ALEXANDER BOLINSKY

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TECHNICAL STRENGTHS

Languages	English (native), Japanese (self-taught, literate, conversational)
Programming Languages	C++, C, x86 assembly, Python, JavaScript
Tools	Linux, ROS, ALICA, Git, Gazebo, various debugging and build-system tools

ENGINEERING & RESEARCH EXPERIENCE

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

- Primary author and maintainer of core components of an autonomous warehouse robot fleet. Developing the robots' general and contextual behaviors, state machine, interactions with the UI and other ROS components. Developed several small libraries for system resource management, playing audio, processing barcodes, etc. Heavily involved in the preparation, oversight, and debugging of the system in high-pressure contexts such as critical client demonstrations. Overseeing general design with respect to user interaction.
- 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, 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)