

# Khai Yi Chin

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## EDUCATION

**University of Texas at Austin** Austin, TX, USA  
Masters, PhD in Mechanical Engineering (Dynamic Systems and Controls) 2021  
**GPA: 3.50/4.00**

**University of Michigan** Ann Arbor, MI, USA  
Bachelor of Science in Engineering in Mechanical Engineering Apr 2016  
**GPA: 3.59/4.00**

**Sunway University** Selangor, Malaysia  
American Degree Transfer Program for Mechanical Engineering Jul 2013  
**GPA: 3.80/4.00**

## EXPERIENCE

**University of Michigan, Robotics and Motion Laboratory** Nov 2014 – Jun 2016  
*Undergraduate Research Assistant, "Feedback Control with Novel Sensor on Smart Actuators"*

- Wrote MATLAB scripts to facilitate sensor design by computing sensor Q-factor based on parameters of tank circuit.
- Constructed LabVIEW scripts for automated experimentation of novel sensors on actuators.
- Integrated the TI LDC 1614 Inductance to Digital Converter to smart braids using a NI I2C bus for high frequency communication.
- Applied moving average filters of different window sizes to process noisy data from potentiometer in MATLAB and LabVIEW.
- Won the 2015 Prize for Contributions in Soft Robotics Research competition with novel sensor development.
- Designed and built a test fixture for pneumatic actuators using pressure sensors and solenoid valves.

**University of Michigan, Pierpont Commons** May 2014 – Apr 2016  
*Student Building Manager*

- Cooperated with departments and tenants within building to solve conflicts and problems past regular business hours.
- Identified safety and security problems of building until 1AM to ensure smooth operation of building.

## PROJECTS

**University of Michigan, Design of Digital Control (ME 561)** Jan 2016 – Apr 2016  
*Final Project - "Implementation of Digital Controller on Robotic Manipulator to Achieve Input Tracking"*

- Modeled 3 DOF Linear Time Varying robotic manipulator in MATLAB and Simulink for simulation.
- Utilized the Newton Euler method to obtain equations of motion in state space form.
- Designed PID and LQR controllers over a linearized trajectory and for impulse disturbance rejection for manipulator.

**University of Michigan, Design and Manufacturing III (ME 450)** Sep 2015 – Dec 2015  
*Senior Design Project - "Adaptive Materials Inc. Blue Board Controller for Test Protocol"*

- Created LabVIEW scripts to control Blue Board Controller using a real time PID controller.
- Incorporated 3<sup>rd</sup> party data acquisition device with LabVIEW to communicate with Blue Board Controller.
- Prepared technical documentation and schematic drawings for the Blue Board Controller to AMI.

**University of Michigan, Design and Manufacturing II (ME 350)** Sep 2014 – Dec 2014  
*Junior Design Project - "Laser Reflecting Linkage"*

- Optimized linkage movement using C with Arduino Uno microcontroller to achieve desired linkage behavior.
- Achieved highest accuracy of laser reflection within section of 8 teams.

**University of Michigan Solar Car Team** Jan 2014 – Oct 2014  
*Mechanical Engineering Department*

- Designed parking brake and remodeled brake mount for Quantum during the American Solar Challenge 2014.
- Analyzed parking brake model using Hypermesh and OptiStruct, taking into consideration forces acting on mount during braking.

## LEADERSHIP

**University of Michigan Malaysian Students' Association** Oct 2014 – July 2015  
*Midwest Games '15 Committee Logistics Director; Check-in Co-director*

- Coordinated a team for the annual sporting regional event for Malaysians in the Midwest.
- Systemized and oversaw check-in procedure during event of 1200 participants.
- Facilitated venue reservations to ensure smooth operation and security of event.

## SKILLS

Computer : LabVIEW, MATLAB, Microsoft Office, Simulink, C++, Latex, SolidWorks, Siemens NX, HTML, CSS  
Languages : Fluent – English, Chinese, Malay, Cantonese; Basic – Japanese

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## PUBLICATIONS

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- 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.

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## PRESENTATIONS

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

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## AWARDS

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- Recipient, Soft Robotics Toolkit 2015 Prize for Contributions in Soft Robotics Research – Grand Prize 2015
- Recipient, University of Michigan Dean's List Award FA 2013 – WN 2015