Weijian Zhang

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EDUCATION

University of California, Los Angeles — **Los Angeles, USA**

M.S in Electrical and Computer Engineering (Signals and Systems Track) — *September 2021-now*

GPA: 3.90/4.00

Typical Courses: 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+)

University of Electronic Science and Technology of China — **Chengdu, CHN**

B.Eng in Optoelectronic Information Science and Engineering — *September 2017-June 2021*

GPA: 3.96/4.00*; Rank: Top 1.5% (****Graduated with honors*** *both in UESTC and Sichuan Province)*

Awards & Honors: **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

Typical courses: Applied Optics, Physical Optics, Optoelectronic Image Processing, Machine Vision and Applications, etc.

University of California, Berkeley — **Berkeley, USA**

BGA Discover Study Abroad Program — *August 2019-December 2019*

Key Courses: Introduction to Microelectromechanical Systems (A), Feedback Control Systems (A)

RESEARCH & PROJECTS

A Learning-based Multimodal Method to Detect DeepFake Videos — **Los Angeles, USA**

(Member of a team of three, supervised by Prof. Mani Srivastava) — *March 2022-June 2022*

- Proposed an audio-visual based multimodal deepfake detection framework, combining contrastive loss and cross-entropy loss.
- Further added an LSTM layer to the proposed framework and tested the two models on DFTIMIT and DFDC datasets.
- Achieved excellent performance on DFTIMIT (99.9%) and comparable results on DFDC (83.19%).
- Analyzed effects to model performance using different loss combinations and explained reasons behind performance.

Post-CNNs for EEG-based Motor Imagery Classification — **Los Angeles, USA**

(Member of a team of four, supervised by Prof. Jonathan Kao) — *February 2022-March 2022*

- 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%.
- 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%.
- Analyzed latent reasons why some models were better and proposed possible ways to further optimize the classifier.

Compression of Data for Learning — **Los Angeles, USA**

(Member of a team of five, supervised by Prof. Christina Fragouli) — *November 2021-December 2021*

- 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.
- Derived an ILP and solved its LP relaxation with access to all data to verify the performance of the algorithm above.

Design and Implementation of a Novel Multimodal Optical Endoscopic Imaging System — **Chengdu, CHN**

(Undergraduate Graduation Design, supervised by Prof. Zhao Wang) — *November 2020-June 2021*

- 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.
- Built a high-performance OCT system and a fluorescence imaging system and completed the optical implementation.

Fabrication of Wide Spectral Organic Photodetector Based on Regulation and Control of Active Layer — **Chengdu, CHN**

(Leader of a team of three, supervised by Prof. Junsheng Yu) — *October 2019-October 2020*

- 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.
- 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.

Design and Implementation of Digital Stopwatch Based on FPGA — **Chengdu, CHN**

(Developer, supervised by Senior Engineer Xueying Chen) — *August 2020*

- Applied ISE platform for the development of the complete system and VHDL to describe hardware functions of digital stopwatch.
- Simulated the whole system and played ISE and the Xilinx Spartan 3A board to implement digital stopwatch.

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.