

Michael Xu

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EDUCATION

UNIVERSITY OF TORONTO

B.A.Sc. IN ENGINEERING SCIENCE

Specialization: ECE

Sep 2015 - April 2020

Toronto, Ontario - Canada

CGPA: 3.53

LINKS

Github: [mshoe](#)

Website: [michaelx.io](#)

LinkedIn: [mxumichaelxu](#)

LANGUAGES

C++

Python

C#

C

GLSL

LaTeX

VBA, Tcl, Perl, Verilog, HTML, CSS

SOFTWARE

Git

Visual Studio

ImGui

Eigen

OpenGL

Unity

Blender

Microsoft Office Suite

MATLAB

Azure DevOps

ffmpeg

COURSEWORK

Algorithms and Data Structures

Operating Systems

Computer Graphics

Physics-based Animation

Nonlinear Optimization

Linear Algebra

Calculus

Differential Equations

Classical Mechanics

Deep Learning

OTHER INTERESTS

Computer Graphics Papers

Game Engine Architecture

Cinema

Musical Composition

PROFESSIONAL EXPERIENCE

ROCSCIENCE INC. GEOTECHNICAL SOFTWARE DEVELOPER

May 2020 – Present | Toronto, ON

- Lead the development of the physics engine for RocFall3, a 3D rockfall simulator for the assessment of slopes at risk for rockfall
- Researched and developed methods for rigid body dynamics, fast continuous collision detection, and contact mechanics adapted for rockfall simulation
- Extensive experience with C++ math library Eigen, C++ immediate GUI library ImGui, and graphics library OpenGL for Windows systems
- Managed software developer intern projects for RocFall3
- Wrote technical documents and gave presentations on RocFall3 theory
- Researched Material Point Method for landslide simulation

UOFT DYNAMIC GRAPHICS PROJECT RESEARCH STUDENT

September 2019 – April 2020 | Toronto, ON

- Developed a 2D differentiable Material Point Method simulator in C++
- Developed a method for generating topology morphing animations using optimization and backpropagation through time
- Developed a method for rendering Material Point Method data

ROCSCIENCE INC. SOFTWARE DEVELOPER INTERN

May 2019 – August 2019 | Toronto, ON

- Used Microsoft Azure to design an automatic cloud test suite for Slide3
- Derived a unique meta-heuristic search method for slope stability analysis

MICROCHIP TECHNOLOGY INC. SOFTWARE ENGINEERING INTERN

July 2018 – April 2019 | San Jose, CA

- Used SQLite and C++ to implement an SQL database for storing and retrieving messages from all sorts of FPGA design tools within the Libero FPGA software
- Used Tcl, Perl, and Python to implement an automated regression suite for the Libero FPGA software in Linux

TORONTO HYDRO TECHNICAL STUDENT

May 2016 – August 2016 | Toronto, ON

- Developed VBA scripts to be used in analyzing electrical control room data

AWARDS

2018	3rd	Ontario Engineering Competiton - Programming
2018	1st	UofT Engineering Kompetition (UTEK) - Programming
2016	2nd	WearHacks Toronto Hackathon
2016	3rd	UofT Game-Making Deathmatch
2015	\$12000	Vale Higher Education Scholarship
2015	\$2000	UofT President's Entrance Scholarship

SOCIETIES

2020	Choir member	Healing Sounds of Music, UofT
2017-2018	Graphic Designer	Machine Intelligence Student Team, UofT
2014-2015	Lead Guitarist	Senior Jazz Ensemble, Cawthra Park S.S.
2011-2015	Classical Guitarist	Guitar Ensemble, Cawthra Park S.S.
2011-2015	Choir member	Ritz Choir, Cawthra Park S.S.