Sangshik Park

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Experience

- **Beddr** — Mountain View, CA
  Data Scientist — *May 2019 - Present*
  - **Wear-time Detection**: Designed a neural network model to classify the device is on the tissue or not.
  - **Sleep/Wake Classification**: Designed an actigraphy-based sleep state classification model.
  - **SpO2**: Improved with weighted average algorithm using signal quality index.
  - **Heart Rate**: Improved heart rate accuracy by removing motion artifact using adaptive filter.
- **Nulogix Health** — Boston, MA
  Machine Learning Engineer — *August 2018 - May 2019*
  - **Medical Billing Prediction**: Developed an AI-based medical billing model which predicts amount of deductible, copay, and coinsurance.
  - **Anomaly Detection for Chest X-ray**: Created a feature extraction model using convolutional autoencoder. Differentiate abnormal X-ray images using t-SNE.
- **Artificial Intelligence Research Institute (AIRI)** — Gyeonggi, Korea
  Research Engineer — *January 2018 - July 2018*
  - **Image Harmonization**: Developed image harmonization model using U-Net architecture.
- **Samsung Electronics** — Gyeonggi, Korea
  Senior Algorithm Engineer — *November 2014 - December 2017*
  - **Body Composition Analysis**: Designed body fat and skeletal muscle mass regression model using bioelectrical impedance. Integrated on TomTom Touch.
  - **Sleep Stage Classification**: Designed combined CNN and LSTM model with ECG RR interval and peak amplitude.
  - **Motion Artifact Removal for Photoplethysmography**: Developed PPG motion artifact removal algorithm using singular spectrum analysis.
  - **Heart Rate and Heart Rate Variability**: Developed ECG peak detection algorithm to estimate heart rate and heart rate variability. Integrated on Samsung's ECG S-Patch.
- **LG Electronics** — Seoul, Korea
  Research Engineer — *July 2012 - July 2014*
  - **Ultrasound Software Beamforming**: Applied software-based plane wave beamforming algorithm for ultrasound device.
  - **Optical Coherence Tomography for Dermatology**: Developed structural changes detection algorithm in skin aging - collagen, dermal density, and wrinkle.
- **Samsung Medison** — Seoul, Korea
  Associate Research Engineer — *June 2007 - December 2010*
  - **ElastoScan - Freehand Elastography**: Created real-time displacement and strain estimation algorithm for freehand ultrasound elastography. Developed noise removal algorithms: adaptive persistence and axial dropout correction.

Education

- **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 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