lavalin*, Toronto ON, SNC Global Information Technologies.

- Conducted reliability study on mission-critical datacenter systems.
- Established novel guidelines for disaster recovery and response planning.
- Generated quantitative data for infrastructure improvement planning.
- Developed streamlined workstation staging systems; deployment times reduced from hours to minutes.
- Removed and replaced dependencies on legacy DOS systems.

Support Technician, *SNC-Lavalin*, Toronto ON, Global Mining and Metallurgy.

- Provided dedicated technical support for high-value clients and senior management.
- Conducted educational seminars on computer and network security, repair, open source software.
- Developed automated solutions for data recovery.
- Performed data forensics and recovery on destroyed hardware.

Laboratory Systems Administrator, *DESSAU*, Toronto ON, LVM-Technisol Division.

- Migrated legacy laboratory information management systems.
- Conducted field work in geotechnical sampling, concrete and asphalt quality testing.
- Managed geotechnical probe hole drilling and underground utility location program.
- Performed in-situ quality testing on major airport and highway resurfacing projects.
- Responsible for integration of computer systems during LVM-JEGEL company merger.

Laboratory Systems Administrator, *John Emery Geotechnical Engineering Limited (JEGEL)*, Toronto ON.

- City of Toronto civil engineering liaison for special projects.
- Responsible for Trans-Canada Highway Rehabilitation geoinformatics.
- Responsible for 2009 Toronto Capital Works Program utility location and geotechnical probe hole drilling program.
- Performed collaborative development on an ISO 9001 certified laboratory sample management software.
- Performed debugging and troubleshooting of pavement analysis software on embedded systems.
- Designed and built a customized datacenter, serving high availability file storage and database systems.

R&D Projects

2016

Eddy: A Privacy Requirements Specification Language, *Carnegie Mellon University*, Pittsburgh PA.

SUPERVISOR Travis Breaux

FUNDING AGENCY Office of Naval Research, US Navy Postgraduate School (USA)

2015

Non-Local Interferometric SAR Parameter Estimator, *Jet Propulsion Laboratory*, Pasadena CA.

Non-Local-Interferometric SAR with Gaussian-Laplacian Pyramids, *Jet Propulsion Laboratory*, Pasadena CA.

SUPERVISOR Razi Ahmed

2014

Incident Recognition and Intelligence System (IRIS), *University of Ontario Institute of Technology*, Oshawa ON, Supervised by Shahryar Rahnamayan.

- Funding and collaboration provided by Baher Abdulhai, Asmus Georgi, University of Toronto Intelligent Transportation Systems Laboratory.
- First place award in UOIT EECS Undergraduate Capstone Design Challenge.

SUPERVISOR Shahryar Rahnamayan

FUNDING AGENCY NSERC/CRSNG (Canada), University of Toronto (Canada)

2014

Automated Marking System (AMS), *University of Ontario Institute of Technology*, Oshawa ON.

SUPERVISOR Kamran Sartipi

2013

Policy IDE, *University of Ontario Institute of Technology*, Oshawa ON.

TOSServ, *University of Ontario Institute of Technology*, Oshawa ON.

Finger2IPv6, *University of Ontario Institute of Technology*, Oshawa ON.

SUPERVISOR Ramiro Liscano

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Military Logistics Management System (MLMS), *University of Ontario Institute of Technology*, Oshawa ON.

SUPERVISOR Eyhab Al-Masri

sneakyFS File System Design and Implementation, *University of Ontario Institute of Technology*, Oshawa ON.

○ Won distinction as best project in ENGR3950: Operating Systems course competition.

SUPERVISOR Kamran Sartipi

Datacenter Utilization Research Study, *SNC-Lavalin*, Toronto ON.

SUPERVISOR Marc Ross

Trans-Canada Highway Rehabilitation Geoinformatics, *JEGEL*, Toronto ON.

SUPERVISOR Alain Duclos

Laboratory Information Management System (LIMS), *JEGEL*, Toronto ON.

SUPERVISOR John Emery

Refereed Publications

Bhatia et al.: Privacy Risk in Cybersecurity Data Sharing

Jaspreet Bhatia, Travis D. Breaux, Liora Friedberg, et al. "Privacy Risk in Cybersecurity Data Sharing". In: *Proceedings of the 2016 ACM on Workshop on Information Sharing and Collaborative Security*. WISCS '16. Vienna, Austria: ACM, 2016, pp. 57–64. ISBN: 978-1-4503-4565-1. DOI: 10.1145/2994539.2994541. URL: http://doi.acm.org/10.1145/2994539.2994541.

Breaux et al.: Detecting Repurposing and Over-Collection in Multi-party Privacy Requirements Specifications

Travis D. Breaux, Daniel Smullen, and Hanan Hibshi. "Detecting Repurposing and Over-Collection in Multi-party Privacy Requirements Specifications". In: *Proceedings of 23rd IEEE International Requirements Engineering Conference*. IEEE, 2015, pp. 166–175.

Smullen et al.: Towards Rapid Recertification Using Formal Analysis

Daniel Smullen and Travis D. Breaux. "Towards Rapid Recertification Using Formal Analysis". In: *Proceedings of the US Navy Postgraduate School 12th Annual Acquisition Research Symposium* (2015). URL: http://www.acquisitionresearch.net/files/FY2015/SYM-AM-15-104.pdf.

Smullen et al.: Genetic algorithm with self-adaptive mutation controlled by chromosome similarity

D. Smullen, J. Gillett, J. Heron, et al. "Genetic algorithm with self-adaptive mutation controlled by chromosome similarity". In: *Evolutionary Computation (CEC), 2014 IEEE Congress on*. July 2014, pp. 504–511. DOI: 10.1109/CEC.2014.6900591.

Qwasmi et al.: Integrated Development Environment for Debugging Policy-based Applications in Wireless Sensor Networks

Nidal Qwasmi, Daniel Smullen, and Ramiro Liscano. "Integrated Development Environment for Debugging Policy-based Applications in Wireless Sensor Networks". In: *Procedia Computer Science* 21 (2013). The 4th International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN-2013) and the 3rd International Conference on Current and Future Trends of Information and Communication Technologies in Healthcare (ICTH), pp. 225–233. ISSN: 1877-0509. DOI: http://dx.doi.org/10.1016/j.procs.2013.09.030. URL: http://www.sciencedirect.com/science/article/pii/S1877050913008235.

Speaking and Professional Service

August 2015 — **Detecting Repurposing and Over-Collection in Multi-party Privacy Requirements Specifications**, *23rd IEEE International Requirements Engineering Conference*, Ottawa ON, Conference Talk.
- Presented conference talk for peer reviewed publication, with feedback and question session.

May 2015 — **Towards Rapid Re-Certification Using Formal Analysis**, *US Navy Postgraduate School 12th Annual Acquisition Research Symposium*, Monterey CA, Conference Talk.
- Presented conference talk for peer reviewed publication, with feedback and question session.

November 2014 — **Conference Organization**, *International Conference on Multicore Software Engineering, Performance, and Tools (MUSEPAT 2014)*, Hong Kong, Web Chair.
- Developed the conference website and assisted with organizing committees.

August 2014 — **Genetic Algorithm with Self-Adaptive Mutation Controlled by Chromosome Similarity**, *IEEE World Congress on Computational Intelligence (WCCI 2014), Evolutionary Computation Conference (CEC 2014)*, Beijing, Conference Talk.
- Presented conference talk for peer reviewed publication, with feedback and question session.

November 2013 — **How Much Do We Reveal Through Metadata? An Assessment of Online Privacy**, *IBM Consortium for Software Engineering Research (CSER 2013)*, Toronto ON, Poster and Panel Session.
- Presented poster for preliminary study findings and research methodology, with feedback and panel session.

October 2013 — **Policy IDE... and lessons learned since**, *The 4th International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN-2013)*, Niagara Falls ON, Conference Talk.
- Presented conference talk for peer reviewed publication, with feedback and question session.

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October 2013 **Facilitating the Internet of Things with Policy Programming**, *UOIT Undergraduate Research Showcase*, Oshawa ON, Poster and Panel Session.
- Presented poster for peer reviewed publication, with feedback and competitive panel session.

Invited Talks

2016 **Toward a Semantics for Data Retention in Eddy**, *National Institute of Standards and Technology*, Gaithersburg MD.
- Invited research talk, hosted by Applied Cybersecurity Division.

2015 **Privacy Engineering Tool Clinic**, *Computing Community Consortium Catalyst, Privacy by Design Workshop*, Pittsburgh PA.
- Privacy requirements specification techniques, with tool feedback and question session.

Awards

2017
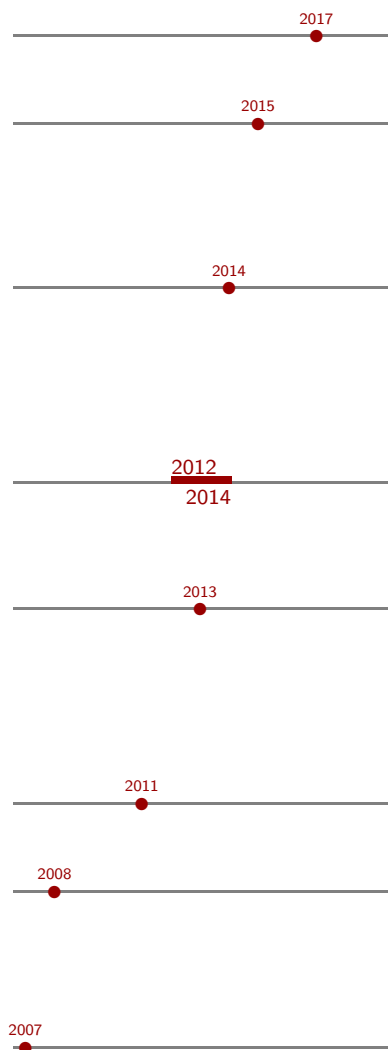
Hima and Jive Fellowship in Computer Science for International Students, *Carnegie Mellon University*, Pittsburgh PA.

2015

Ready-Set-Transfer Award, *23rd IEEE International Requirements Engineering Conference*, Ottawa ON, *Eddy: A privacy requirements specification language*.
- Award for 1st place in competitive industrial panel talks for technology transfer.

2014

EECS Undergraduate Capstone Design Challenge Winner - 1st Place, *University of Ontario Institute of Technology*, Oshawa ON, *Incident Recognition and Intelligence System (IRIS)*.
- Research project undergoing competitive evaluation by a panel of academic and industrial experts.

2012
2014

President's Honors List, *University of Ontario Institute of Technology*, Oshawa ON.
- Award for exceptional academic achievement, greater than 3.7 grade point average.

2013

National Science and Engineering Research Council (NSERC) Undergraduate Research Award, *University of Ontario Institute of Technology*, Oshawa ON.
- Federally funded research award undergoing competitive review process, funding 1 year of undergraduate research in engineering.

2011

Dean's Honors List, *University of Ontario Institute of Technology*, Oshawa.
- Award for exceptional academic achievement, greater than 3.5 grade point average.

2008

Engineers Without Borders Design Challenge Winner, *McMaster University*, Hamilton ON.
- Award for 1st place in competitive software requirements specification evaluation for a project targeting distribution of AIDS medication in rural Africa.

2007

DaVinci Engineering Design Challenge Winner, *University of Toronto*, Toronto ON.
- Award for 1st place in competitive engineering design challenge for remote controlled electric aquatic vehicle design, in Electrical Engineering and Fluid Dynamics competition stream.

Languages

ENGLISH	Native Proficiency	
FRENCH	Intermediate Verbal and Written Proficiency	*4 years secondary curricular training*
GERMAN	Intermediate Verbal and Written Proficiency	*4 years post-secondary training*

Professional Memberships

Since 2014

The Corporation of the Seven Wardens, *Order of the Calling of the Engineer*, Camp 1, Toronto ON.

Since 2013

Institute of Electrical and Electronics Engineers, *Student Member*.
- IEEE Communications Society
- IEEE Internet of Things
- IEEE Sensors Council
- IEEE Software Defined Networks

Since 2011

International Red Cross, *Class C Emergency First Aid, CPR and Defibrillator Certification*.

Since 2009

Burlington Rifle and Revolver Club, *Full Member, Range Officer and Instructor*, Burlington ON.

I give the authorization for the treatment of my personal data according to international law and privacy regulations, and do testify to the authenticity of the facts presented herein.

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