Yufei Shen

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EDUCATION

Rice University Houston, TX

B.S. Electrical Engineering, B.A. Statistics Expected May 2022

GPA: 3.96/4.00

AWARDS AND HONORS

IEEE-Eta Kappa Nu (IEEE-HKN) Honor Society April 2021- Present

Louis J. Walsh Scholarship in Engineering 2020

President's Honor Roll Fall 2018, Fall 2019, Spring 2020, Fall 2020

RESEARCH INTEREST

Ubiquitous and Mobile Computing, Mobile Health, Wearable Computing, Activity Recognition, Machine Learning, Signal Processing

RESEARCH EXPERIENCE

Alzheimer's Disease Diagnosis with Self-supervised Learning and MRI Houston, TX

Supervisor: Prof. Behnaam Aazhang, Rice University August 2021 - Present

- Developing classification models for subjects' cognitive conditions and Alzheimer's Disease diagnosis with Magnetic Resonance Imaging
- Working on Convolutional Neural Network models with Self-supervised Learning to demonstrate the possibility of accurate disease diagnosis with only a limited amount of labeled data
- Collected benchmark MRI datasets for pre-training and classification tasks

Computational Wellbeing Group, Undergraduate Research Assistant Houston, TX

Supervisor: Prof. Akane Sano, Rice University May 2020 - Present

Sleep Advice Prediction with Multimodal Data

- Developed user-dependent and user-independent Random Forest models to predict three doctors' sleep advice to shift workers in two Japanese hospitals using daily survey and wearable device data
- Compared the performance among individual models built for each doctor and a one-size-fits-all model
- Delivered the models to collaborators in Japan for a clinical study to evaluate the effectiveness of sleep advice to shift workers

Schizophrenia Patients' Symptom Prediction with Mobile Phone Sensing

- Developed user-dependent and user-independent Gaussian Process and Long Short-Term Memory models to predict symptoms of schizophrenia patients using feature data collected from mobile phone sensing
- Personalized the independent models by fine-tuning transfer learning and clustering participants' daily behavior patterns and demographic information
- Achieved positive progress and working to aim for a publication

Study on Mental and Physical Health of Dementia Family Caregivers

- Assisted an NIH-funded study in collaboration with Prof. Christopher Fagundes to set up and test wearable devices, program daily participant surveys, check data collection, and manage collected data
- Provided troubleshooting of data collection and communicated with the team for missing data

CLASS PROJECTS

Rice University Senior Design Project Houston, TX

Supervisor: Prof. Gary Woods, Dr. Sabia Abidi, Rice University August 2021 - Present

- Working with four other students on the project sponsored by Prof. Eric Storch at Baylor College of Medicine to develop an automated system to detect and quantify frequency and intensity of facial tics for Tourette Syndrome patients utilizing computer vision techniques

Rice University Data to Knowledge Lab (D2K) Project Houston, TX

Supervisor: Prof. Genevera Allen, Prof. Su Chen, Prof. Arko Barman January 2021- May 2021

- Grouped with three other students for the project sponsored by the City of Houston to develop Spatial Regression models to predict temperature across Houston with landcover and demographic data
- Identified five super neighborhoods that are most vulnerable to extreme heat events and estimated the mitigation effect of increasing green space on these neighborhoods
- Participated in D2K showcase to present the results and prepared written reports

WORK EXPERIENCE

Chip Wealth Technology LTD. Shanghai, China

System Application Engineer Intern July 2019

- Tested OLED display driver ICs with STM32 microcontroller
- Powered up the driver ICs with different communication interfaces including SPI and I2C to achieve different display functions provided by the ICs on OLED screens

RELEVANT COURSEWORK

ELEC 380, Intro to Neuroengineering	STAT 418, Probability
ELEC 447, Intro to Computer Vision	STAT 413, Intro to Statistical Machine Learning
ELEC 475, Learning from Sensor Data	STAT 425, Intro to Bayesian Inference
ELEC 303, Random Signals	STAT 410, Linear Regression
ELEC 301, Signals, Systems, and Learning	MATH 355, Linear Algebra
ELEC 326, Digital Logic Design	FWIS 188, Engineering Design & Communication
COMP 330, Tools & Models for Data Science	ENGI 355, Digital Design & Visualization
COMP 215, Intro to Program Design	

SKILLS

Language: Mandarin Chinese (Native), English (Fluent)

Programming Language: Python, Java, C, R, SQL, Verilog, Matlab

Tools: AWS, PySpark RDD, Hadoop, TensorFlow, Keras, Numpy, Pandas, Scipy, Scikit-learn