Sangshik Park

https://www.linkedin.com/in/sangshik-park-b14774a9/

Visa Status: US Permanent Resident
Email: ss127.parkk@gmail.com
Mobile: +1-617-515-9675

Experience

- **Rockley Photonics** — Irvine, CA
  Senior Staff Algorithm Engineer — *February 2022 -*
  - **Blood Pressure**: Developed a blood pressure estimation algorithm using speckleplethysmography (SPG) signal.
- **Imperative Care** — Campbell, CA
  Principal Data Scientist — *March 2020 - February 2022*
  - **Anomaly Detection for Stroke Onset**: Developed a autoencoder-based anomaly detection algorithm using heart rate variability features to visualize stroke onset.
  - **Peripheral Vasomotor Activity Assessment**: Developed a PPG-based vasodilation detection algorithm using pulse wave analysis to improve stroke detection accuracy.
  - **Respiratory Rate**: Developed a PPG-based respiratory rate algorithm using particle filter and autoregressive method that ourperforms traditional respiratory rate estimation methods.
- **Beddr** — Mountain View, CA
  Data Scientist — *May 2019 - February 2020*
  - **Wear-time Detection**: Designed a neural network model to accurately detect whether the device is in contact with the skin or not.
  - **SpO2**: Improved SpO2 accuracy using a weighted average algorithm and signal quality index.
  - **Heart Rate**: Improved heart rate accuracy by removing motion artifacts from the signal using adaptive filters.
- **Nulogix Health** — Boston, MA
  Machine Learning Engineer — *August 2018 - May 2019*
  - **Medical Billing Prediction**: Developed an AI-based medical billing model that predicts the amount of deductible, copay, and coinsurance.
  - **Anomaly Detection for Chest X-ray**: Developed a convolutional autoencoder-based model to extract features from chest X-ray images and used t-SNE to differentiate between normal and abnormal images.
- **Samsung Electronics** — Gyeonggi, Korea
  Senior Algorithm Engineer — *November 2014 - December 2017*
  - **Body Composition Analysis**: Designed a regression model using bioelectrical impedance to estimate body fat and skeletal muscle mass. Integrated this model into TomTom Touch.
  - **Sleep Stage Classification**: Developed a neural network model that utilizes ECG RR interval and peak amplitude to classify sleep stages.
  - **Motion Artifact Removal for Photoplethysmography**: Developed a PPG motion artifact removal algorithm using singular spectrum analysis.
  - **Heart Rate and Heart Rate Variability**: Developed an ECG peak detection algorithm to estimate heart rate and heart rate variability. Integrated this algorithm into Samsung's ECG S-Patch.
- **LG Electronics** — Seoul, Korea
  Research Engineer — *July 2012 - July 2014*
  - **Ultrasound Software Beamforming**: Developed a software-based plane wave beamforming algorithm for an ultrasound device.
  - **Optical Coherence Tomography for Dermatology**: Developed an algorithm for detecting structural changes related to skin aging, including collagen, dermal density, and wrinkles using optical coherence tomography.
- **Samsung Medison** — Seoul, Korea
  Associate Research Engineer — *June 2007 - December 2010*
  - **ElastoScan - Freehand Elastography**: Developed a real-time algorithm for estimating displacement and strain in freehand ultrasound elastography. Implemented noise removal algorithms including adaptive persistence and axial dropout correction.

Education

- **Georgia Institute of Technology** — Atlanta, GA
  Master of Science in Computer Science (Specialization: Machine Learning) — *2020 –*
- **Seoul National University** — Korea
  Master of Science in Electrical Engineering and Computer Science — *2005 – 2007*
- **Kyunghee University** — Korea
  Bachelor of Engineering in Electronics; GPA: 4.021/4.3 — *2001 – 2005*

Skills

- **Data Science**
  Python, Pandas, Numpy, Scikit-learn, SciPy, Tensorflow, Pytorch, TensorRT
- **Others**
  MATLAB, C, R, Git, SQL, AWS

Honors and Awards

- **2002** Korea Research Foundation Scholarship - Full Scholarship
- **2003** Korea Research Foundation Scholarship - Full Scholarship
- **2004** Korea Research Foundation Scholarship - Full Scholarship
- **2005** Award for Excellent Records (GPA: 4.021/4.3)
- **2005** Seoul National University Scholarship
- **2006** Samsung Medison Scholarship

Patents

- **US 20210106238** Systems and methods for multivariate stroke detection
- **US 20180333075** Respiratory Rate Measuring Method and Apparatus, and Wearable Device
- **US 20180359112** Home Device Control Device and Operation Method Thereof
- **US 20180228432** Method of Providing Service based on Biometric Information and Wearable Electronic Device
- **US 8337406 / EP 2189116** Adaptive Persistence Processing of Elastic Images
- **US 8503714** Dropout Correction in Ultrasound Strain Imaging
- **US 9125618** Providing an Elastic Image in an Ultrasound System
- **US 8834374 / EP 2289420** Setting an Optimal Image Parameter in an Ultrasound System
- **US 9289190** Ultrasound Strain Imaging via Pixel Frame and Window Correlation

Publications

- Speckle Reduction in Optical Coherence Tomography Images via Dynamic Infinite-Impulse-Response Filtering, J Lee, SS Park, JH Chung, SPIE, 2014