

Zachary Nahman

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EDUCATION

- Colorado School of Mines**, Golden, CO
Master of Science [M.S.], Computer Science, December 2019 (expected) GPA: 3.9/4.0
- Regis University**, Denver, CO
Non-Degree Seeking, Computer Science, August 2017 GPA: 3.8/4.0
- Colorado School of Mines**, Golden, CO
Bachelor of Science [B.S.], Mechanical Engineering, May 2015 GPA: 3.0/4.0

PROJECTS

- Newmont Innovation Challenge 2018 Winner** - Golden, CO
- Served as Team Lead tasked with developing innovative technology for the mining industry.
 - Proposed a novel system for improving underground mine safety and productivity using a 3D sensor mesh network.
 - Proof of concept demonstrated using ROS, Velodyne Puck LiDAR, and Arduino.
 - Won access to over \$10,000 in project funding in a May 2018 pitch competition.
 - Continuing a feasibility study through the Fall 2018 and Spring 2019 semesters.
- UGV and UAV Teaming** - Golden, CO
- Serving as Project Manager for the UGV (unmanned ground vehicle) and UAV (unmanned aerial vehicle) teaming project for the Human-Centered Robotics lab at Mines
 - Goal is to create robotic systems capable of teaming in underground environments (both flying and ground)
 - Using ROS (Robot Operating System) for all development
 - Preliminary data shows its feasible for the UAV to follow the UGV at a threshold distance above the UGV
 - Also works towards DARPA Subterranean Challenge
- Hack CU Episode 4 - Labor Log** - Boulder, CO
- Attended my first hackathon at University of Colorado in Boulder
 - Met a team and we worked on using blockchain technology to end modern-day slavery
 - Wanted to create a blockchain database where home country governments can monitor the well-being of those that travel abroad and ensure they are being properly paid
 - Used Neo-Blockchain and Arduino RFID fob
 - Next steps are to integrate RFID readings with blockchain and create a front-end with neon-js (didn't have time as the hackathon was only 24 hours)
- Computer Aided Robotics for Welding (CAR-W)** - Lockport, LA
- Executed an 11 month relocation (Lockport, LA) site support contract for Wolf Robotics
 - Conducted on-site operation for 9-axis Robotic Welding Gantry in marine application (shipyard)
 - Performed experiments with latest automated path planning software and relayed results to the Software team at Wolf

- Taught training courses to operators, production planners (middle-management), and engineers on using industrial robots and CAR-W software

NASA 2015 Robotic Mining Competition - Kennedy Space Center, FL

- Team designed, built, and tested a robotic rover for excavation of planetary surface simulant
- Served as Lead Engineer for excavation subsystem and NASA Liaison
- Designed and built a bucket ladder for planetary surface excavation
- Team won 2nd place for presentation and demonstration

TEACHING

Teaching Assistant (TA) - CSCI 274 - Introduction to Linux - Golden CO

- TA for the Fall 2018 and Spring 2019 section of Introduction to Linux at CSM

PRESENTING

2016 ShipConstructor User's Conference - Mobile, AL

- Presented on behalf of Wolf Robotics at the 2016 ShipConstructor User's Conference in Mobile, AL
- Described functionality of latest software developments

AWARDS

01/2019 Best Master's Research Poster Award at CSM's C-MAPP award event

09/2018 Gogo C-MAPP Fellow - Scholarship Earned from CSM's C-MAPP (Computing - Mines Affiliate Partnership Program) Sponsored by Gogo Business Aviation

05/2018 Winning Team in the 2018 HackMines Newmont Innovation Challenge

07/2015 Engineering Intern License earned in the State of Colorado

04/2013 SolidWorks Associate Certification

09/2012 Varsity Swimming Scholarship earned to Colorado School of Mines

09/2011 President's Academic Merit Scholarship to Colorado School of Mines

05/2011 Gordon Cramer Award Scholarship for Exceptional Student Athletes Awarded by Longmont High School

04/2009 Earned the rank of Eagle Scout in the Boy Scouts of America

EMPLOYMENT

CSM Computer Science Graduate School - Golden, CO

Introduction to Linux TA CSCI274 (Teaching Assistant) (08/2018 - Present)

- Hold office hours for 2 hours per week to assist students with understanding linux OS.
- Grade 100+ scripting or programming assignments per week.

SSL Robotics LLC - Boulder, CO

Robotics Engineer Intern (05/2018 - 08/2018)

- Built a test suite using the Ruby programming language within the COSMOS embedded hardware controller for testing of robot actuators in support of the RSGS (Robotic Servicing of Geosynchronous Satellites) project.
- Assisted software engineers in testing an automated Life Tracking SQL database for RSGS flight components.
- Performed a technology demo using a Velodyne Puck LiDAR integrated with ROS using various ROS packages.

- Executed a feasibility study and technology demo using the MoveIt package in ROS to control a 7 DOF robotic arm.

Wolf Robotics, a Lincoln Electric Company - Fort Collins, CO

Software Engineer Intern (01/2018 - 2/21/2018)

- Project-based software implementation for robotic welding systems
- Generating reports on project milestones for defense industry
- Was working while attending Master's program. Left job to focus 100% on school.

Project Engineer (06/2015 - 12/2017)

- Performed on-site support for 9-axis robotic welding gantry in marine application
- Generated technical reports for the government on project milestones
- Tested and reported feedback on new software releases
- Programmed robotic motion to weld customer parts
- Trained new Project Engineers on robotic manipulator programming
- Made technical contributions to company sales pursuits
- Responsible for weld quality and development of electrical welding parameters

Applications Engineer Intern (07/2014 - 08/2014)

- Generated welding cell concepts for prospective customers
- Performed cycle-time analysis on welded assemblies
- Designed fixture tool concepts in SolidWorks and performed robot reach analysis

Assembly Technician Intern (05/2014 - 06/2014)

- Assembled and tested robotic systems on the shop floor
- Utilized hand tools and machine tools
- Wired I/O cabinet circuitry according to engineering specification

Colorado School of Mines - Golden, CO

Student Ambassador (02/2013 - 05/2015)

- Provided hospitality to prospective students and their families visiting CSM
- Gave large group and small group campus tours
- Supported large prospective student campus visits such as Discover Mines Day

Pomeroy IT Solutions *Mid-Range Operator (05/2012 - 08/2012)*

- Loaded, unloaded, transported, and documented media for IBM's Boulder, CO data center
- Worked night shift on weekends

VOLUNTEER

Power Mountain Engineering

Engineering Mentor (09/2015 - Present)

- Mentor talented high school students interested in STEM careers
- Performed nozzle optimization calculations in MATLAB (2016)
- Helped students design and build a supersonic ping pong ball launcher (2016)
- Assist students in construction of hovercraft from a kit (2018)

Colorado School of Mines - High Grade Publication

Poetry Editor

- Served as poetry editor for the Colorado School of Mines *High Grade* student arts showcase publication
- Recommended submitted poetry for publication

Expand Beyond Incorporated - Boulder, CO

Volunteer (Summer 2008, 2009, 2010, 2011, 2012)

- Helped with adaptive water skiing program for individuals with physical disabilities
- Performed jet ski rescue and trained learners to water ski
- Managed equipment

SKILLS

Software Packages:

Robot Studio, Visual Studio, Netbeans IDE, ShipConstructor, AutoCAD, LabVIEW, Microsoft Office Suite (Excel, PowerPoint, Access, Project, Word, OneNote), MATLAB, SolidWorks, MathCad, Minitab, Mathematica, Version Control (git and SVN)

Programming:

Familiar with...

- Java
- C#
- Python
- C++
- MATLAB
- Laravel PHP Framework
- HTML
- Jekyll (static website generator)
- L^AT_EX

Industrial Manufacturing:

Familiar with CNC programming and operation with MasterCam, operation of hand mill and hand lathe, and use of hand tools. Extensive understanding of welding processes.

Teamwork and Goal Setting:

Excellent goal setting, teamwork, and time management skills. I am driven to solve problems and perform well in teams.

Communication:

Developed excellent communication skills in both technical and non-technical situations. Served as project Liaison and provided reports to government agencies.

AFFILIATIONS

IEEE - Student Member

- IEEE Robotics & Automation Society
- IEEE Young Professionals Society

ACM - Student Member