Joshua Manela

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PERSONAL SUMMARY

I am an engineering student with a deep interest in both the theory and application Robotics, Machine Learning, Controls. Someday I aspire to be a professor where I can further my field through education and research; for now I'm enjoying life!

EDUCATION

Michigan State University
Fall 2016 - Spring 2021 (Expected)

Enrolled to begin PhD in Computer Science and Engineering Program

Michigan Technological University
Fall 2011 - Spring 2016

Graduated Summa Cum Laude BS Computer Engineering with Minor in Computer Science, Spring 2016, GPA: 3.74

ACADEMIC EXPERIENCE

Undergraduate Researcher, Michigan Technological University
September 2013 - April 2016

- Designed peripheral hardware for a robotic quadcopter to survey highways and bridges.
- Reconstructed a real-life bridge after having been flown over by a drone, using custom hardware and SLAM algorithms.
- Researched PSO (Particle Swarm Optimization) variants and meta optimizations.

Intro to Computer Science Teacher's Assistant and Learning Center Coach, Michigan Technological University
May 2015 - Present

- Work with students one-on-one during lab and guiding them through activities.
- Occasionally lecture in lab to help teach students simple programming concepts.
- Help students with various assignments as needed.

Electrical and Computer Engineering Learning Center Coach, Michigan Technological University
May 2015 - Present

- Work with students of all majors and tutor them in electrical and computer engineering concepts.
- Usually tutor basic circuits classes, compute hardware, and occasionally intro to signal processing related courses.

PUBLICATIONS

J. Manela and T.C. Havens. Histogram particle swarm optimization (HistPSO): evolving non-parametric acceleration distributions. Accepted, IEEE Conf. Evolutionary Computation

WORK EXPERIENCE

Machine Learning Specialist Intern, Uber Advanced Technology Center
Starting May 2016

- Vehicle Autonomy Research with Machine Learning, Big Data, Planning, Control, Mapping, and Perception

Hardware Validation Engineering Intern, Facebook
May 2015 - August 2015

- Designing and testing Wedge TOR (Top of Rack) and Six Pack switches to contribute to the Open Compute Project
- Writing custom libraries to interface with the switches and running various network tests.
- Optimized various operations throughout Facebook data centers.

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Software Development Engineering Intern, Amazon
August 2014 - November 2014

- Thorough preparation of software design with rigorous design evaluations, while managing time in an Agile environment.
- Implemented RESTful APIs interfacing with a NoSQL database.

Software and Controls Engineering Co-op, Mercury Marine
January 2013 - August 2013

- Extensive use of MatLab and Simulink to modify and update Engine Controller Code and debug engine knock issues.
- Soldered, crimped, designed, and built engine harness for production and test designs.
- Wrote CAN, RFID, and IO libraries in C for an ATMEL AT90CAN128 processor to be used in security applications.

Robotic Simulation and Programming Intern, Applied Manufacturing Technologies
Summer 2012

- Laid out and simulated industrial robots using the Delmia I-GRIP CAD/Sim Package.
- Collaborated with other Simulation Engineers and wrote macros to improve CAD and simulation speed.

Lead Instructor, The Robot Garage
June 2011 - August 2012

- Wrote K-12 curriculum and led robotics classes and camps for the robot garage.
- Focused on the integration of mechanical and software design.
- Created the “Sumo Bot” stand-alone customizable robotics system still in use today.

User Friendly EMR (Electronic Medical Record)
August 2013 - April 2014

- Developed various modules for an EMR system with the intent of organizing patient data.
- Designed a module to store employee signatures and credit card information in a mySQL database.

Volunteer Work

First Robotics Mentor, FIRST Robotics Teams 27, 2194, and 2586
2011 - 2015

- Mentored three different high-school and two different middle school robotics teams.
- Taught students the basic of engineering design, application, and programming.
- Helped students create presentation and organize events to promote their team and gain funding.

Robotics Camp Instructor and Counselor, FIRST Robotics Team 2834
2009 - 2010

- Lead K-6 Robotics camps and designed the curriculum.
- Worked with parents to coordinate the needs for individual children.
- Organized a staff of counselors and helped them plan their classes.

Awards and Fellowships

University Distinguished Fellowship, Michigan State University
April 2016

- This fellowship is recognized by academic achievement, research goals, demonstrated leadership potential, and contribution to a diverse educational community.

CUMREC Fellowship Award, Michigan State University
April 2016

- This competitive fellowship is for the most outstanding nominee to an MSU doctoral program for 2016-2017 who has an interest in information technology with a higher education focus.

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BEACON Top Up Fellowship, Michigan State University
April 2016

- The goal of BEACON is to initiate and support research and training activities that involve the study of actively evolving systems and evolutionary dynamics, as well as applying these principles to solve tough computational or engineering problems.

ECE Departmental Scholar, Michigan Technological University
February 2015

- The ECE Departmental Scholar Award is given to a senior who best represents student scholarship at Michigan Tech. This outstanding student is considered excellent not only by academic standards, but also for participation in research scholarship activity, levels of intellectual curiosity, creativity, and communication skills.

Summer Undergraduate Research Fellowship (SURF), Michigan Technological University
March 2014

- Fellowship winners will spend between 7 and 14 weeks on an individual research project under the guidance of an MTU faculty mentor.

Professional Memberships

IEEE - Michigan Tech Chapter
Student Member

ACM
Student Member

Triangle Fraternity - Michigan Tech Chapter

- Held multiple Vice President positions including VP of Member development and VP of Scholarship.
- Organized and taught member education events to help bring prospective brothers into the fraternity.
- Organized and lead educational workshops for brothers.
- Kept an eye on brothers who were struggling academically and worked with them to improve their overall academic life.

SKILLS

- C/C++/Assembly
- python
- Embedded Design
- MatLab/Simulink
- LabView/NXT-G
- FANUC
- Frequency Analysis
- Control System Design
- Machine Learning Algorithms
- Particle Swarm Optimization