Xieyang Liu

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EDUCATION

- **University of Michigan**, Ann Arbor, MI — Sept 2015 - May 2017
  - *B.S.E.* in Computer Science Engineering (Dual Degree Program)
  - GPA: 3.84/4.00
- **Shanghai Jiao Tong University** (SJTU), Shanghai, China — Sept 2013 - Aug 2015
  - *B.S.E.* in Electrical and Computer Engineering
  - GPA: 3.81/4.00

  Relevant Courses: Data Structures and Algorithms, Computer Architectures, Machine Learning (Taking), Database Management Systems (Taking), Operating System (Taking)

  Honors and Awards: 2015 Mathematical Contest in Modeling-COMAP **Meritorious Winner** (Sophomore year), Tang Jun-Yuan SJTU Scholarship (Top 2), Scholarship for Outstanding Academic Performance, Dean's List

PROJECTS

- **Learning to Detect Humans-Object Interactions (HOI) using Machine Learning & Computer Vision Techniques (Paper Submitted to ECCV 2016)** *Research Assistant* Oct 2015 - Present
  - Develop an **Amazon MTurk**-based image annotation toolkit as well as its corresponding automated evaluation systems that boost worker-end annotating efficiency and facilitate **large-scale image data extractions**.
  - Implement and revise a **Python-based** back-end interface using Amazon provided APIs that provides instant data collection and progress check.
  - Construct a well-rounded **HICO** dataset that contains 47,774 images with 600 human-object interaction categories.
  - Apply machine learning techniques to help computers locate humans and objects as well as understand human actions in newly-encountered images.
- **Smart Belt for the Elderly & Health Management System** *Software Engineer* Mar 2015 – Jan 2016
  - Build a smart wearable device mounted on belts and develop its corresponding smart phone application that **automatically** detects fall-overs of the elderly and calls for help from doctors, hospitals, and families.
  - Add popular functionalities like heart-rate monitoring to make the device more capable and competitive in market.
  - Develop a health platform that keeps track of users' movement and health status in the hope of improving living qualities of the elders and boosting medical treatment development in China.
- **Portable Laser Guitar** *Project Leader & Software Engineer* May 2014 - Sept 2014
  - Designed and built a new concept of guitar with laser beams replacing the conventional strings. Implemented an in-body electronic speaker and a retractable fret-board.
  - Developed **C/C++ based** control algorithms and programs on **Arduino microcontroller** for the laser guitar to detect players' finger-styles and make the correct chord tune through the speaker.
  - Reduced the size of a guitar by 50% and limited the maximum latency between a string played and making the correct tune to 0.1s, where human beings are not able to notice.

LEADERSHIP/WORK EXPERIENCE

- **Research Assistant** advised by Yu-Wei Chao (PhD) and Dr. Jia Deng — Oct 2015 - Present
  Artificial Intelligence Lab @ University of Michigan
  - Design various **HTML** templates and **JavaScript** files to implement the web-based image annotation toolkit.
  - Develop the automated evaluation system for **image annotation evaluation** and **data extraction** in **MATLAB**.
  - Design and implement machine learning algorithms to help computer locate human/object positions and understand human actions and in future images.
  - Attend weekly group meetings, discuss and tackle various problems during research and development.
- **Teaching Assistant for Multivariate Calculus** supervised by Dr. Jing Liu — May 2015 - Aug 2015
  Center for Learning and Teaching @ UM-SJTU Joint Institute
  - Prepared and led weekly recitation sessions and office hours that review the lecture contents as well as cultivate students' problem-solving skills.
  - Graded homework assignments and exams, reported common problems and concerns to the faculty supervisor.

SKILLS

- **Programming Languages:** C/C++, Java, Python, JavaScript, CSS, HTML5, Bootstrap, Oracle SQL
- **Software and Platforms:** MATLAB, Git, Visual Studio, Amazon Mechanical Turk, Photoshop, LaTeX, Xilinx ISE