

# Weijian Zhang

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## EDUCATION

<b>University of California, Los Angeles</b> <i>M.S in Electrical and Computer Engineering (Signals and Systems Track)</i> <b>GPA: 3.90/4.00</b> <b>Typical Courses:</b> ECE 205A Matrix Analysis (A+), ECE C247 Neural Network & Deep Learning (A+), ECE 236B Convex Optimization (A), ECE 209AS AI&ML for CPS & IOT (A), STATS C261 Intro to Pattern Recognition & Machine Learning (A+)	<b>Los Angeles, USA</b> <i>September 2021-now</i>
<b>University of Electronic Science and Technology of China</b> <i>B.Eng in Optoelectronic Information Science and Engineering</i> <i>GPA: 90.44/100; Rank: Top 1.5% (Graduated with honors both in UESTC and Sichuan Province)</i> <b>Awards &amp; Honors:</b> Tang Lixin Scholarship (2020; Ratio: 0.1%); National Scholarship (2018 & 2019; Ratio: 1%) The First Prize Scholarship (2018 & 2019; Ratio: 10%); Outstanding Student Union Member <b>Typical courses:</b> Applied Optics, Physical Optics, Optoelectronic Image Processing, Machine Vision and Applications, etc.	<b>Chengdu, CHN</b> <i>September 2017-June 2021</i>
<b>University of California, Berkeley</b> <i>BGA Discover Study Abroad Program</i> Key Courses: Introduction to Microelectromechanical Systems (A), Feedback Control Systems (A)	<b>Berkeley, USA</b> <i>August 2019-December 2019</i>

## RESEARCH & PROJECTS

<b>A Learning-based Multimodal Method to Detect DeepFake Videos</b> <i>(Member of a team of three, supervised by Prof. Mani Srivastava)</i> <ul style="list-style-type: none"><li>Proposed an audio-visual based multimodal deepfake detection framework, combining contrastive loss and cross-entropy loss.</li><li>Further added an LSTM layer to the proposed framework and tested the two models on DFTIMIT and DFDC datasets.</li><li>Achieved perfect performance on DFTIMIT (99.9%) and comparable results on DFDC (83.19%).</li><li>Analyzed effects to model performance using different loss combinations and explained reasons behind performance.</li></ul>	<b>Los Angeles, USA</b> <i>March 2022-June 2022</i>
<b>Post-CNNs for EEG-based Motor Imagery Classification</b> <i>(Member of a team of four, supervised by Prof. Jonathan Kao)</i> <ul style="list-style-type: none"><li>Explored several data preprocessing methods, including data chopping and data augmentation, and improved the classification accuracy rate from the order of 50% to the order of 70%.</li><li>Constructed and implemented four architectures (a naïve CNN, a modified ResNet, a sequential and a parallel CNN-RNN). The best classification accuracy rate achieved was 73.4%.</li><li>Analyzed latent reasons why some models were better and proposed possible ways to further optimize the classifier.</li></ul>	<b>Los Angeles, USA</b> <i>February 2022-March 2022</i>
<b>Compression of Data for Learning</b> <i>(Member of a team of five, supervised by Prof. Christina Fragouli)</i> <ul style="list-style-type: none"><li>Designed an algorithm based on SVM to select a fractional of more 'useful' data points to train a synthetic Gaussian dataset and the MNIST dataset, without access to the full dataset. Achieved accuracy rates of 92.3% (Gaussian) and 99% (MNIST) using only 10% of the data points.</li><li>Derived an ILP and solved its LP relaxation with access to all data to verify the performance of the algorithm above.</li></ul>	<b>Los Angeles, USA</b> <i>November 2021-December 2021</i>
<b>Design and Implementation of a Novel Multimodal Optical Endoscopic Imaging System</b> <i>(Undergraduate Graduation Design, supervised by Prof. Zhao Wang)</i> <ul style="list-style-type: none"><li>Designed a dual-modality intra-arterial catheter for simultaneous microstructural and molecular imaging in vivo by combining optical frequency domain imaging (OFDI) and near-infrared fluorescence (NIRF) imaging.</li><li>Built a high-performance OCT system and a fluorescence imaging system and completed the optical implementation.</li></ul>	<b>Chengdu, CHN</b> <i>November 2020-June 2021</i>
<b>Fabrication of Wide Spectral Organic Photodetector Based on Regulation and Control of Active Layer</b> <i>(Leader of a team of three, supervised by Prof. Junsheng Yu)</i> <ul style="list-style-type: none"><li>Prepared an organic photodetector and improved its performance, realizing the detection of the full visible light by introducing the non-fullerene material ITIC into the conventional binary film (P3HT: PC71BM) under different proportions.</li><li>Understood evaluation methods of the performance of photodetector and the physical principles behind, including performing steady-state photoluminescence (PL) tests to investigate energy transfer in active layers.</li></ul>	<b>Chengdu, CHN</b> <i>October 2019-October 2020</i>
<b>Design and Implementation of Digital Stopwatch Based on FPGA</b> <i>(Developer, supervised by Senior Engineer Xueying Chen)</i> <ul style="list-style-type: none"><li>Applied ISE platform for the development of the complete system and VHDL to describe hardware functions of digital stopwatch.</li><li>Simulated the whole system and played ISE and the Xilinx Spartan 3A board to implement digital stopwatch.</li></ul>	<b>Chengdu, CHN</b> <i>August 2020</i>

## OTHER INFORMATION

**Computer Skills:** Python, Pytorch, Keras, Jupyter Notebook, C, MATLAB, VHDL, Verilog, Vivado, ISE, ZEMAX, AutoCAD, etc.  
**Volunteer:** Offered to teach in Huangnan Tibetan Autonomous Prefecture as the team leader during summer vacation in 2017 and 2018.  
**Leadership:** Served as the mentor to freshmen to help them adapt to college life as soon as possible, supervised their early self-study, shared learning experience, answered questions and held class meetings, etc. (08/2018-06/2019)  
**Interests:** Basketball (captain of school basketball team in undergraduate), outdoor sports, playing the ukulele, etc.