Jia Wen Lee

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Career Attributes

- Enthusiastic about engaging in challenging, novel problems that do not have a defined approach.
- In-depth knowledge of data wrangling and data analysis.
- Fast independent learner, able to quickly grasp technical domain-related knowledge with minimum supervision.
- Data-driven problem solver, analyze small scale test data and comparing results with field validation.
- Practical programming skills in MATLAB, Simulink, Python, and C++.
- Able to work and communicate effectively with people from diverse backgrounds and skills.
- Self-motivated with the ability to handle multiple tasks responsibly and efficiently with minimum supervision.
- Self-starter; takes initiative to learn new skills, seek tasks, suggest and shepherd improvements in any process.
- Willing to work long hours to exceed job expectations, currently put in an average of 60-70 hour work weeks.
- Excellent communicator:
  - Able to communicate vertically and horizontally across academic structure.
  - Teach difficult concepts such as PID controls to high school students.
  - Participate regularly in pitching competitions.
  - Frequent presentation of research progress to industrial sponsors.

Education:

Bachelor of Agricultural Engineering- Iowa State University: CGPA - 3.97	Graduated: Fall 2018
Masters of Science in Agriculture Engineering: CGPA - 4.0	Expected: Spring 2020

Work Experience:

Iowa State University – Graduate Research Assistant — May 2018- Present

- Research and develop automation solutions for agriculture tillage.
- Log, process, clean and merge LiDAR data with GPS data into manageable point cloud and perform post-processing data analysis to assess the viability of sensor for client application using MATLAB and C++.
- Work with other members of the tillage team to design software structure, communication protocol and hardware architecture of automated tillage implement.
- Build, visualize, and simulate algorithms to condense LiDAR data into a usable metric for feedback control.
- Create a graphical user interface on MATLAB and Python with a TCPIP and UDP listener thread using to conduct live analysis during field tests.
- Document, review and present results and commercial viability of research investigation to project sponsors.
- Compile Simulink model into C code for use on embedded controllers.
- Work with PID control loops on tillage implement in MATLAB Stateflow and Simulink.

Ag Leader Engineering Co-op — May 2017 – Dec 2017

- Process and analyze CAN data of mass flow from John Deere combine and grain carts.
- Optimize existing MATLAB programs used for data processing resulting in a reduction of program run time by a factor of 270. Benchmark time was 9 hours, new program is 2 minutes.
- Create new MATLAB programs and GUI to speed up data processing and data analysis.
- Work in an agile environment for MATLAB software development.

Iowa State University BSE department- Student Lab Technician — October 2015-May 2017

- Program webapps in Javascript, HTML, PHP, and Python to help facilitate research & data collection for Agricultural research
- Solder circuit boards and wire electrical system.

Relevant Skills:

Software & Programming:
MATLAB, Simulink, Stateflow, C, C++, Linux (Ubuntu), OpenCV, SQL, Java, JavaScript, HTML, JMP, CANoe, PID control, Git, Microsoft Office, ROS, Kalman Filter, Machine Learning, Python

Mechanical:
Automation Studio, SOLIDWORKS, Modelica, Simscape, power tools, hydraulic assembly, abrasive water jet.

Sensor & Electronics:
LiDAR, IP camera, Arduino, Beaglebone, Raspberry Pi, M220, Data Loggers, Encoders, IMU, GPS, CAN Bus J1939, UDP, Serial, I2C, TCPIP, DC & AC motors, stepper motors, Radar

Language:
English, Chinese, Malay

Leadership & Activities:

ISU Robotics Club -Ion Autonomous Snowplow Competition   Aug 2017 – Present
Mechanical Lead:
-Design, source and manufacture drive train and inner structure for an autonomous snowplow.
-Assist with programming and testing LiDAR obstacle detection system in C++.

First Robotics Competition Mentor – Controls   Dec 2017 – Present
-Teach and advise high school students in:
- Mechanicals skills: Power tool usage, CAD, Pneumatics
- Programming skills: Java, Implementation of control concepts including PID, path planning, odometry, and sensor usage.
- Electrical skills: Soldering, Crimping, Wiring

American Society of Agricultural and Biological Engineers (ASABE)
ASABE Robotics Team Leader: May 2016-Aug 2017
-4th place in ASABE Robotics competition 2016. Manage team members tasked with design and manufacturing.
-Design mechanical and electrical parts of the robot and program robots for a fully autonomous robot competition.
-Obtain funding for the team through sponsorship letters and contacting potential sponsors.

Iowa State Entrepreneurship Club Treasurer
Treasurer: August 2019- Present
-Manage club accounts; funding, sponsorships, and spending.
-Learn about the business aspect of product development, business models, customer sourcing, and value proposition.
-Improve public speaking skills with activities such as pitching competitions and regular idea presentations.

Relevant Coursework:

ABE 510: Electronic Systems Integration
Utilized **MATLAB** and Simulink to program embedded controllers to take in CAN joystick input for **PID** feedback control of linear actuators and motors.

ABE 503: Modeling, Simulations, and Controls
Utilize model-based programming (MATLAB Simulink/Modelica/Simscape) to model linear mechanical systems. Work with classical controls such as **PID** and state-space modeling.