Matt Martone

www.martone.zone
mmartone@andrew.cmu.edu | (201)•625•3362

EDUCATION

CARNEGIE MELLON UNIV.

School of Computer Science
MS in Robotics
Cumulative GPA: 4.06 / 4.33
December 2019 | Pittsburgh, PA

BS in Mechanical Engineering
Additional Major in Robotics
GPA: 3.65 / 4.00
Graduated with University Honors
May 2018 | Pittsburgh, PA

SKILLS

MECHANICAL DESIGN
Solidworks • Mastercam • ANSYS

PROGRAMMING
Matlab-Simulink • Python • C++ • LaTeX

CUSTOM ACTUATION
Hydraulic • Gear Drive • Series Elastic
Linear Stage • Tendon Drive • Multi-DoF

FABRICATION
Mill • Lathe • CNC • Welding
3D Printing • Laser Cutting • Soldering
Gear Train Assembly • Polymer Molding

RECOGNITIONS

BEST SENIOR DESIGN PROJECT
Carnegie Mellon University,
Mechanical Engineering, 2018

SUMMER RESEARCH FELLOW
Carnegie Mellon University, 2015

EAGLE SCOUT
Boy Scout Troop 89, 2012

REFERENCES

DR. HOWIE CHOSET
Professor of Robotics
choset@cs.cmu.edu

DR. AARON PARNESS
JPL Section 347M Group Supervisor
Aaron.Parness@jpl.nasa.gov

DR. AARON JOHNSON
Professor of Mechanical Engineering
amj1@cmu.edu

EXPERIENCE

CMU - BIOROBOTICS LABORATORY | Student Researcher
September 2014 - Present | Pittsburgh, PA

- Lead the **Titan 6** project to design, build, and control a six foot tall hexapod for the Office of Naval Research, focusing on custom actuation and control
- Explored classical hydraulic actuation and designed novel microhydraulic actuator modules
- Designed new Series Elastic Actuator modules and programmed code base for **Modular Snake Robots** and **Snake Monster Robot**
- Created, programmed, and iterated **Modular RHex Robot** along with a series of experimental gaits and leg designs
- Traveled with robots for deployments and conference demonstrations
- Trained new interns, taught programming languages, and demonstrated design best practices as **Senior Mechanical Engineer**
- Administered lab Redmine documentation, Github, and GrabCAD repositories

NASA - JET PROPULSION LABORATORY | Summer Intern
Summer 2016/2017/2018 | Pasadena, CA

- Prototyped and characterized **cryoice anchors** using custom testbed
- Designed, developed, and deployed the **Ice Screw End Effector** for a limbed ice-climbing robot
- Lead mechanical design of ice anchor and core caching system prototypes
- Published paper in **IEEE Aerospace Conference 2018** proceedings on design and deployment of ice climbing robots
- Worked on the **Asteroid Redirect Mission** spacecraft hardware
- Generated reports and analyzed several thousand test results on the performance of different designs of the **Microspine Gripper Tool**

PROJECTS

MICROSPINE CLIMBING T-RHEX ROBOT | Spring 2019
Carnegie Mellon Course Project
Designed climbing version of RHex robot that used microspines to cling to and scale steep slopes. Published paper on climbing robot that retains ground mobility and was featured on **IEEE Spectrum** and other tech news sources.

DESKTOP 3-AXIS ROTARY CNC | Spring 2018
Carnegie Mellon Mechanical Engineering Capstone Project
Mechanical design of a 3-axis CNC Mill for machining non-axisymmetric radial parts in aluminum, wood, and plastic. Final design included end-to-end computer interface and could reliably hit tolerances of 0.005"-0.010". Won **Mechanical Engineering Best Senior Design Project** for 2018 and **Maker Faire Editor's Choice Blue Ribbon 2018**.

ROBOTIC TOOL-SORTING MANIPULATOR | Fall 2017-Spring 2018
Carnegie Mellon Robotics Capstone Project
Electromechanical and code base design for a portable 5-DoF custom robot arm that incorporated vision system for tool sorting and intelligent manipulation. Focused on mechanism design, custom electronics layout, and kinematics codebase.

UNDERACTUATED ROBOT HAND | Spring 2018
Carnegie Mellon Research Project
Mechanical design and characterization of a three-fingered gripper for generalized object grasping and supporting large compressive loads. Simulation performed to optimize grasp with tendon drive and return spring selection.