Jeff Niu

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work experience CoreAVI *Summer 2018*

*Intern, Embedded Graphics Developer*

- Implemented [EGL Compositor](https://www.khronos.org/registry/EGL/extensions/EXT/EGL_EXT_compositor.txt) Extension in ArgusSC OpenGL driver

- Added VxWorks 6.x/7 real-time process and multi-thread support to Argus

- Added support for RS-343A compliant analog video modes

- Ported Argus OpenCL driver to 64-bit Yocto embedded Linux

- Developed hardware/software demos and profiled/optimized customer code

Yahoo! *Fall 2017*

*Intern, Software Engineer*

- Contributed data visualizations, task scheduling, and SQL/Druid query

optimizations to the open-source development of Apache Superset

- Built [a production tool](https://github.com/yahoo/sherlock) for real-time anomaly detection on Druid streams

- Created [ember-localforage](https://www.npmjs.com/package/ember-localforage), an EmberJS Data adapter that persists to browser cache

- Developed a [Bullet sprout](https://github.com/bullet-db/bullet-storm) to query in real-time the Twitter Firehose

teams Team Waterloop – Canada’s Hyperloop Team *Sep 2016*

*Lead, Software to present*

**-** Created [WLib](https://github.com/wloop), a collection of C++ libraries optimized for **embedded** systems,

including an STL, JSON library, and a **constant-time** memory allocator

**-** Designed a **fail-safe**, reliable software infrastructure for the pod based on

a CAN network and distributed hubs

**-** Developed [Wio](https://github.com/wio/wio), a fully-featured build tool and **package manager** for C/C++

supporting native and embedded environments (AVR/ARM) built with Go

UW Nano Robotics Group *Sep 2016*

*Technical Lead, Controls to present*

- Used OpenCV to develop an occupancy grid localization algorithm that

tracks the microbot, nearby objects, and walls in C++

- Applied a modified A\* procedure and 2D game physics to create a microbot AI

that can autonomously push an object through a labyrinth

- Main developer of [Minotaur](https://github.com/uwnrg/minotaur-cpp), UWNRG’s controls software built in Qt

projects Cerpent

*A Basic C-language interpreter*

- Leverages clang’s libraries to generate line-by-line ASTs parsed by Cerpent

- Uses LLVM just-in-time compilation for user-defined functions

- Supports pre-compiled modules in C++ exposed to interpreter

Fraktals

*A Mandelbrot and Julia set explorer*

- Mandelbrot, Julia, and -brot fractal explorer up to 2e+20 magnification

- Hardware accelerated rendering with Nvidia CUDA-C up to 4K resolution

GA Trusser

*A 2D Truss Optimizer*

- Genetic algorithm-based truss optimizer using Eigen and OpenBEAGLE

- Accounts for beam geometry, fixed lengths, and buckling modes

education University of Waterloo

B.A.Sc. in Mechatronics Engineering

*Expected Spring 2021*

GPA 4.0 (Rank 1, 97%)

languages C++, C, Go, Java, Python, JavaScript, x86 ASM, HTML/CSS

tools Git, Unix, Vim, GDB, IntelliJ, Eclipse, Visual Studio