

WOCHAN HWANG

Medical student with interest in Machine Learning and Computational Biology
+44 7388 342 020 ◇ woochan.hwang14@imperial.ac.uk

EDUCATION

Imperial College London, MBBS/BSc(Hons)

October 2014 - July 2020

BSc in Medical Sciences with Biomedical Engineering, First Class Honours (78.3%)

Key Modules: Image Processing, Biomedical Imaging, Optimization (Audit), Biomimetics

Project: Machine Learning based Denoising of Electrocardiogram Signals from a Wearable ECG Monitor

MBBS candidate (Year 2: distinction ; Year 3: distinction*)

Key Interest: Interventional Radiology and Infectious Disease

Korean Minjok Leadership Academy

March 2011 - February 2014

Advanced Placement (AP Scholar with Distinction): Biology(5/5), Chemistry(5/5), Physics B, C: Mechanics, E&M(5/5 for all 3), Calculus BC(5/5), Statistics(4/5), Comparative Politics(5/5)

PUBLICATIONS / PRESENTATIONS

Integrating Reinforcement Learning to Self Training for Pulmonary Nodule Segmentation in Chest X-rays

Sejin Park, Woochan Hwang (Co-first Author), Kyu-Hwan Jung

- Neural Information Processing Systems 2018, ML4H workshop
- arXiv:1811.08840 [cs.LG]

False Positive Reduction by Actively Mining Negative Samples for Pulmonary Nodule Detection in Chest Radiographs

Sejin Park, Woochan Hwang, Kyu-Hwan Jung, Joon Beom Seo, Namkug Kim

- Oral Presentation at 2nd SIIM C-MIMI (SIIM Conference on Machine Intelligence in Medical Imaging)
- arXiv:1807.10756 [cs.CV]

Putting the World's Medical Data to Work: VUNO Inc.

Woochan Hwang, Hyunho Park

- Oral Presentation at Radiology Society of North America 2017 Annual Meeting

Convolutional neural networks for motion artefact reduction in ECGs using accelerometer data

Woochan Hwang, Owuraku Titi-Lartey, Laure Abecassis, Timothee Gathman, Ze Lum, Ng Yee Loong, Joshua Moo, Magdalene Ho, Anil Bharath

- Oral Presentation at EKC 2018, Information Technology and Machine Learning Session

Deep Learning for Medical Image Analysis: Applications to CT and MR Imaging

Kyu-Hwan Jung, Hyunho Park, Woochan Hwang

- Hanyang Medical Review, 2017 Nov; 37(2):61-70

Successful Endovascular Management of a Ruptured Pancreatico-Duodenal Artery Pseudoaneurysm: A Case Report

Woochan Hwang, Ravi Aggarwal, Sanjay Purkayastha

- Oral Presentation at 35th Korean Medical Association Annual Conference/International Medical Expo

Superficial Temporal Artery Pseudoaneurysm: A Case Report

Bethan Davies, Woochan Hwang, Nicholas Alexander

- Poster presentation at 2018 BSPR (British Society of Paediatric Radiology) Annual Conference

WORK EXPERIENCE

Intern

June 2017 - August 2017

VUNO Inc. Healthcare AI Startup

- Main project: Automated lung nodule detection in CT thorax using deep learning
- Sub project: Psoas Major segmentation from abdominal CTs for automated quantification of cachexia
- Involvement: Literature survey, clinical input and discussing strategies to deal with difficult cases. Full implementation of the psoas major segmentation project - creating the labeling tool, labeling and implementation of a standard classification network.

Research Assistant

July 2016 - August 2016

Dept. of Allergy and Clinical Immunology, Imperial College London

- Project: Immunohistochemistry and In-situ Hybridisation for cytokine markers in nasal biopsies of Allergic Rhinitis patients with/without immunotherapy
- Involvement: Immunohistochemistry staining of nasal biopsies for CTGF, Smad7, and double staining for CD3 and TGF-beta

Research Assistant

March 2014 - July 2014

Dept. of Physiology, Kyungbook National University, School of Medicine

- Project: In-vitro investigation of the effect of high frequency ultrasound on macrophages
- Involvement: Self-guided investigation of cellular response of macrophages to high frequency ultrasound exposure looking at morphological changes, mRNA response, synthesis of proteins and other chemical excretions

SKILLS AND INTERESTS

Interests	Optimization of clinical care using statistical approaches including machine learning Current projects include reinforcement learning for optimization of acute stroke care
Programming Languages	Python (proficient), PyTorch (proficient), Matlab, Java English and Korean Native Speaker

COMPETITIONS

First Place	Imperial College Enterprise Lab Launch Weekend (1st place of 18 teams) Prototyping platform for doctor home visits on demand
Topic Winner	Imperial College Data Challenge Winner of GSK topic - Data visualization for pharmaceutical research

EXTRA CURRICULAR ACTIVITIES

President, World Korean Medical Students' Organization	August 2017 - July 2018
Student President, Korean UK Medical Association	August 2016 - July 2017
Secretary, Imperial College Guitar Society	October 2016 - July 2018
Events Officer, MedTech Imperial	October 2017 - July 2018