

# Dmitry Blotsky

Bachelor of Software Engineering, Candidate for MASc

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## Technical Skills

in Python I wrote: a hardware testing system; UToronto's fruit fly [gene database](#)  
in C, C++ I wrote: a real-time microkernel; an embedded TCP command console  
in JavaScript I wrote: the code building and running [cordova.io](#); a JavaScript to SMT2.0 transpiler  
in Java I wrote: JIT dump for IBM's J9 JVM; a Java to x86 compiler  
in Assembly I wrote: an OS on ARM; a compiler for x86; a compiler for MIPS; a calculator in Coldfire  
in GNU Make I wrote: automation for every project on which I've worked

Assorted skills & technologies: regexes, MongoDB, Redis, SQL, RDF, Git, Mercurial, SAT/SMT, Linux, Mac OS X, Windows, Django, Flask, Sphinx, Ansible, node.js, express, AWS, bash, OpenCL, TCP/UDP, ARP, HTTP, HTCP, REST, Wireshark, tcpdump, Eclipse, HTML, CSS, LaTeX, Scheme, nginx, Apache, 3DS Max

## Industry Experience

### Software Engineer at [Brizi Inc.](#), Jun. 2017 - present

*A technology company providing fan-controlled robotic cameras at sporting events.*

- Took lead of all web technologies at the company; moving backend to AWS Lambda + S3
- Shifted engineering team to Agile process; automated infrastructure with Ansible
- Reduced front end user-perceived latency by 20%, and app footprint by 25%

### Software Engineer at [Microsoft Corporation](#), Oct. 2014 - Apr. 2016 (1.5 years)

*A multinational computer software, hardware, and services company.*

- Worked on [Apache Cordova](#) (formerly PhoneGap) as part of the Developer Tools division
- First on my team to be an Apache Committer; promoted halfway to SDE2 after 1 year
- In a team of 10+, led effort to move team to Agile process
- Quit to work full-time on master's degree

*Docs Generator*, Jun. 2015 - Apr. 2016 (10 months)

- Stretched the static site system Jekyll to its limits in building [cordova.io](#) and [docs.cordova.io](#)

*Testing and CI*, Oct. 2014 - May 2015 (8 months)

- Overhauled testing and end-to-end CI for Apache Cordova using Buildbot and Jasmine
- Had [code reviewed](#) by engineers from Google, Mozilla, and Adobe

### Software Engineering Intern at [Apple Inc.](#), Aug. - Dec. 2013 (4 months)

*A multinational consumer electronics and technology corporation.*

- As part of Xcode Product Engineering Team, created a tool to logically analyze development data
- Received an Outstanding co-op evaluation

### Software Engineering Intern at [IBM](#), Jan. - Apr. 2013 (4 months)

*A multinational technology and consulting corporation.*

- Took an Advanced Compiler Optimisation course intended for full-time employees
- Received an Excellent co-op evaluation

*JIT Dump for J9 JVM*, Jan. 2013 - Apr. 2013 (4 months)

- Worked in a team of 40+; feature is still used, and got [open-sourced](#) with OpenJ9

### Software Engineer at [Arcturus Networks Inc.](#), Sept. 2011 - Apr. 2012 (8 months)

*An embedded systems company providing VoIP solutions for civil industries (medicine, transportation, etc.).*

- Received an Outstanding co-op evaluation

*Command Console on ARM Microcontroller*, Sept. 2011 - Dec. 2011 (4 months)

- For a processor with 1MB of RAM, wrote a TCP-based command console on the MQX RTOS

*Hardware Testing Framework*, Jan. 2012 - Apr. 2012 (4 months)

- Wrote an end-to-end testing system in Python for Arcturus' VoIP products
- Increased automated hardware test coverage from 0% to 50%

## Research

**Master's Thesis**, Jan. 2017 - present

- Wrote a [fuzzer](#) (automated tester) for state-of-the-art SMT solvers
- Supervised by [Dr. Vijay Ganesh](#), a Waterloo professor and alumnus of Stanford and MIT

**Vulnerability Finder for JavaScript**, May 2015 - Nov. 2016 (1.5 years)

- As part of master's thesis, worked on a vulnerability finder for JavaScript programs

## Other Projects

[Fruit Fly Gene Database](#), Intermittently, 2014 - present

- Wrote Fly-FISH, University of Toronto's fruit fly gene database
- Credited in [paper](#) published in CSHLP Genes & Development [journal](#)

**Java Compiler**, Jan. 2017 - May 2017 (4 months)

- In a team of 3, built a compiler for a subset of Java to x86 assembly
- Set up builds & tests for code in 3 languages (C#/F#/Python) for 3 OSes (macOS/Windows/Linux)
- Implemented LLVM IR and several peephole optimisations

**Real-Time OS**, May 2013 - Aug. 2013 (4 months)

- Wrote a microkernel RTOS for ARM, and an application for it to control physical [Märklin](#) trains

More projects available on my [GitHub Profile](#).

## Education

**Master of Applied Science at University of Waterloo**, Jun. 2014 - present (grad. in 2018)

**Bachelor of Software Engineering at University of Waterloo**, Sept. 2009 - Jun. 2014 (5 years)

*Advanced Topics I've Studied*

<i>AI &amp; ML</i>	<a href="#">CSP</a> , hill-climbing, naïve Bayes, decision trees
<i>Robotics</i>	particle filters, planning, SLAM, machine vision
<i>Logic</i>	SAT & SMT, formal verification, symbolic execution, TLA+
<i>Systems</i>	compilers, profiling, multithreading, networking, UNIX
<i>Security</i>	buffer overflows, <a href="#">IDSs</a> , [a]symmetric key cryptography, k-anonymity
<i>CS Theory</i>	category theory, complexity theory, $\lambda$ -calculus, type theory, parsing
<i>Control Theory</i>	PID control, stability, applications

## Community Activities

<b>Percussionist</b> , <a href="#">orchestra@Uwaterloo</a>	Oct. 2009 - Aug. 2016
<b>Drummer</b> , <a href="#">Engineering Jazz Band</a>	Oct. 2009 - Aug. 2016
<b>Member</b> , <a href="#">Radio Amateurs of Canada</a>	Mar. 2012 - present
<b>Engineering Leader</b> , Orientation Week 2010 at the University of Waterloo	Sept. 2010

## Awards

<b>AP Scholar with Distinction</b> , College Board	Jun. 2009
<b>University Of Waterloo Merit Scholarship</b> , University Of Waterloo	Sept. 2009
<b>Young Authors' Award, non-fiction piece</b> , Toronto Catholic District School Board	May 2008

+ 15 awards from [Model UN](#) conferences at the municipal and provincial level

My professional interests include software processes, maintainability, and standardisation.

When I'm not coding, I enjoy [3D modeling](#), playing music, and playing board games.