Arjun [No Last Name]

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EDUCATION

University of California Los Angeles *Fall 2017*
B.S. Electrical Engineering

The Doon School, India *Spring 2011*
High School Diploma

EMPLOYMENT

Medical Imaging Informatics Lab, UCLA *May 2018 - current*
Embedded Systems Developer, BREATHE Project

- Improving wearable system reliability by implementing testbenches and CI/CD for legacy code (10k+ lines).

Risk Science Institute, UCLA *Jun 2016 - Dec 2017*
Software Developer, Center for SMART Health

- Increased core Machine Learning (ML) framework accuracy from 72% to 96% by extracting 250 new features.
- Minimized data gathering & pre-processing delay for ML framework by building real-time online feedback app.
- Reduced management overhead by designing a cloud-based fleet management platform for 200+ devices.
- Enhanced system reliability by building (previously unavailable) automated test & data collection suites.

Wireless Health Institute, UCLA *Jan 2015 - Jun 2016*
Embedded Systems Developer, Sensing At-Risk Populations (SARP) Project

- 300% increase in wearable battery life by designing an efficient, multi-threaded CPU scheduler.
- Made 200+ wearables HIPAA-complaint by implementing RSA/AES256 encryption for stored patient data.

Embedded & Reconfigurable Systems Lab, UCLA *Aug 2014 - Jan 2015*
Research Assistant

- Predicted risk of re-hospitalizations for congestive heart failure patients within 3.3 days (RMSE) by performing clustering analysis on Electronic Health Record datasets.

COURSEWORK

Digital Signal Processing, Circuit Analysis, Algorithm Design, FPGA Design, Computer Architecture, Feedback Control, Automata Theory, Introduction to CUDA

SKILLS

Programming: C/C++, Java, MATLAB, Python, JS, UNIX Shell, React, LaTeX
Hardware: PCB Design & Etching, EAGLE, SMT soldering rework, Arduino
Frameworks: Android, iOS, Spring, Xilinx, TI CodeComposer, OpenCV, LabVIEW, TensorFlow, Weka

PROJECTS

Convex Polygon Detector: Real-time polygon detection for low-powered ARM DSPs. Multi-stage pipeline includes IIR Deriche filter, progressive blurring kernel, gradient detection, non-maximal suppression, hysteresis thresholding and Hough Transform.

Indoor Location Fingerprinting Using Ambient WiFi: Modeling multimodal RSSI as Gaussian Processes and performing Bayesian Estimation for probabilistic location classification. Written for Android with real-time feedback and on-the-fly updatability. Classifies 30+ locations with ≥98% accuracy.

Human Activity Recognition on Smartwatch: Real-time detection using supervised learning on wrist-worn MEMS inertial motion sensor data. Distinguishes between walking, running, lying down, sitting, standing or inactive. 256 extracted features include energy & entropy in time & frequency domains. Classification performed using Neural Networks with ≥95% accuracy.

Analog Utility Meter Reader: Power consumption detection in real-time from analog dials in LA power meters using mounted USB camera. OpenCV implementation pipeline includes noise suppression, SIFT, circular Hough Transform & needle angle detection.

PUBLICATIONS

R. Malavalli, **Arjun**, N. Gupta, *"Indoor Localization Through Machine Learning on WiFi Fingerprints"*, International Conference on Indoor Positioning and Navigation (IPIN'17).

Bouchard K., Ramezani R., **Arjun**, Naeim A., *"Evaluation of Bluetooth Beacons Behavior"*, The 7th IEEE Annual Ubiquitous Computing, Electronics and Mobile Communication Conference (UEMCON'16), pp.1-3, IEEE, 2016.

B. Moatamed, **Arjun**, F. Shahmohammadi, R. Ramezani, A. Naeim, M. Sarrafzadeh, *"Low-cost indoor health monitoring system"*, Wearable and Implantable Body Sensor Networks Conference (BSN 2016), pp.159-164, IEEE, 2016.

PATENTS

PCT/US2016/037398: *"Subject assessment using localization, activity recognition and a smart questionnaire"*, A.Naeim, R. Ramezani, **Arjun**, B. Moatamed, M. Sarrafzadeh

US Provisional Application (62/330,730) filed May 2, 2016: *"Indoor Health Monitoring System"*, A.Naeim, R. Ramezani, **Arjun**, B. Moatamed, M. Sarrafzadeh