Zakhary Kaplan

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Interpersonal Skills

Communication • Teamwork • Leadership • Organization • Project Management
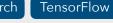
Technical Skills

Assembly • C • C++ • Rust • Python • Swift • MATLAB • Qt • Xcode • Unix • Vim • ML • PyTorch • TensorFlow • IC • Arduino • Raspberry Pi • FPGA • Quartus II • Verilog

Accomplishments

Chem 13 News Exam (2017)
- Ranked 53rd in University of Waterloo's international contest; approximately 3000 contestants.
- Recognized for outstanding achievement
- Offered research award grant.

University of Toronto National Biology Scholar (2017)
- Ranked 164th in national contest; approximately 2000 contestants.

Shalheveth Freier Physics Tournament (2016)
- Team ranked first nationally.
- Sponsored to compete and competed in international tournament.

Waterloo Mathematics Competitions (2013–2017)
- Received several awards of distinction.
- Multiple time school champion.

Profile

Computer Engineering student at the University of Toronto with a track record of academic excellence. Proven teamwork and leadership capabilities. Attentive to fine details. Fluent in multiple programming paradigms, including procedural, object-oriented, and functional. Experienced in digital logic design. Passionate about technology. Capable of quickly adapting to unfamiliar systems.

Education

Bachelor of Applied Science in progress | University of Toronto   *2018–Present*
- Studying **Computer Engineering** in the Faculty of Applied Science & Engineering.
- **3.94 Grade Point Average** cumulative over all semesters to date.
- **Dean's List Scholar** for all semesters to date.

Relevant Courses

- **Computer Fundamentals**: A+ | Computer systems programming in C.
- **Programming Fundamentals**: A+ | Object-oriented programming in C++.
- **Digital Systems**: A+ | Digital logic circuit design with substantial hands-on laboratory work using Verilog on FPGA boards.
- **Computer Organization**: A+ | CPU design in Verilog and Assembly language programming on ARM architecture. Curriculum includes memory organization, caches, and scheduling IO with interrupts.
- **Software Design and Communication**: A+ | Principles of software design, project management, and teamwork through the development of a mapping software written in C++ using Git for version control: github.com/zakharykaplan/mapper

Experience

Software Developer | Geomechanica Inc.   *May–August 2020*
- Developed and tested features for Irazu geomechanical simulation software.
- Duties included implementation of CAD editor tools, visualization of simulation outputs, project file management, and licensing. Worked using Qt in C++.

Researcher | iQua Research Group   *May–August 2019*
- Explored use of machine learning (ML) to extract topics from tweets via natural language processing with TensorFlow on BERT and XLNet models.
- Researched improvements to distributed ML using federated learning (FL) on PyTorch. Developed framework for conducting experiments: github.com/iQua/flsim
- Coauthor of paper presented at IEEE INFOCOM discussing findings of FL project.

Team Leader | Engineering Strategies & Practice II   *January–April 2019*
- Lead a team of student peers working on an engineering design project for a client.
- Scheduled team activities with Gantt charts and conducted weekly team meetings.

Research Assistant | Dalla Lana School of Public Health   *June–August 2017*
- Converted and analyzed survey data from Nutrition Canada Survey (1970-1972).

Publications

- **Optimizing Federated Learning on Non-IID Data with Reinforcement Learning**
Hao Wang, Zakhary Kaplan, Di Niu, Baochun Li. *IEEE INFOCOM 2020*.