

YU CHU

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EDUCATION

Carnegie Mellon University

Pittsburgh, PA

Master of Science in Electrical and Computer Engineering

May 2023

University of California, Santa Barbara

Santa Barbara, CA

Bachelor of Science in Electrical Engineering

June 2021

UCSB Technology Management Program Certificate

EXPERIENCE

Micro/Nano Engineering Lab (MNEL), North Carolina State University

Raleigh, NC

Research Assistant.

July 2023-Present

- Ultrasound wireless power transmission project in cooperation with UIUC: Designed, fabricated and characterized transducers for ultrasound wireless power transmission using Krimholtz, Leedom, and Matthaei (KLM) model and COMSOL simulations with different transmission line (different lenses, mediums, angles)
- Sonoporation project: phantom test, data collection, image processing, and COMSOL simulation of ultrasound induced drug delivery (dye diffusion) using needle transducer
- Wearable ultrasound system project: create an advanced and all-encompassing wearable ultrasound system designed for the continuous monitoring of blood pressure using transducer incorporating a piezoelectric 1-3 composite with PZT-5H and PDMS

Google LLC

Sunnyvale, CA

Data Center Engineer Intern

May 2022-August 2022

- Performed data analysis on the datacenter low voltage bus level loads of its distribution and utilization with SQL and Colab
- Created an online simulator for testing and review interaction between SSS SWGR and RMU loops
 - Translated the relay logic diagram of Google Data Center next generation electrical system architecture from Siemens relay settings files (DIGSI) into a PLC program (CoDeSys)
 - Verified the logic by running in simulation mode in different scenarios and built a GUI for single line diagram to run in actual PLC environment

Luxshare Precision Industry Co. Ltd.

San Diego, CA

AI Research and Development Intern

June 2021-September 2021

- Conveyed a VR/AR smart glasses market investigation report
- Examined the value in smart glasses product category for Luxshare-ICT management team decision-making process

Beijing Sensing Technology Ltd

Beijing, China

Machine Learning Intern

June 2018-August 2018

- Applied CNN to MNIST handwritten digit and DeepFashion clothes datasets for image classification
- Implemented the training neural network process with Pytorch, including dataset preprocessing, model architecture, object function, optimization method, and evaluation metrics

Human Machine Interaction Lab, Tsinghua University

Beijing, China

Mechanical Engineering Intern

June 2017-September 2017

- Optimized the hardware of haptics and force feedback gloves with SolidWorks, AutoCAD, Adams, and 3D printing
- Generated test procedures to assess the constraint space performance of glove for proper functionality

ACADEMIC PROJECTS

Carnegie Mellon University

Pittsburgh, PA

Project Manager of the Consulting Project for Dollar Bank

January 2023-May 2023

- Collaborated with the Digital Management Team of Dollar Bank to deliver solutions of bringing the reliability and soundness to digital banking services referring to European Fintech

- Researched and provided cost-effective strategies that improve the client's business processes in retail

Income Prediction and Analysis with Machine Learning

January 2022-May 2022

- Implemented classification algorithms of SVM, Decision Tree, Naive Bayes, Logistic Regression using Weka Explorer
- Identified the text errors using feature space design with horizontal and vertical comparisons using software LightSide
- Scaling up the average accuracy of models through hyper-parameter tuning from 80.82% to 92.69%

University of California, Santa Barbara

Santa Barbara, CA

Senior Year Capstone Project with ASML

August 2020-June 2021

- Designed and optimized the optical transmission model with computer vision algorithm to deliver accurate measurements of target metrics
- Improved thresholding and shape fitting techniques to measure shadow contrasts and estimate distribution of density
- Introduced additional metrics providing more extensive description of tin-target shape and morphology

Optimization Research Project- Optimization of Restaurant Customer Rating Model

January 2020-March 2020

- Developed the algorithm to classify restaurants into multiple rating levels based on the weight of characteristics, each customer's ratings and correlations by logistic regression and gradient descent algorithm

PUBLICATIONS

- Organic-Inorganic Piezoelectric Single-Crystal TCM-2CdCl₃ with High Piezoelectric Properties (Under review)
- Multi-layer Core-shell structure CoFe₂O₄@Fe₃C@NiO composite with a high performance of broadband electromagnetic wave-absorbing (Accepted by *Nanoscale*)
- Liao, Yaoyao, Hong Yang, Qingwei Liao, Wei Si, Yu Chu, Xiangcheng Chu, and Lei Qin. 2023. "A Review of Flexible Acceleration Sensors Based on Piezoelectric Materials: Performance Characterization, Parametric Analysis, Frontier Technologies, and Applications" *Coatings* 13, no. 7: 1252.
<https://doi.org/10.3390/coatings13071252>

SKILLS:

Software: Adams, Arduino, AutoCAD, Blender, CoDeSys, COMSOL, DIGSI, Excel, FPGA, Fritzing, LightSide, LTspice, SolidWorks, Verilog, Weka

Programming Languages: C/C++, HTML, JavaScript, Python (PyTorch, TensorFlow), MATLAB