

Tony (Minxing) Pan

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EDUCATION

UNIVERSITY OF MICHIGAN COLLEGE OF ENGINEERING,

Bachelor of Science and Engineering in Computer Science

GPA: 3.66/4.0; Major GPA: 3.85

Currently Enrolled: Autonomous Robotics Design Experience, Linear Algebra

Previous Coursework: Algorithms, Data Structures, Computer Organization, Multivariable & Vector Calculus, Discrete Math

STANFORD UNIVERSITY,

High School Summer College

GPA: 3.80/4.33

Coursework: Programming Methodology, Ordinary Differential Equations and Linear Algebra

Ann Arbor, MI

Sep 2018 - Apr 2022

Palo Alto, CA

Jun 2017 - Aug 2017

EXPERIENCE

Assistant in Research

University of Michigan Soar Cognitive Architecture, EECS Professor John E. Laird

Ann Arbor, MI

Jan 2019 – Present

- Designed, built, and programmed an overhead camera system for localization and reducing global cumulative odometry error in robot mapping using ArUco fiducials from the OpenCV computer vision library, linear transformations and change of basis, and multithreaded Python programming

- Integrate the Soar Cognitive Architecture with Anki's Cozmo robots, train intelligent agents to learn tasks such as stacking cubes and navigation with rewards and reinforcement learning in Soar and Python

- Building a high-level graphical representation (drag and drop programming language GUI) of Soar

Grader

University of Michigan College of Engineering

Ann Arbor, MI

Sep 2019 – Present

- Grading homework assignments for the course EECS 203 Discrete Mathematics

Assistant in Research

University of Michigan EECS Professor Benjamin J. Kuipers

Ann Arbor, MI

Nov 2018 – Present

- Building a physical representation of spatial knowledge of intelligent agents based on the Hybrid Spatial Semantic Hierarchy (HSSH) on Anki's Cozmo and Vector robots in Python

- Wrote a report on the HSSH and future work

Assistant in Research

University of Michigan Materials Science Shtein Lab

Ann Arbor, MI

Oct 2018 – Jul 2019

- Developed hardware (flex PCB, Particle, Arduino) and software (C/C++) for a kirigami sensor project

- Design, build, and program a novel 3D printer (Marlin, OctoPi, Python, C/C++, Peltier, RAMP)

Summer Research Fellow

Weizmann Institute of Science, International Summer Science Institute

Rehovot, Israel

Jul 2018 – Jul 2018

- Conducted research project "Making the Invisible Visible: Optimizing Laser Speckle Imaging Using Machine Learning and Targeted Recoloring" with Professor Vyacheslav Kalchenko

- Trained binary classifiers with Fast Random Forest algorithm on FIJI and applied on images with higher statistical noise

- Developed a workflow to enhance laser speckle images for real time surgical use in FIJI Macro and Java code

PUBLICATION

Proceedings of the Society of Photo-Optical Instrumentation Engineers (SPIE)

San Francisco, CA

Machine Learning Assisted Blood Vessel Segmentation in Laser Speckle Imaging

Mar 2019

- Gave an oral presentation at the SPIE Photonics West Conference

AWARDS

University Honors Dean's List

Dec 2018

International Science and Engineering Fair (ISEF) Finalist

May 2018

- Made my own graphene supercapacitors from inexpensive and available material

- Won Grand Award at Detroit science fair and competed at ISEF

FIRST Robotics Competition (FRC) Dean's List District Finalist

Mar 2017

- Captain of a high school robotics team and mentor of two middle school teams for two years

- Dean's List celebrate students with mentorship, leadership, and technical accomplishment

SKILLS

Programming: C++/C, Python, Java, Git, HTML/CSS, Soar, ImageJ, Assembly, Matlab

Robotics: OpenCV, SLAM (Lidar), LCM, Arduino, Raspberry Pi, Particle, Beaglebone