Tyler N Morrison

Cell: (913) 944-2055 Email: morrison.730@osu.edu Web: www.linkedin.com/in/tymo77 http://tymo77.github.io/

Education

Ph.D. in Mechanical Engineering

Distinguished University Fellow
The Ohio State University, Columbus, OH
Estimated Graduation: May 2021
GPA: 4.00/4.00

B.S. in Mechanical Engineering

Summa Cum Laude
The University of Tulsa, Tulsa, OK
Graduated: May 2017
GPA: 4.00/4.00

Research Experience

- Robotics Design and Control at OSU — August 2017 – Present

  The Ohio State University, Columbus, OH — Advisor: Dr. Haijun Su, Co-Advisor: Dr. Junmin Wang
  - Providing development support for driver behavior testing platform in JavaFX.
  - Assisting Psychology Department in running subjects on driver testing platform.
  - Developing models of variable stiffness links during collisions for improved performance of corobots.
  - Mentoring undergraduate researchers conducting exploring co-robot simulation in Microsoft HoloLens AR.
- NSF Interfaces and Surfaces REU — May 2016 – August 2016

  Clemson University, Clemson, SC — Advisor: Dr. Olga Kuksenok
  - Conducted computer simulations of hydrogel membranes under illumination
  - Studied role of positive feedback on hysteresis in volume phase transition
  - Planned, developed and expanded code for computer model of magnetically heated gel with cooling effects
- Biological Robotics at the University of Tulsa — May 2015 – July 2017

  The University of Tulsa, Tulsa, OK — Advisor: Dr. Joshua Schultz
  - Pursued independent research on grasping and manipulation of heavy objects by quadrupeds
  - Developed interactive 3D model of quadruped kinematics and tip-over stability
  - Developed method of stabilization for a single robot subject to disturbance without body movement

Peer-Reviewed Journal Articles

- *Optimization of reactive foot-shuffles to prevent quadruped tipover in interacting scenarios* – (Under Review as of 2/19/18) — 2018

  Tyler Morrison, Joshua Schultz – Advanced Robotics

Presentations, Posters and Abstracts

- The University of Tulsa Senior Projects Presentations – Co-presenter — 2017

  "The Tulsa Children's Museum Petroleum Exhibit Ball Lift"
  - Runner-up for best senior project award
- Materials Research Society Spring Meeting and Exhibit – Abstract Coauthor — 2017

  "Magnonics in hydrogels: modeling magnetomechanical effects in GHz frequency range"
- The University of Tulsa Student Research Colloquium – Presenter — 2017

  "Algorithms for Shuffling Foot Placements to Maintain Stability of a Quadruped Robot Engaged in a Cooperative Task"
- Clemson Undergraduate Research Symposium – Poster — 2016

  "Numeric Simulations of NIPA Gel Membranes Exposed to Heat and Light"
- The University of Tulsa Student Research Colloquium – Presenter — 2016

  "Investigation into Coordinated Gaits of Quadruped Robots Engaged in Grasping and Manipulation with Applications in Search and Rescue"
  - Honorable Mention for best presentation

Senior Project

- Vertical Auger Ball-Lift Mechanism 2016 – 2017
  - Customer: The Tulsa Children's Museum
  - Team designed and built an auger mechanism for lifting three-inch plastic balls from floor to ceiling
  - Design required extra precautions for safety and child-proofing
  - Sized, specified, procured, tested, and validated the mechanical clutch that was key to child-safe design
  - Maintained accurate 3D model of complete design used for drawings, construction, and design reviews
  - Led team in design and construction of the powertrain and electrical components
  - You can see the final project before it was installed here: https://youtu.be/jlq1ikz-zHM

Additional Work Experience

- Assistant to Tulsa ME Department Faculty Spring 2016 – Spring 2017

  The University of Tulsa, Tulsa, OK
  - Selected as grader for Junior-level Mechanics of Materials course and Junior-level Instrumentation and Measurement course
- Mechanical Engineering Intern Summer 2015

  Burns and McDonnell, Kansas City, MO Aviation and Federal Division, Mechanical Department
  - Worked in HVAC and plumbing
  - Designed HVAC system for Tinker AFB Squadron Operations Facility
  - Worked with supplier to design custom air handling unit for Portland International Airport
  - Assisted department manager in performing quality assurance design review for Sampson School at Guantanamo Bay
  - Developed OneNote notebook and central resource folder for coordinated use of reference materials and standards
- Jobsite Administrative Assistant Summer 2014

  Navitas ESCO, Olathe, KS
  - Assisted Navitas project managers in administrative tasks and oversite at job sites

Honors, Awards and Activities

At The Ohio State University:

- *Distinguished University Fellow* Fall 2017 - Present

At The University of Tulsa:

- *College of Engineering and Natural Sciences Steven J. Bellovich Medal* 2017
  - For demonstrated commitment to academic excellence and lifelong learning
- *Sidney Born Award in Mechanical Engineering* 2017
  - For outstanding academic achievement
- *Senior Project MVP* 2017
- *Nominee for National Barry Goldwater Scholarship* 2016
- *Chapman Presidential Scholar* and *National Merit Finalist* 2013 – 2017
- *Vision Scholar* 2013 – 2017
- *President's Honor Roll* All Eight Semesters
- *Tau Beta Pi* – Involved Member – Oklahoma Beta Chapter 2015 – 2017
- *Putnam Competition* Team Member 2014, 2015
  - Personal score of 11 in 2015 is among top 21% of competitors in the United States

Life-Long:

- Boy Scouts of America 2001 – 2013
  - **Eagle Scout** (2011) – worked with a home for troubled children and lead a project to build bookshelves for their library system

Software Skills

Comfortable learning almost any software
Experience with:

- VBA, MATLAB, Python, Java, C, Linux Systems, and very comfortable in Mathematica
- Solidworks, Revit, and AutoCAD
- ANSYS, ABAQUS, and Solidworks Simulation