Alexander A. Rickert

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EXPERIENCE

Material Handling Systems — August 2018 – August 2019
Research & Development Engineer — Louisville, KY

Responsibilities
- Setup and troubleshoot embedded devices on Linux network via terminal
- Improve path planning and collision avoidance algorithms for a large delta robot
- Develop original CUDA algorithms and convert C++ algorithms to CUDA for performance increase
- Contribute to core libraries by adding functionality, documentation, and OOP principles
- Collect data and provide feedback to vendor on a custom embedded vision device
- Collaborate with Controls Engineers to develop and maintain a PLC communications specification
- Collaborate with Mechanical Engineers to develop an installation specification for products
- Work with team to install and commission a developed robotic and computer vision system in the field
- Monitor and assess network traffic using Wireshark
- Give and receive code reviews

Achievements
- Developed a computer vision application on image sensor which was installed in the field
- Developed GPU optimized voxelization algorithm which found volume and surface area of workspace
- Reduced the size of libraries by more than half by implementing OOP principles
- Troubleshot new firmware release of vendor code to identify error causing unusable data from sensor
- Researched and implemented a fast logging library for dynamic logging and debugging statements
- Provided onsite technical support for Fortune 500 customers

Material Handling Systems — May 2018 – August 2018
Electrical Engineer Co-op — Louisville, KY

Responsibilities
- Utilize OpenCV and Point Cloud Library to create a stereoscopic C++ application
- Collect data on and give feedback to a manufacturer for a custom image sensor

Achievements
- Created streamlined socket application for sending point cloud data over ethernet using UDP
- Developed and implemented CUDA accelerated matrix transform for XYZRGB point cloud data

PROJECTS

Redbird Robotics — Jan 2017 – July 2018
Captain — Louisville, KY

Responsibilities
- Lead team in completing all goals needed to compete in the International Aerial Robotics Competition
- Lead computer vision team in developing an object detection and localization program to run onboard an Autonomous Aerial Vehicle
- Lead the financial team to acquire funding for each competition by presenting to local businesses

Achievements
- Achieved 2nd place in North American venue at the International Aerial Robotics Competition

EDUCATION

Bachelor of Science in Electrical Engineering — Graduated May 2018
J.B. Speed School of Engineering, University of Louisville, Kentucky — GPA 3.10

Associate of Science — Graduated May 2015
Jefferson Community and Technical College, Louisville, Kentucky — GPA 3.11

SKILLS

◦ C/C++	◦ Git	◦ Arduino	◦ ROS	◦ Networking
◦ CUDA	◦ Linux	◦ Mavlink	◦ PX4	◦ Point Cloud Library
◦ CMake	◦ OOP	◦ Python	◦ Matlab	◦ Computer Vision
◦ OpenCV	◦ Robotics	◦ Doxygen	◦ Sockets	◦ Embedded Systems