- *Jan '18 - Present*: conducting research under *Dr. Visar Berisha* and *Dr. Julie Liss* at the *Brain & Behavior Analytics Laboratory* at ASU, using signal processing, machine learning, and NLP techniques to study speech and language characteristics of neurodegenerative disease and mental illness.
- *Aug '16 - Dec '17*: worked under *Dr. Umit Ogras* at *eLab* conducting research on human-machine interaction and cyber-physical systems

- Developed use cases and requirements for hardware and software projects involving the Alaris^{TM} infusion systems on both domestic and international product lines
- Extensive experience with driving development to comply with IEC 60601-1 Standards for Medical Electrical Equipment, as well as collateral and particular related standards
- Leading risk management discussions in compliance with ISO 14971:2012 standards
- Facilitating new development and sustaining activities from a systems-level approach by working with multidisciplinary teams of engineers, marketing, and clinical specialists
- Requirements and specifications management in DOORS database

- Provided assistance to a hardware engineering research and development team in design verification testing and documentation of a state-of-the art speech processor for a cochlear implant system
- Developed testing procedures and demonstrated laboratory skillset using both electronic test equipment and software that led to the eventual approval of the Neptune and Naida speech processors for sale in the United States and worldwide.

Simulation of Word Substitution Errors in Automatic Speech Recognition

Supervised by Dr. Visar Berisha & Dr. Julie Liss at
Brain & Behavior Analytics Laboratory, ASU   *Aug '18 - Present*

- Developed a word substitution error simulator that generates ASR-plausible errors given perfectly transcribed text, using pre-trained *GloVe* word embeddings and *phonological edit distance* to determine substitution errors.

- Evaluated the performance of several state-of-the-art sentence embeddings and their effectiveness on downstream NLP tasks when errors were introduced (see ICASSP-2019 conference proceedings).

Language Analysis for Patients with Bipolar Disorder and Schizophrenia

Supervised by Dr. Visar Berisha & Dr. Julie Liss at
Brain & Behavior Analytics Laboratory, ASU
In conjunction with Dr. Christopher Bowie, Queens University   Jan '18 -
Present

- Computational analysis of textual transcripts of interviews with patients diagnosed with schizophrenia and bipolar disorder

- Developed quantifiable measures of semantic coherence, syntactic complexity, and explored correlation with clinical variables

Motion Tracking for Gait Analysis with IMU
Supervised by Dr. Umit Ogras at eLab, ASU   *Jun '17 - Dec '17*

- Developed methodology for real-time motion tracking for analysis of gait with an inexpensive inertial motion unit (IMU) sensor that incorporated accelerometer, gyroscope, and magnetometer data transmitted over Bluetooth Low-Energy (BLE) protocol

EEG Signal Processing for Flow Experiments in Human-Machine Interaction

Supervised by Dr. Umit Ogras at eLab, ASU   *Aug '16 - Jun '17*

- Processing of EEG signals using a portable EEG system (EMOTIV EPOC+) while users were interacting with a mobile device to analyze the user experience based on task difficulty

Green Power Generation with Low Wind Speed and Piezoelectric Beam

Supervised by Dr. A.V. Balakrishnan

UCLA Flutter Systems Research Center   *Apr '12 - Sep '13*

- Graduate student research (during M.S.) - Developed a prototype device for green power generation using low wind speeds by taking advantage of the flutter of an aluminum beam with a piezoelectric material.

Lensless Ultra-wide field Cell-monitoring Array platform based on Shadow imaging (LUCAS)

Supervised by Dr. Aydogan Ozcan

UCLA Nano- and Bio-Photonics Laboratory   *Feb '09 - Sep '09*

- Undergraduate research assistant in the Ozcan group - Devised an early prototype of LUCAS using a modified cell-phone camera as a cell-monitoring array platform for inexpensive medical diagnosis

Teaching Assistant - Electrical Engineering 110L (Circuits Laboratory)
UCLA Electrical Engineering Department   *Mar '13 - Jun '13*

- Led circuits laboratory course introducing students to electronic lab equipment and basic components and instrumentation

Teaching Assistant - Math 33B (Differential Equations)

UCLA Department of Mathematics *Jan '13 - Mar '13*

- Led two weekly discussion sections with undergraduate students taking differential equations

Teaching Assistant - Math 3B (Calculus II)

UCLA Department of Mathematics *Sep '12 - Dec '13*

- Led two weekly discussion sections with undergraduate students taking Calculus II for students studying biological sciences

Course Reader - Electrical Engineering 103 (Applied Numerical Computing)

UCLA Electrical Engineering Department   *Sep '11 - Dec '11*

- Graded undergraduate homework assignments and papers for students taking EE 103 - *Applied Numerical Computing*, taught by Professor Lieven Vandenberghe

Course : CSE 576 - Natural Language Processing
Prof. Chitta Baral (ASU)   *Aug '18 - Dec '18*

- Modification of well-known DecAtt model architecture to improve results in difficult sentence pairs for the NLI task

ECoG Classification of Finger Movements

Course: EE M255 - Neuroengineering

Prof. Wentai Liu (UCLA)   *Jan '13 - Mar '13*

- Neuroengineering: Used principal component analysis and independent component analysis to analyze recorded EcOG to classify finger movements for brain-computer interface design.

MRI Image Reconstruction

Course : EE 239AS - Principles of MRI

Prof. Jin Hyung Lee (UCLA)   *Mar '12 - Jun '12*

- Used MATLAB to perform parallel image reconstruction from data collected from multiple coils. Explored fast imaging methods using non-Cartesian trajectories through frequency domain (k-space), using interpolation and gridding techniques to reconstruct data.

Pitch Tracking for Noisy Speech

Course : EE 214A - Digital Speech Processing

Prof. Abeer Alwan (UCLA)   *Jan '12 - Mar '12*

- Designed a pitch detection algorithm for tracking the fundamental frequency of various male and female speakers using the average magnitude difference function (AMDF), in both noisy and noiseless environments