Daiyao Yi Curriculum Vitae

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Gainesville, FL

EDUCATION

University of Florida May 2021- Present
◇ Ph.D. in Electrical Engineering, Concentration: Computational neuroscience GPA: 4/4
University of Michigan Ann Arbor Aug 2019-Dec 2020
◇ Master in Biomedical Engineering, Concentration: Neural Engineering & Imaging GPA: 3.83/4
University of Nottingham Ningbo China Sep 2015-Jun 2019
◇ BEng Hons in Electrical and Electronic Engineering First Class (GPA: 3.92/4, top 10%)

SKILLS

◇ **Software Skills:** Proficient in Python (NumPy, pandas, PyTorch, scikit-learn, Keras, etc), Java, C/C++, MATLAB, Android development, R, Linux, Illustrator, NEURON, COMSOL, MySQL, LATEX, AMPL
◇ **Hardware Skills**: Arduino, PIC, 51, FPGA, VLSI

RESEARCH EXPERIENCE

Saxena Lab for Neural Control *Electrical Engineering, UF*
PhD student, Supervisor: Shreya Saxena May 2021 – Present
Neural Decoding From High-dimensional Data
◇ Decode the behavior from the neural activity in the form of widefield calcium imaging

Behavioral Modeling From High-dimensional Video Data Across Subjects
◇ Model the high dimensional data by interpretable latent using Cauchy-Schwarz divergence regularized partitioned subspace variational autoencoder
◇ Analysis the latent space across subjects

Guan's Lab *Department of BioInformatics, UMich*
Graduate Research Assistant, Supervisor: Yuanfang Guan May 2020 – May 2021
Time Series Data Prediction Using Machine Learning
◇ Preprocess the time series data, fill the missing value and add an annotation term to indicates the existing of feature
◇ Apply the data to machine learning model (LightGBM) and analysis the feature importance using SHAP

Protein Secondary Structure Prediction Based on Spectrum Information by Deep Learning
◇ Built a sum frequency generation (SFG) spectra library for selected protein with homogenous less than 10%
◇ Combined the SFG spectra information and the primary sequence information to predict the protein secondary structure using two inputs convolutional neural network in Python
◇ The accuracy of prediction was 92% which was 10% higher than the traditional Psipred package

Pal's Lab *Department of Anesthesiology, UMich*
Graduate Researcher, Supervisor: Denish Pal Sep 2019 - May 2020
EEG Signal Processing for Determining the Effect of Sleep Deprivation on Brain Connectivity
◇ Selected EEG signals with inconspicuous defects and applied Power Spectral Density (PSD) to those signals with frequency range from 0.5 to 175 Hz based on short time Fourier transform using MATLAB
◇ The PSD results were plotted on histogram graph to demonstrate the brain connectivity for comparison

Graduation Project *Electrical and Electronic Engineering, UNNC*
Undergraduate Researcher, Supervisor: Chengbo Wang Sep 2018 - May 2019
Sleep Quality Monitoring by Smart Phone
◇ Designed a wearable device on Arduino to collect physiological signals and built an Android App using Java

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- ◇ Realized the Bluetooth communication to received and displayed the real time data on Android App
- ◇ Built a Cloud database for higher speed data processing by Java EE on the platform of NetBeans

Chengbo Wang's MRI Centre *Electrical and Electronic Engineering, UNNC*
Undergraduate Research Assistant, Supervisor: Chengbo Wang Sep 2017 - Sep 2018
Topic: MR Picture Reconstruction with Part of K Space Picture

- ◇ Applied 2D FFT to reconstruct picture from K space using MATLAB

CF Kwong's Lab *Electrical and Electronic Engineering, UNNC*
Undergraduate Summer Researcher, Supervisor: CF Kwong Jun 2017- Aug 2017
Topic: IoT Temperature Detector Based on ZigBee, Arduino and Raspberry Pi

- ◇ Designed and produced a system on Raspberry Pi to detect the temperature of the circumstance
- ◇ Used ZigBee to send information from Arduino to the system, use python to realize the communication

WORK EXPERIENCE

Research Associate @ UMICH, Public Health Guan's Lab Jan 2020- May 2021

Grader of BIOMEDE 241 @UMICH, BME Sep 2020- Dec 2020

Novartis China Jun 2018- Aug 2018
R&D Center Data Assistant

- ◇ Compiled and entered all data from experiment into internal systems accurately and consistently with emphasis on timeliness and quality
- ◇ Updated and distributed periodic reports or spreadsheets, established and updated unit folders/e-rooms to ensure accurate records were maintained

Grader of Signal Processing and Control @UNNC, EEE May 2018

HONORS

- ◇ Excellent Student Cadre Fall 2018
- ◇ Undergraduate student summer research grant Summer 2018
- ◇ College funded overseas summer school @ University of Nijmegen Summer 2017

PUBLICATIONS

- ◇ Zhang H.*, **Yi D.***, Guan Y., (2021) *Timesias: A machine learning pipeline for predicting outcomes from time-series clinical records* (STAR protocols 2 (3), 100639)
- ◇ Guan Y., Wang X., Chen X., **Yi D**., Chen L., Jiang X., (2021) *Assessment of the timeliness and robustness for predicting adule sepsis* (Iscience 24 (2), 102106)
- ◇ An X., Chen X., **Yi D.**, Li H., Guan Y., Representation of molecules for drug response prediction, Briefings in Bioinformatics, Volume 23, Issue 1, January 2022, bbab393, https://doi.org/10.1093/bib/bbab393
- ◇ Guan Y., Li H., **Yi D.**, Zhang D., Yin X., Li K., Zhang P., (2021) *A survival model generalized to regression learning algorithms* (Nature Computational Science, 1-8)
- ◇ Eksi R., **Yi D.**, Li H., Godfrey B., Lisa R. Mathew, Guan Y., *Micro-dissection and integration of long and short reads to create a robust catalog of kidney compartment-specific isoforms* bioRxiv 2021.09.07.459298; doi: https://doi.org/10.1101/2021.09.07.459298

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- Qin Y., **Yi D.**, Chen X., Guan.Y, (2021) *Deep Learning Identifies Erroneous Microarray-based, Gene-level Conclusions in Literature* (NAR Genomics and Bioinformatics)
- Mu H., Meng J., Zhang L., **Yi D.,** Zhao D., *Weighted Symbol Flipping Decoding for Non-binary LDPC Codes Based on Iteration Stopping Criterion*, 2018 37th Chinese Control Conference (CCC), 2018, pp. 8447-8452, doi: 10.23919/ChiCC.2018.8483599.

* : These authors contributed equally

ACTIVITIES

- Worked four months in the US in 2016 (SWT); Volunteered to Russia to spread Chinese culture for local children; Worked as deputy head of Student Career Developing Association; Class monitor during the whole undergraduate period; Pipa (traditional Chinese instrument) 10 level certificate holder.