

# BINH NGUYEN

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## Education

**University of California, San Diego**

La Jolla, CA

B.S. Bioengineering: BioSystems, Minor: Cognitive Science

2018

## Skills

Programming: Python, Matlab, C, JavaScript, SQL, UNIX, Shell, Git, Apache Subversion, L<sup>A</sup>T<sub>E</sub>X  
Libraries: NumPy, Matplotlib, Pandas, Scikit-learn, Jupyter, TensorFlow, Keras, Django  
Systems/Hardware: LabVIEW, Simulink, Raspberry Pi, Arduino, PCB, Soldering, ECG

## Experience

**Acutus Medical, Inc.**

Carlsbad, CA

*Systems Engineer*

August 2019 — Present

- Developed pace blanking algorithm for correcting catheter positions in 3D visualization engine
- Built, trained, and tested an RNN-LSTM model on clinical data for disturbance and noise detection
- Implemented a real-time QRS detection method based on Pan Tompkins algorithm with over 95% accuracy
- Coordinated with cross-functional teams to execute V&V testing for R&D

*Clinical Science Engineer Intern*

July 2018 — August 2019

- 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
- Created Matlab script to visualize propagation of conduction velocity vectors and repetitive activation patterns to identify arrhythmic patterns
- Improved ECG signal approximation and catheter localization algorithm by retraining weights on significant channels using amplitude-based thresholding
- Automated 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

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

*Lab Assistant*

August 2016 — April 2018

- Scanned, processed, and organized micro-CT images in local file system and server database
- Assisted with tissue culture generation, dissection, buffer-making, and staining for research experiments
- Checked, maintained, and serviced lab equipment to increase productivity and prevent downtime
- Wrote, conducted, and updated SOPs, ensuring up-to-date guidelines for lab-wide tasks

## 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

Medical devices, HCI, Electrophysiology, VR, 3D Modeling, Music, Cooking, Fitness