Binh Nguyen

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Education

University of California, San Diego — La Jolla, CA
B.S. Bioengineering, Minor: Cognitive Science — 2018

Skills

Programming:	Python, Matlab, C, JavaScript, SQL, UNIX, Shell, Git, LabVIEW, Simulink
Libraries:	NumPy, Pandas, Scikit-learn, Jupyter, TensorFlow, Keras, Django
Hardware:	Raspberry Pi, Arduino, PCG, Soldering, ECG

Experience

Acutus Medical, Inc. — Carlsbad, CA
Clinical Science Engineer Intern — July 2018 — Present

- Lead development of a segmentation algorithm for dividing left atrium into 8 distinct spatial regions based on user-selected vertices in Matlab for use as a clinical research tool
- Build, train, and test an RNN-LSTM model on over 3 datasets consisting of 200K+ datapoints for detecting disturbances and noise in ECG localization
- Create Matlab script to visualize propagation of conduction velocity vectors and repetitive activation patterns on 3D reconstructed anatomy
- Improve ECG signal approximation and catheter localization algorithm by retraining weights on significant channels using amplitude-based thresholding
- Automate the retrieval, parsing, and organization of data from animal studies and clinical trials

Cartilage Tissue Engineering Lab, UCSD — La Jolla, CA
Undergraduate Researcher — June 2017 — August 2017

- Develop an algorithm for comparing correctly-identified cells in automated program against the gold standard to validate feasibility and reduce labor-intensive tasks
- Reconstruct 3D tissue images from 2D cross-sectional images using Digital Volumetric Imaging from multi-GB struct data types in Matlab
- Collaborate with Master's and PhD students to implement 2D and 3D cell segmentation techniques involving adaptive thresholding and pixel intensities
- Present research findings at the UCSD Summer Research Conference

Lab Assistant — August 2016 — April 2018

- Scan, process, and organize micro-computed tomography images to record experiments in Excel and online database
- Assist with tissue culture generation, dissection, buffer-making, and staining for various research experiments
- Check, maintain, and service lab equipment to increase productivity and prevent downtime
- Write, conduct, and update SOPs, ensuring up-to-date guidelines for lab-wide tasks Projects

Projects

Neural Network-controlled Drone via Voice Recognition — 2018

- Design and construct quadcopter drone from the ground-up using open-source hardware and software tools
- Achieve 90% accuracy for correct verbal phrases using k-fold cross-validation methods via scikit-learn and TensorFlow

Arduino-powered LED Pacemaker — 2017

- Design ECG circuit with variable resistors, capacitors, op-amps, and electrodes to measure voltage and detect heart beats
- Program an Arduino Mega 2560 to compute heart rate and emit a different color LED based on the type of heart rhythm

Coursework

Data Analysis, Machine Learning, Statistics and Probability, Data Structures, Algorithms
Numerical Analysis, Analog Design, Circuits and Systems, Signal Processing,
Bioinstrumentation, Biomedical Optics, Biomechanics, Human Physiology

Interests

Game development, Music production, Cooking, Lifting, Hiking, Meeting new people