Lu Zhang (Ph.D)

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SUMMARY

10+ years of research experience; 4+ years of industry experience in medical wearable device companies; Experienced developer in implementing DSP pipeline, proprietary deep learning toolboxes, and data visualization tools; Experienced in working with time-series data (biometric sensor/optical data); Experienced in working with multidisciplinary teams and regulatory parties in medical device industry; 20+ peer-review journal publications (>1400 citations, H-index:12), 3 patents, and 1 book chapter as the first author;

SKILLS

***Programming language**: Python, R, C++, SQL*
***Machine learning**: Unsupervised and Supervised Learning with Tensorflow, Sklearn; MLOPS with MLflow*
***Others**: AWS, Digital signal processing, Optical sensor development, Medical device development*

WORK EXPERIENCE

Senior Data Scientist, Profusa Inc, Emeryville, CA 2021 - present

- Develop continuous blood glucose algorithm (CGM) based on optical signals via both first principle and machine learning approaches
- Develop code infrastructure for both analytic and machine learning workflow
- Perform batch process of big clinical data leveraging on AWS instances; provide data analysis and insights on batch results to the product, hardware, software and clinical teams, and present it to the management board

Senior R&D Engineer (Machine Learning), Sonova Group, Fremont, CA 2017 - present

Machine Learning/Deep Learning

- Design and implement proprietary deep learning toolboxes, including data input and augmentation tools, digital signal processing (DSP) pipeline, feature extraction tools, customized models/layers, evaluation/visualization tools and machine learning operation (MLOPS) tools
- Develop deep learning models for blood pressure estimation for hypertension management from PPG raw signals and static vital signs, achieving the state-of-art accuracy
- Develop a machine learning algorithm for atrial fibrillation detection enabled by a hearing aid with embedded PPG sensor and accelerometer
- Create interactive data visualization tools based on SQL and non-SQL database API
- Perform statistical analysis to support clinical study protocol development, product development, and paperwork filling with regulatory bodies
- Area lead in Health State Detection Team of Sonova Group, topics including cardiovascular disease (CVD) detection and management (e.g. atrial fibrillation, hypertension), health state anomaly detection and speech emotion detection
- Develop partnerships with external clinical resources both domestically and internationally for medical/non medical data collection

Postdoctoral Scholar, University of California Los Angeles, Los Angeles, CA 2016 - 2017

- Developed lithium-ion battery mathematical model for battery management system

EDUCATION

PhD in Materials Science & Engineering, University of Cincinnati, USA 2012 - 2016
BS in Chemistry, Tianjin University, China 2007 - 2011