Junbong Jang

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EDUCATION

Korean Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea
Master of Science in Artificial Intelligence — September 2021 - Current

Worcester Polytechnic Institute (WPI), Worcester, MA
Bachelor of Science in Computer Science, GPA: 3.8/4.0 — September 2016 - December 2019

PROFESSIONAL EXPERIENCES

Research Assistant II, Boston Children's Hospital, Dr. Kwonmoo Lee — October 2020 – August 2021
Research Associate, WPI, Dr. Kwonmoo Lee — February 2020 – October 2020

- Develop deep learning-based segmentation pipeline for profiling cellular morphodynamics in live cell movies taken by phase-contrast and fluorescence microscopies.
- Collaborate with Massachusetts Medical School to create a deep learning-based pipeline to screen adequacy of Fine Needle Aspiration (FNA) samples from thyroid nodule patients.
- Perform image processing and evaluate deep learning models' performance in Matlab.
- Forecast number of COVID-19 infections per county by SIR model given timeseries data clustered by UMAP

Undergraduate Thesis, WPI, Dr. Dmitry Korkin — June 2019 – December 2019

- Joint Neuroscience Research with McLean Hospital to understand and diagnose mental illness and suicidality from clinical and MRI data.
- Developed a diagnosis pipeline with a machine learning method, random forest.
- Discovered significant factors contributing to depression, dissociative disorder, or suicidal ideation by recursive feature elimination.
- Diagnosed suicidality with 85% accuracy using the clinical dataset and diagnose depression, dissociative disorder, and PTSD with 90% accuracy using the MRI dataset.

PUBLICATIONS

- **J. Jang***, C. Wang*, X. Zhang, H.Choi, X. Pan, B. Lin, …, K. Lee, MARS-Net: Deep learning-based segmentation pipeline for live cell time-lapse images using multiple microscopy datasets, bioRxiv, 2021.
- HJ Choi, C Wang, X Pan, **J Jang**, M Cao, J Brazzo, Y Bae, K Lee, Emerging machine learning approaches to phenotyping cellular motility and morphodynamics, Physical Biology, 2021.

TEACHING EXPERIENCES

Biological Data Mining, WPI — October 2019 - December 2019

- Taught development of machine learning and neural network model in Python
- Helped individual students with homework problems and projects.

Systems Programming Concepts, WPI — August 2019 - October 2019

- Taught programming in C/C++ and test-driven development
- Supervised weekly labs and graded homework.

AWARDS & FUNDING

$94,500 Merit Scholarship, WPI — August 2016 - December 2019