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RICHARD Z. SHEN

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EDUCATION

New York, NY **New York University** **Sep 2014 – Dec 2016**

M.S. in *Electrical Engineering*

- Areas of Specialization: Signal Processing, Machine Learning
- Graduate Coursework: Data Structures and Algorithms, Probability and Stochastic Processes, Matrix theory
- Relevant Projects: ECG Signal Recovery, Keyboard Visualizer, Audio Effect Implementations

New Brunswick, NJ **Rutgers University** **Sep 2010 – May 2014**

B.S. in *Biomedical Engineering*, Minors: Mathematics/Psychology

- Undergraduate Coursework: Probability theory, Linear Algebra, Tissue Engineering, Drug Delivery , Kinetics and Thermodynamics, Transport Phenomena

PROFESSIONAL AND RESEARCH EXPERIENCE

Engineering Mentor **Codecademy** **Feb 2016 – Current**

- Taught programming languages such as Python, Java, Ruby, JavaScript, SQL and version control with Git
- Reviewed coding topics with new students one-on-one and aided in learning programming fundamentals.

Crowd Researcher **Stanford University** **Jan 2016 – Current**

Stanford Crowd Research Collective

- Collaborated with Michael Bernstein to apply sentiment analysis to Daemo, a crowdsourcing marketplace
- Technologies: AngularJS, Django. PostgreSQL

Teaching Assistant **New York University** **Sep 2015 – Dec 2015**

- Course: EL 6303 Probability and Stochastic Processes

SoSC STEM Teaching Fellow **New York University** **Jun 2015 – Nov 2015**

- Developed and implemented a summer STEM curriculum involving concepts of electrical engineering, programming and wireless communication that impacted over 1000 students in the NYC area
- Taught programming concepts using Arduino Unos and integrated technologies such as RFID and WIFI shields, parallax robot kits and IR/FT transmitters/receivers

Senior Design Project **Rutgers University** **Sep 2013 – May 2014**

- Collaborated with Dr. John K-J Li to develop a non-invasive monitor for hypertension
- Created a MATLAB program to automatically calculate pulse transit time (PTT) from the ECG waveform by using a peak-detection algorithm

PROJECTS

ECG Signal Recovery (MATLAB)

- Recovered ECG signal from noisy, incomplete data using least squares deconvolution and interpolation
- Implemented deconvolution iteratively using Landweber algorithm

Fun-thesizer (JavaScript, HTML5/CSS3)

- Keyboard visualizer using the Web Audio API that can play/draw sounds with varying audio filters applied
- Integrated tuna.js library to apply filters to input signal

Audio Effect Implementations (Python)

- Implemented various effects (AM modulation, reverb, distortion) in python using the PyAudio library

Non-invasive Hypertension Monitor (MATLAB, Arduino)

- Utilizes a pressure transducer to detect the pulse pressure and determine arterial compliance
- Filtered signal using customized Butterworth filter to eliminate noise within a frequency range

LANGUAGES AND TECHNOLOGIES

Programming Languages: Java, Python, MATLAB, JavaScript, Ruby, SQL
Web Technologies: HTML5/CSS3, Angular, Bootstrap, Django
Software/Other: Git/Github, Bash, Linux (Ubuntu), Sublime Text, Sqlite, Jupyter, Arduino