ANDREW TALLAKSEN

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EDUCATION

Carnegie Mellon University - Pittsburgh, PA **Graduation: May 2018**

- Master of Science, Mechanical Engineering, GPA **3.7**

The Cooper Union for the Advancement of Science and Art – Manhattan, NY **Graduation: June 2015**

- Bachelor of Engineering, Mechanical Engineering, GPA **3.5**
- Full-tuition scholarship, Cum Laude

WORK EXPERIENCE

Honeybee Robotics - Brooklyn, NY

Project Engineer **June 2015 – August 2016**

- Designed, produced shop-quality drawings for outside fabrication, precision machined (assembly runout within 0.005"), and tested mechanical components of an early stage spacecraft prototype actuation mechanism for NASA contract
- Produced CAD design, research, and a risk study as part of proposal winning the company multi-million dollar contract
- Constructed a visual inspection robot for 2" ferromagnetic pipes, using two servo motors, a camera, and an Arduino
- Researched components, contacted vendors for quotes, and consulted with senior engineers and manufacturers regularly

RESEARCH EXPERIENCE

Carnegie Mellon University, Robotics Institute - Pittsburgh, PA

Graduate Research Assistant/Teacher's Assistant – CubeRover **August 2017 – May 2018**

- Prototyped and tested a 2-kg lunar rover for a Phase I NASA SBIR with ~20 students and industry partner, Astrobotic
- Lead systems engineering team, and managed peers as class teaching assistant
- Facilitated communication, set high level goals/timeline, tracked budget (mass, power, cost), and mitigated unforeseen problems
- Authored and integrated systems summary in a 70+ page report detailing design, testing, results, and future work
- Awarded $750,000 Phase II contract as a team to continue our work

Research Assistant – Automated Nuclear Pipe Inspection Robot **May 2017 – Sept 2017**

- Invented and deployed a novel robot alongside ~20 members in 4 months for the DOE to detect uranium deposits to mm-precision using inductive and triangulation sensors
- Designed mechanisms: wheel modules to propel robot inside pipe, and sensor rotation module to actuate sensor disk
- Developed for use in 16"—30" pipes, move 100-lb robot over 0.25" steps, and withstand mild HF gas exposure

PROJECT WORK

Fundamentals of Programming and Computer Science – Room Mapping Robot, CMU **Fall 2016**

- Programmed robot to move autonomously, gather distance data incrementally, and create map with simple shapes
- Employed Raspberry Pi to control DC motors and a servo motor positioning the ultrasonic sensor, initialized via SSH

Intro to Computer Aided Engineering (CAE), Cooper Union **Fall 2014**

- Used ANSYS APDL to design a cost-effective wind turbine, accounting for deflections, stresses, and vibrations
- Simulated cooking a turkey and stuffing in an oven with a skewer using ANSYS Mechanical to create mesh and run simulation

PUBLICATIONS & ABSTRACTS

- Hsiung, J., **Tallaksen, A.**, Papincak, L., et al. "Localized Imaging and Mapping for Underwater Fuel Storage Basins," in *Proceedings of the Symposium on Waste Management*, Phoenix, Arizona, Mar. 2018
- Papincak, L., Jones, H., ... , **Tallaksen, A.**, et. al., "Robotic Measurement of Holdup Deposit Volume in Gaseous Diffusion Piping to Quantify U-235 Content," in *Proceedings of the Symposium on Waste Management*, Phoenix, Arizona, Mar. 2018
- **Tallaksen, A**, et. al. "CubeRovers for Lunar Exploration," *Annual Meeting of the Lunar Exploration and Analysis Group (LEAG) Poster Abstract*, Columbia, MD, Oct. 2017.

SKILLS

Proficient: SolidWorks, Inventor, MATLAB, Machining (Lathe, Mill, 3D Printer, Hand Tools)

Intermediate: C/C++, Python, VIM, CES, Arduino, Raspberry Pi, Electronics prototyping (breadboard, protoboard, etc.)