Khai Yi **Chin**

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EDUCATION

M.S., Mechanical Engineering, The University of Texas at Austin **2018**
Concentration: Dynamic Systems and Controls
Thesis Title: "Molecular Doping of Carbon Nanotube Conductors"
Thesis Advisor: Eric Fahrenthold, Ph.D.

B.S., Mechanical Engineering, University of Michigan, *magna cum laude* **2016**
Concentrations: Control Theory, Dynamic Modeling
Minor: Music

RESEARCH EXPERIENCE

Graduate Research Assistant May 2017 – Apr 2018
The University of Texas at Austin, TX
- Investigated doped carbon nanotubes (CNTs) for conductive cabling development via computational modeling.
- Interpreted scientific literature for past research efforts and state-of-the-art carbon based materials/devices.
- Explored the physical significance of simulation data via band structure analyses and transmission functions.

Undergraduate Research Assistant Nov 2014 – Jun 2016
Robotics and Motion Laboratory at Ann Arbor, MI
- Won the 2015 Prize for Contributions in Soft Robotics Research competition.
- Facilitated sensor design through generation of component parameters with MATLAB.
- Facilitated experimentation with automation using LabVIEW, a data acquisition device and a NI I2C bus.
- Designed and built testbed using pressure sensors, solenoid valves and electrical circuitry for sensor testing.
- Improved experimentation by tuning PID controller using Ziegler-Nichols method to increase system tension.
- Optimized testing operation through troubleshooting hardware and software issues.

PROFESSIONAL EXPERIENCE

Autonomous Robotics Engineer (Autonomy and Simulation Lead) Mar 2019 – Oct 2020
SIERA.AI at Austin, TX
- Led R&D project of an industrial autonomous mobile robot (AMR) with 10,000 lbs tugging capacity.
- Designed software and workflow for AMR deployment involving SLAM, localization, and autonomous navigation.
- Achieved ±30 cm repeatability in infrastructure-free autonomous navigation of a >60,000 sq. ft. warehouse.
- Prevented AMR collisions during autonomous navigation through the integration of LiDARs and 3-D cameras.
- Improved AMR robustness by >30% through configuring, tuning, and implementing a fused odometry solution.
- Created software for performance benchmarking of different localization algorithms implemented on AMR.
- Enhanced AMR user experience by designing UI applications to provide robot and workflow management.
- Established complete simulation stack to streamline robotics software testing using AWS RoboMaker and ROS.
- Facilitated knowledge transfer via preparation of technical documentation for engineers and customers.
- Provided new team members and interns with advice and mentorship.

Mechanical Engineer (Product Development) Apr 2018 – Feb 2019
DunAn Precision, Inc. – R&D Division, Austin, TX
- Spearheaded mechanical design of 1st generation visual inertial measurement units (VIMUs) and test fixtures.
- Developed critical flow process documentation and manuals for VIMU assembly.
- Achieved in-house product assembly by implementing robotic and pneumatic systems.
- Facilitated VIMU calibration by formulation of temperature, vibration, and rate test procedures.
- Improved VIMU accuracy by designing sensor calibration program in MATLAB.
- Investigated and analyzed MEMS gyroscope, accelerometer designs using dynamical modeling in Simulink.

TEACHING AND LEADERSHIP EXPERIENCE

Programming Instructor Jan 2017 – May 2017
Graduates Linked with Undergraduate Experience (GLUE) Program, UT Austin
- Guided students in learning and improving their Python programming skills.
- Prepared educational resources to assist students in achieving their programming goals.

Logistics Director; Check-in Co-director for Midwest Games '15 Oct 2014 – Jul 2015
University of Michigan Malaysian Students' Association
- Led a team of students for the largest crowd volume sporting event for Malaysians in the US and Canada.
- Streamlined the check-in process of 1000 participants by systemizing participant information, spreading crowd volume across different stations.
- Planned large scale venue reservations for events via coordination and allocation of duties to team members.

Swim Teacher Jun 2012 – Jul 2013
D Swim Academy
- Improved social interaction skills with children and adults to facilitate their needs and learning abilities.
- Refined teaching methods in approaching students with varied learning styles.

PUBLICATIONS

Felt, W., **Chin, K. Y.** and Remy, C. D., 2017. "Smart Braid Feedback for the Closed-Loop Control of Soft Robotic Systems," *Soft Robotics*, **4** (3), pp. 261-273.

Felt, W., **Chin, K. Y.** and Remy, C. D., 2016. "Contraction Sensing with Smart Braid McKibben Artificial Muscles," *IEEE/ASME Transactions on Mechatronics*, **21** (3), pp. 1201-1209.

Felt, W., **Chin, K. Y.** and Remy, C. D., 2016. "Self-Sensing Pneumatic Artificial Muscles for Feedback Control using the Inductance of "Smart Braids"," *Dynamic Walking 2016*, University of Michigan, Ann Arbor, MI.

Felt, W., **Chin, K. Y.** and Remy, C. D., 2015. "Dynamic Tracking of Joint Motion with Antagonized Smart Braids," *Fluid Power Innovation & Research Conference 2015 (FPIRC15)*, Chicago, IL.

PRESENTATIONS

Chin, K. Y., 2015. "Understanding and Testing Self Sensing McKibben Artificial Muscles," ME Undergraduate Symposium 2015, University of Michigan, Ann Arbor, MI.

UNIVERSITY SERVICE

Student Building Manager May 2014 – Apr 2016
University Unions, University of Michigan
- Cooperated with building tenants to ensure smooth operation of building affairs after business hours.
- Maintained building conditions and security through coordination with departments within the building.
- Addressed issues, concerns and inquiries raised by tenants and visitors alike.

Dining Hall Attendant Sep 2013 – Dec 2013
Bursley Dining Hall, University of Michigan
- Cooperated with colleagues from other stations to ensure controlled flow of students and the food supply.
- Executed tasks of food preparation, restocking food stations and serving.

AFFILIATIONS

Member, American Society of Mechanical Engineers (ASME)

TECHNICAL SKILLS

Programming Languages: C++, Python, Bash, MATLAB, NodeJS, HTML, CSS, ReactJS
Operating Systems: Linux, Windows
Software: ROS, Gazebo, AWS (RoboMaker, S3, Lambda, EC2), Git, Jira, Simulink, LabVIEW, SolidWorks, MS Office

LANGUAGES

English: Fluent
Mandarin Chinese: Fluent
Cantonese: Proficient
Malay: Proficient
Japanese: Basic

HONORS AND AWARDS

Peer-to-Peer Reward and Recognition	Mar 2020
Peer-to-Peer Reward and Recognition	May 2019
Research Merit Fellowship	2018
Soft Robotics Toolkit 2015 Prize for Contributions in Soft Robotics Research	2015
Dean's List Award	Dec 2014
Dean's List Award	Apr 2014
Dean's List Award	Dec 2013