ALEXANDER BOLINSKY

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TECHNICAL STRENGTHS

Languages	English (native), Japanese (self-taught, roughly JLPT N2)
Programming Languages	C++, x86 assembly, Python, JavaScript, Verilog
Tools	Linux, ROS, ALICA, Git, Docker, CI/CD, TTD, GDB, Valgrind, CMake, Static Analysis

ENGINEERING & RESEARCH EXPERIENCE

Rapyuta Robotics February 2018 - Current
Software Engineer *Tokyo, Japan*

- One of the core engineers designing and building application software for autonomous mobile robots (AMR) running in several warehouses operated by companies such as Nittsu and Konoike, since day one of the project. Developing the robots' general and contextual behaviors, orchestrating interactions between a variety of components from firmware to UI, creating libraries for system resource management, playing audio, processing barcodes, etc., and crafting tooling which has saved innumerable man-hours during initial setup and subsequent operation in a client's warehouse. Heavily involved in the preparation, oversight, and rapid debugging of the system in high-pressure contexts such as critical demonstrations that led to signed contracts with clients. Taking ownership of feature development from ideation to authoring design documents to test-driven execution in an agile environment, with an eye for fault-tolerance, user-centricity, and maintainability. Providing frequent rigorous and constructive code reviews of colleagues' work and mentorship to junior team members.
- Primary software engineer in developing an autonomous team of omni wheel-equipped robots that collaborate in gathering cubes from the environment and stacking them into a tower. Collaboration and robust team dynamics were achieved using ALICA (open source, contributor), and localization was achieved via sensor fusion of odometry and VIVE tracker position estimates. Presented at iROS 2018.

LockerDome June 2016 - July 2017
Web Developer *St. Louis, MO, USA*

- Developed and tested a custom high-performance database. This involved a detailed understanding of Linux and its system calls, the memory and caching hierarchy, hand-coding architecture-specific x86 assembly, implementing a custom memory manager, asynchronous socket programming, data (de)serialization, and heavy unit testing and profiling. Additionally worked on static type-checking for a front-end javascript framework compiler, implemented a lexer/parser for formatting articles, contributed to the api layer, and connected our ad server with publishing clients.

Institute of Electronics & Electrical Engineers Student Branch February 2014 - May 2016
Co-President & Treasurer *St. Louis, MO, USA*

- Designed and built a force/haptic feedback glove prototype for virtual reality applications. Designed and constructed a "Segway" that utilizes a 9 DOF IMU sensor, an Arduino, and filter and error algorithms for self balancing. Collaborated with several members on projects involving developing for the Oculus Rift, hardware and software design and construction, and 3D printing.

Digital Systems Laboratory August 2014 - December 2014
Student *St. Louis, MO, USA*

- Designed and implemented a ten band stereo audio equalizer in verilog and deployed the design on an FPGA. Components of the design include a Finite Impulse Response (FIR) filter for filtering the ten frequency bands, a Serial Peripheral Interface (SPI), the equalizer itself, and a LabVIEW application/GUI.

EDUCATION

Washington University in St. Louis 2012 - 2016
B.S. in Computer Science & Engineering

Leadership
Judge at GlobalHack VI Million-Dollar Hackathon (2016)
IEEE · Co-President & Treasurer of Student Branch (2014 - 2016)
Men's Squash Team · Co-Captain, Named Harrow Squash Player of the Men's National Championship Team (2014)

Awards
Third Place at Discovery Competition at Washington University in St. Louis (2017)
Top College Team at GlobalHack V Hackathon (2015)