

Audrow Nash

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Education

- 08/15–present **University of Michigan (U-M)**, Ann Arbor, Michigan, USA.
Master of Science in Electrical and Computer Engineering
Courses: *Currently taking* reinforcement learning, robot kinematics and dynamics: *Previously taken* linear sys., robotic sys. lab, analytical and computational dynamics, machine learning
- 08/10–12/14 **University of North Carolina at Charlotte (UNCC)**, Charlotte, North Carolina, USA.
Bachelor of Science in Electrical Engineering
Courses: Engineering simulation, embedded system design, sensors and actuators

Awards and Scholarships

- 2016 **National Science Foundation (NSF) Graduate Fellowship**¹.
2013 **Charlotte Research Scholars Fellowship**.

Skills

- Programming** *Competent* in C/C++, Python, Matlab; *Familiar* with Bash, Simulink, Swift, JavaScript, Common Lisp, Mathematica.
- Software** *Competent* with Linux/Unix systems, GIT, LaTeX; *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.

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):
 - Currently, applying reinforcement learning techniques to a bipedal robot in simulation and on hardware. Presented a poster at a workshop at IROS 2017.³
 - Wrote a fast 2D rigid body simulator in Matlab—then 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.

¹ Article on my NSF award: <http://www.eecs.umich.edu/eecs/about/articles/2016/NSF-Fellowship-Nash.html>

- 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).² 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 Activities

- 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.
- 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.

Presentations

- 09/17 **IROS**, Learning Stable and Energetically Economical Walking with RAMone.
(first author) Submitted abstract and presented poster at the *Planning Legged and Aerial Locomotion with Dynamic Motion Primitives* workshop.³

Publications

- 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)

² Sortastitious longboard photos: <https://goo.gl/photos/PqtgqMZezBE5kHcc7>

³ IROS 2017 abstract and poster: <https://goo.gl/yXuJGX>