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Audrow Nash

Education

08/15–present **University of Michigan (U-M)**, *Ann Arbor*, Michigan, USA.
Master of Science in Electrical and Computer Engineering
GPA: 3.45/4.0
Courses: linear sys., robotic sys. lab, analytical and computational dynamics, machine learning
Select Course Projects:
- Built a 3D robot simulator in JavaScript, which included implementing RRT-star path-planning, and recursive forward and inverse kinematics
- Used a small wheeled robot for mapping and maze solving, which included implemented servo odometry and A-star, and using LCM for message passing and BreezySLAM (LiDAR) for localization and mapping in C++ and Python

08/10–12/14 **University of North Carolina at Charlotte (UNCC)**, *Charlotte*, North Carolina, USA.
Bachelor of Science in Electrical Engineering
GPA: 3.54/4.0
Courses: Engineering simulation, embedded system design, sensors and actuators

Awards and Scholarships

2016 **National Science Foundation (NSF) Graduate Fellowship** .

2013 **Charlotte Research Scholars Fellowship**.

Experience

08/15–present **Research Assistant**, *U-M*, Ann Arbor, Michigan, USA.
In the RAM-Lab with Assistant Professor C. David Remy (07/16–present):
- Created a method for performing automatic optimization of control parameters for stable walking and running of a bipedal robot in simulation. Presented this work at a workshop at IROS 2017.[3]
- Wrote a fast 2D rigid body simulator in C++. The simulator is a time-stepping simulator that uses complementarity-type conditions and a Coulomb friction model. (Used by approximately five people in the lab.)

In the APRIL lab with Professor Edwin Olson (08/15–06/16):
- Created a small and inexpensive system for person detection using a Lepton FLIR thermal camera. This method recursively used low resolution images to inform searches in images with higher resolution. Implemented in Python and in C.

02/15–08/15 **Intern**, *senseFly*, Cheseaux-Lausanne, Vaud, Switzerland.
- Designed and implemented in C++ a scale- and rotation-invariant object recognition system for drones to detect a landing pad.
- Implemented an algorithm in C++ to solve for a camera's intrinsic parameters; the obtained camera model was used to relate different cameras position for visual SLAM. (My implementation was used for calibration in mass production.)

05/13–12/14 **Research Assistant**, *UNCC*, Charlotte, North Carolina.

- Worked towards having quadrotors establish and hold a formation (using only on-board sensing and processing); planned algorithm, picked out hardware, and implemented. (Successfully implemented on quadrotors by my teammates after I graduated from UNCC.)
- Led team with three graduate students (while an undergraduate) (01/14–12/14).
- Presented research several times, including at the ICINCO conference in Vienna, Austria.

09/11–10/12 **Co-Founder and Partner**, *Sortastitious Longboards*, Charlotte, North Carolina.

I co-founded a company manufacturing and selling longboards (cruising skateboards).We were novel because we embedded electronics (hall effect sensor, IMU, LEDs, etc.) into longboards. I sold my part of the company to the other co-founder to focus on my studies. Profits surpassed expenses.

Extracurricular

03/14–present **Podcast Director**, *Robohub*.

- Leader of international team of around ten people (01/15–present). Oversaw publication of 70+ podcast episodes.
- Conducted 80+ interviews. Interviewees include researchers, entrepreneurs, philanthropists, those in industry, policy makers, and venture capitalists.
- Funded to attend and conduct interviews at several international conferences each year.
- On Robohub's steering committee. Discussions include business model and finances, collaborations, and long-term direction.

05/16–08/16 **Volunteer**, *Glacier Hills Senior Living*.

Volunteered three hours most Sunday mornings in Eva's House, a home for people with all stages of Alzheimer's disease.

08/11–10/12 **President and Chapter Founder**, *National Society of Leadership and Success*, Charlotte, North Carolina, USA.

Founded a chapter of a leadership and honor society that grew to approximately 1,000 members while I was president.

07/07 **Ambassador**, *People to People*.

Travelled around Eastern Australia for three weeks as a student ambassador for international diplomacy.

Publications

09/17 **IROS**, Learning Stable and Energetically Economical Walking with RAMone.
(first author) Presented poster at the *Planning Legged and Aerial Locomotion with Dynamic Motion Primitives* workshop.

09/14 **ICINCO**, Towards Establishing and Maintaining Autonomous Quadrotor Formations.
(first author)

03/14 **IEEE SoutheastCon.**, Establishing and Maintaining Formations of Mini Quadrotors.
(first author)

Skills

Programming *Competent* in *C/C++*, Python, Matlab; *Familiar* with Bash, Simulink, Swift, JavaScript, Common Lisp, Mathematica.

Software *Competent* with GIT, LaTeX, Linux/Unix systems; *Familiar* with AutoDesk, GDB, LCM, iOS app development, Qt, CMake, Make.

Hardware *Competent* with oscilloscope, multimeter, 3D printers, laser-cutter, soldering iron; *Familiar* with motion-capture systems, CNC machines, reflow soldering oven, casting silicone.