WOOCHAN HWANG

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EDUCATION

Imperial College London, MBBS/BSc(Hons); UK October 2014 - June 2020
First Class Honours (78.3%), BSc in Medical Sciences with Biomedical Engineering
Key Modules: Image Processing, Biomedical Imaging, Optimization (Audit), Statistics, Biomimetics
Project: Machine Learning based Denoising of Electrocardiogram Signals from a Wearable ECG Monitor
MBBS candidate
Year 2: distinction; Year 3: distinction*; Year 4: intercalated BSc; Year 5: currently enrolled

Korean Minjok Leadership Academy, High School; South Korea March 2011 - Feb 2014
10 Advanced Placement Exams: 8 Score 5's, 2 Score 4's

SELECTED PROJECTS

Reducing need for labeled data in deep learning applications in medical imaging March 2018 - December 2018
Supervisor: Kyu-Hwan Jung, CTO of VUNO Inc.; South Korea

- Published in Neural Information Processing Systems (NeurIPS) 2018, ML4H workshop — arXiv:1811.08840 [cs.LG].
- Applied deep reinforcement learning to image segmentation networks to achieve equal performance with less labeled data.
- Evaluated novel method on a large chest X ray database and achieved comparable performance with 50% of labeled data.

Prediction of anti-depressant clinical trial outcome using speech processing March 2019 - ongoing
Sponsor: MedTech SuperConnector Accelerator & Royal College of Arts

- Audio based methods to predict trial outcomes of anti-depressant clinical trials to reduce cost of drug development.
- Developed proof of concept using support vector machines and regression models; currently in progress of developing recurrent neural network models.
- Accepted to a 6 month accelerator programme with 60,000 GBP equity free funding; acted as CTO of team.

Identifying important factors contributing to increased cost of acute stroke care December 2018 - ongoing
Supervisor: Dr Paul Bentley. Consultant Neurologist, Imperial College London

- Identified factors contributing to longer hospital stay from national stroke audit database.
- Used random forest, multiple linear regression, and fully connected neural networks; implemented in Python.

WORK EXPERIENCE

VUNO Inc.; South Korea Medical Imaging Startup, Research Intern June 2017 - August 2017

- Developed strategies to deal with difficult cases through clinical input for lung CT segmentation networks.
- Psoas muscle segmentation - python based labeling tool and implementation of a segmentation network using pytorch.
- Published false positive reduction method for object detection deep neural networks in C-MIMI — arXiv:1807.10756 [cs.CV]
- Presented company's work at 2017 Radiology Society of North America Annual Meeting, Machine Learning Pavilion.

Imperial College London; UK Research Intern July 2016 - August 2016

- Department of Allergy and Clinical Immunology, Dr Aarif O Eifan
- Planned and conducted immunohistochemistry and in-situ Hybridisation for cytokine markers in nasal biopsies of allergic rhinitis patients with/without immunotherapy.
- Continued part time during term to assist in cell counting and analysis of results.

ADDITIONAL INFORMATION

Languages	English (native); Korean (native)
Programming	Python (proficient), PyTorch (proficient), Tensorflow, Keras, Scikit-Learn, Matlab, Java, AWS-EC2
Leadership	Korean UK Medical Association (Student President '16-'17), MedTech Imperial (Events Officer '17-'18) World Korean Medical Students' Organization (President '17-'18)
Awards	MedTech SuperConnector Accelerator Hackathon 2019 (Most Innovative Team), Entrepreneurs First Future Outliers Workshop (First Place), Imperial College Enterprise Lab Launch Weekend (First Place) Imperial College Data Challenge (GlaxoSmithKline Topic Winner)
Hobbies	Rock Climbing and Brazilian Jiu Jitsu