Tudor Brindus

University of Toronto
Hon. Bachelor of Computer Science, 2020

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Professional Experience

Jane Street Capital *New York, NY*
Software Engineering Intern, FPGA & Network I/O Team *May 2019 - August 2019*

- Developed a zero-alloc userspace TCP stack, achieving latencies 4 times lower than Linux's network stack
- Implemented a low-latency userspace network driver on top of Solarflare's `ef_vi` kernel bypass, lowering response times by parsing packet headers before they are fully received by the host
- Wrote a network driver to feed ethernet frames into raw Linux sockets, allowing for userspace network stacks to be tested on arbitrary topologies when used in conjunction with network namespaces
- Modernized a cryptocurrency trading bookkeeping app, while reducing its memory footprint by 70%
- **Technologies used:** OCaml, C, x86 assembly, Solarflare `ef_vi`/OpenOnload, Linux kernel, `perf`

Google *Mountain View, CA*
Software Engineering Intern, Chrome OS Team *May 2018 - August 2018*

- Securely implemented automated device setup using asymmetric crypto (via a device's Trusted Platform Module), saving organization admins weeks every year when having to reset thousands of devices
- Developed robust runtime detection of device form-factor based on device capabilities (e.g. keyboard)
- Worked towards switching auto-update tooling to a newer protocol version using 5-10% less bandwidth
- **Technologies used:** C, C++, Python, Bash, protobuf, OpenSSL, Linux kernel, Gentoo/Portage, git/Gerrit

Ivy Global *Toronto, ON*
Software Engineer *2016 - 2018*

- Implemented a ground-up rewrite and redesign of the company's main website, *ivyglobal.com*
- Migrated over 50 production sites to Microsoft Azure with zero downtime, including a development VPN
- Screened, interviewed, assessed, and provided on-going guidance for new software engineering interns
- **Technologies used:** C#, ASP.NET MVC Razor, TSQL, LINQ, HTML, CSS/SASS, JavaScript/Node.js, Python

Other Experience

*More at **tbrindus.ca/projects***

Developed and contributed to dozens of open-source projects on my Github profile, **Xyene**

DMOJ: Modern Online Judge, a modern **contest platform** and **archive of programming problems**

- Hosted over 150 competitions (including three national olympiads)
- Created a distributed code execution system capable of dynamically scaling to hundreds of nodes
- Implemented a sandbox for over 60 languages using a Linux syscall-based sandboxing approach

Emulator.NES, a cross-platform **C# Nintendo Entertainment System and MOS 6502 CPU emulator**

- Supports 90% of all games ever published by emulating over a dozen proprietary hardware extensions
- Focuses on code clarity by abstracting hardware components, without sacrificing performance

Miscellaneous

- Teaching assistant for the University of Toronto's CSC209 "Systems Programming" offering
- Member of the University of Toronto's ACM-ICPC team for the 2016, 2017, and 2018 seasons
- Hack the North 2018 finalist (top 12 of 242 teams), developing a biometric 3-factor authentication device
- 1st place team out of 400, ECOO 2015 and ECOO 2016 programming contests