

Fangzhou Xia

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- SUMMARY**
- Senior student with both ME and ECE background aiming to further study at graduate school in ME
 - Strong skills in CAD modeling with FEA analysis, FPGA programming and embedded system design
 - Hands-on experience in mechanism design, control system tuning and website establishment
 - Outstanding communication skills, self-motivated in teamwork and efficient in independent learning

ACADEMIC BACKGROUND & AWARDS

University of Michigan (UM)	<i>B.S.E. Mechanical Engineering</i> (Apr. 2015)	GPA: 4.0 / 4.0
Shanghai Jiao Tong University (SJTU)	<i>B.S.E. Electrical and Computer Engineering</i> (Aug. 2015)	GPA: 3.87 / 4.0
Coursework:	Automatic Control	Design and Manufacturing
	Vehicle Dynamics	Machining Process
	Digital Design (FPGA)	Introductory Data Structures
	Computer Architecture	Electric Machinery and Drives
		Robotic Kinematics
		Automotive Body Structure
		Signals and Systems
		Embedded Systems
Academic Awards:	2012, 2013 National Scholarship at SJTU (Top 2%)	2012, 2013 Dean's List at SJTU
	R&B Machine Tool Scholarship at UM (Top 2%)	2014 Dean's List at UM

WORK, RESEARCH & PROJECT EXPERIENCE

Orosz Ground Robotics Experiment Research Assistant, *Research Project*, Ann Arbor, MI **Sep. 2013 – Present**

- Research on connected cruise control to improve traffic efficiency and string stability in one lane.
- Conduct signal processing, sensor calibration and PID controller tuning on LabVIEW CRIO platform for testing.
- Implement multiple vehicle testing platform by Solidworks design and CNC G-code programming for manufacturing.

Mechanized Pedestrian for Auto-vehicle Testing Designer, *Capstone Design*, Ann Arbor, MI **Sep. 2014 – Dec. 2014**

- Designed and manufactured an adult male size mannequin that can shuffle at 1m/s using linkages, gears and pulleys.
- Implemented PI controller with Arduino, real time display with NI myRIO and ultrasonic vehicle detection system.
- Assembled mechanized pedestrian for automatic vehicle testing at Michigan Mobility Transformation Center.

Fluid Metrology Internship, *Cummins Inc. Fuel System*, Columbus, IN **May 2014 – Aug. 2014**

Oil and Viscor Flow Meter Calibration Rig Data Acquisition System Development **May 2014 – Jun. 2014**

- Developed a data acquisition system in LabVIEW with PCI-7813 and PCI-6259 for flow meter calibrations.
- Verified system functionality with FMEA for flow meters distributed around the company as measurement standard.
- Optimized user interface to enable generic meter calibration and significantly reduced operational error.

Single Injector Tester Concept Proof **Jun 2014 – July 2014**

- Realized RS-232 serial communication, analog input, PWM output with library in C++ and MFC framework.
- Conducted feasibility verification for a product to be sold internally to Cummins service engineers in.
- Investigated possibility to replace PC with PLC systems from Rockwell Automation for cost efficiency.

Robotic Arm Designer, *Mars Rover Competition Project*, Ann Arbor, MI **Sep. 2013 – Jan. 2014**

- Served as robotic arm group leader to design a robotic arm with 5kg load capacity and interface for changeable tools.
- Designed linkage system with actuators with six degrees of freedom for complicated motion trajectory.
- Implemented PID control algorithm in Matlab using Simulink interface for Arduino for precision control.

Mobile Backpack Carrier Designer, *Course Project*, Ann Arbor, MI **Sep. 2013 – Dec. 2013**

- Designed, modeled, simulated and manufactured linkage system with detailed analysis in Solidworks and ADAMS.
- Implemented PI controller algorithm using Arduino microcomputer that achieved 2% accuracy for specified time.
- Achieved best design parameter performance and best quality report within assigned lab section.

Degree Progress Checking System Project Manager, *Research Project*, Shanghai, China **Sep. 2012 – Aug. 2013**

- Initiated the project with the UM-SJTU Joint Institute academic office to simplify graduation checking process.
- Formulated a web based system for automatic degree progress managing using SQL, PHP and HTML/CSS.
- Implemented automatic report generation with PHPEXCEL that reduced graduation checking time to 20 percent.

Underwater Glider Manufacturer, *Research Project*, Shanghai, China **Feb. 2012 – Mar. 2013**

- Manufactured and assembled an underwater glider prototype to optimize a design of graduate students in SJTU.
- Studied the behavior of an underwater glider horizontal movement by mathematical modeling using Matlab Simulink.
- Implemented proportional control for gravity center changing to evoke zigzag movement of the glider in Arduino.

Automatic Paper Separator Designer, *Course Project*, Shanghai, China **May 2012 – Aug. 2012**

- Designed an automatic paper separator to rearrange stacks of exam paper within 200 pages in order.
- Manufactured and assembled the detailed design using Arduino microcomputer, infrared sensors and DC motors.
- Carried out field test for exam paper distribution before a math course successfully.

TEACHING EXPERIENCE

Instructional Aide, *ME360 Modeling, Analysis and Control of Dynamic Systems*, Ann Arbor, MI **Jan. 2015 - TBD**

- Prepare course material, homework solution and recitation sessions.

Grader, *ME360 Modeling, Analysis and Control of Dynamic Systems*, Ann Arbor, MI **Jan. 2014 – Present**

- Grade homework sets and assist course preparation for mechanical engineering course.

Engineering Learning Center Tutor, *Engineering Learning Center*, Ann Arbor, MI **Sep. 2013 – Dec. 2013**

- Tutored 1st and 2nd year engineering courses to help students catch up where they left off in course work.

Teaching Assistant, *Engineering 100*, Shanghai, China **May. 2013 – Aug. 2013**

- Led labs, offered recitations, graded homework and exams and designed course project setup for students.

Leadership Experience

SJTU-AA-UM President *SJTU Alumni Association at the UM*, Ann Arbor, MI **Jan. 2014 – Present**

- Coordinate and organize events for academic and career development and establish website for alumni connection.

Web Master *Pi Tau Sigma Mechanical Engineering Honor Society*, Ann Arbor, MI **Apr. 2014 – Present**

- Organize website content of online and help out during events and new member initiation process.

Student Ambassador *SJTU Alumni Association at the University of Michigan*, Ann Arbor, MI **Feb. 2012 – Aug. 2013**

- Attend weekly meeting with the undergraduate student committee members to reflect student opinions

CERTIFICATES & SKILLS

- **Certificate:** Certified LabVIEW Associate Developer
- **CAE and FEA software:** Solidworks, UG NX, Catia, AutoCAD, Pro/E, ADAMS, Altium Designer, Hyperworks,
- **Programming Languages & Framework:** C/C++, SQL, HTML/CSS, Python, PHP, VBA, Verilog, MFC, Django
- **Data Acquisition & Processing:** LabVIEW, Arduino, Matlab, Mathematica, Origin, Minitab
- **Documentation & Video Processing:** LaTeX, MS Office, Visio, After Effect, Premiere, Photoshop, Video Studio
- **Languages:** English, Mandarin