



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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Summer 2013

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

Summer 2015

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 heterogeneous computing platforms; HPC clusters (NASA Ames), and desktop hardware.
- Deployed in production radar applications for UAVSAR program.

Summer 2012

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.

Summer 2011

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.

Winter 2009

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.

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Spring 2009

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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2013

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

SUPERVISOR Eyhab Al-Masri

2012

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

2012

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

SUPERVISOR Marc Ross

2009

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

SUPERVISOR Alain Duclos

2009

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, Hanan Hibshi, and **Daniel Smullen**. "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>.

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

Daniel Smullen, Jonathan Gillett, Joseph Heron, and Shahryar Rahnamayan. “Genetic algorithm with self-adaptive mutation controlled by chromosome similarity”. In: *2014 IEEE Congress on Evolutionary Computation (CEC)*. 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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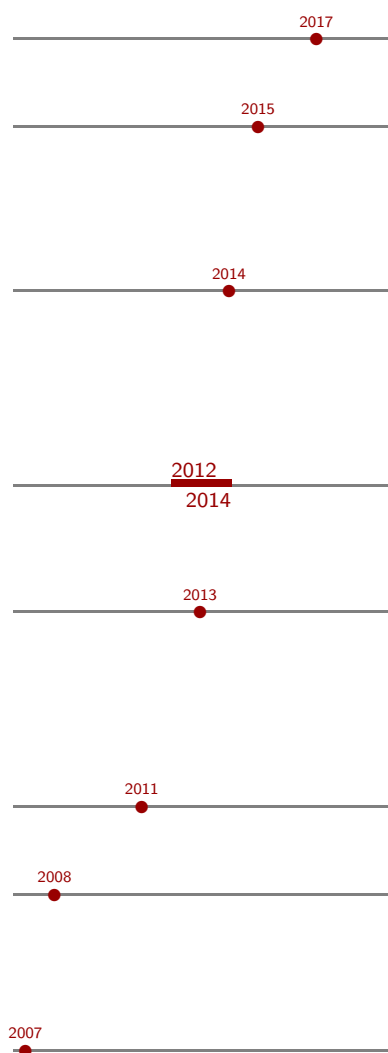
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- October 2013 **Facilitating the Internet of Things with Policy Programming**, *UOIT Undergraduate Research Showcase*, Oshawa ON, Poster and Panel Session.
- Presented poster for peer reviewed publication, with feedback and competitive panel session.

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



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

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.

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.

President's Honors List, *University of Ontario Institute of Technology*, Oshawa ON.

- Award for exceptional academic achievement, greater than 3.7 grade point average.

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.

Dean's Honors List, *University of Ontario Institute of Technology*, Oshawa.

- Award for exceptional academic achievement, greater than 3.5 grade point average.

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.

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.

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Languages

ENGLISH	Native Proficiency	
FRENCH	Intermediate Verbal and Written Proficiency	<i>4 years secondary curricular training</i>
GERMAN	Intermediate Verbal and Written Proficiency	<i>4 years post-secondary training</i>

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.

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*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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