PO-CHEN KUO, MD

+1 (206) 9602998 / fredpckuo@gmail.com / https://github.com/pckuo

EDUCATION

University of Washington   Seattle, WA
Ph.D. program in Neuroscience   Sep 2021 - Present

National Taiwan University   Taipei, Taiwan
M.D. Medicine, GPA 4.15/ 4.30   Sep 2012 - Jun 2020
B.Sc. Physics, GPA 4.23/ 4.30
- Neuroscience: Computational Cognitive Neuroscience, Mind and Brain, Neuroanatomy, Physiology, Psychology
- Mathematics: Linear Algebra, Differential Equations, Complex Variables, Orthogonal functions, Biostatistics

RESEARCH EXPERIENCE

University of Washington, Department of Physiology and Biophysics   Seattle, WA
Rotation student (Advisor: Dr. Edgar Walker)   Jan 2022 - Present
- Investigated the basis of probabilistic computation in primate primary visual cortex
- Implemented neural network models to decode probability distribution from population recordings

University of Washington, Department of Physiology and Biophysics   Seattle, WA
Rotation student (Advisor: Dr. Adrienne Fairhall)   Sep 2021 - Dec 2021
- Investigated the biophysical mechanism of reassembly of hydra nervous system
- Analyzed the relationship between neural activity, muscle contraction, and body deformation using calcium imaging

National Taiwan University, Department of Electrical Engineering   Taipei, Taiwan
Research Assistant (Advisor: Dr. Shyh-Kang Jeng)   Dec 2019 - Aug 2020
- Developed algorithms for closed-loop deep brain stimulation for Parkinson's disease
- Analyzed micro- and macro-electrode recordings from the basal ganglia to identify electrophysiological biomarkers

National Taiwan University, Department of Physics   Taipei, Taiwan
Research Assistant (Advisor: Dr. Jiunn-Wei Chen)   Jan 2020 - Jun 2020
- Researched and implemented quantum algorithms using Qiskit for simulation of quantum systems
- Orchestrated a team of eight research students to work on quantum computation research projects

Heidelberg University, Bernstein Center for Computational Neuroscience, Central Institute for Mental Health
Mannheim, Germany
Research Intern (Advisor: Dr. Daniel Durstewitz)   Jun 2019 - Aug 2019
- Developed recurrent neural networks for nonlinear dynamical systems with application to neurophysiological recordings
- Implemented basis expansion models of recurrent neural networks for dimensionality reduction

Taiwan AI Labs   Taipei, Taiwan
Researcher and Clinical Integrator   Sep 2017 - Jul 2020
- Developed deep learning algorithms for digital pathology, echocardiography, brain MRI, and chest CT
- Spearheaded an R&D project partnered with Taiwan Centers of Disease Control to build automated malaria diagnostics
- Coordinated the application to 2019 Google AI Impact Challenge and advanced to the final round
- Developed natural language processing algorithms to extract genetic mutation information from biomedical literature

Academia Sinica, Institute of Information Science   Taipei, Taiwan
Research Intern (Dr. Da-Wei Wang)   Jul 2017 - Aug 2017
- Developed disease onset prediction models using recurrent neural networks based on National Health Insurance Research Database
- Validated a natural-language-processing-based automatic eligibility criteria extractor for biomedical literature

Academia Sinica, Institute of Physics   Taipei, Taiwan
Research Intern (Dr. Tsz-King Wong)   Jul 2013 - Aug 2013
- Conducted experiments to investigate the phenomena and theory of sono-luminescence

PUBLICATIONS

Peer-reviewed Journal articles
- Kuo PC, Cheng HY, Chen PF, et al. (2020). Assessment of Expert-Level Automated Detection of *Plasmodium falciparum* in Digitized Thin Blood Smear Images. *JAMA Network Open*. 2020;3(2):e200206

Conferences

- Bereska L., <u>Kuo PC</u>, Brenner M., et al. (2020). Fast and scalable learning of generative models for chaotic dynamical systems and neural data, *Neuromatch 3.0*, 28.10.2020
- Cheng HT, Yeh CF, <u>Kuo PC</u>, et al. (2020). Self-similarity Student for Partial Label Histopathology Image Segmentation. *arXiv*:2007.09610. *European Conference on Computer Vision 2020*

Preprints
- Yeh CF, Cheng HT, Wei A., Chen HM, <u>Kuo PC</u>, et al. (2020). A Cascaded Learning Strategy for Robust COVID-19 Pneumonia Chest X-Ray Screening. *arXiv*:2004.12786, 2020

Book Chapters
- Lee HC. (2016). *Prize-winning Works of National Taiwan University Student Laureate for Philosophical Treatise, Vol. 3*. National Taiwan University Press

CLINICAL EXPERIENCE

National Taiwan University Hospital — Taipei, Taiwan
Resident Physician, Post-Graduate Year — Aug 2020 - Jul 2021
Intern Physician — Jun 2018 - May 2019
- Delivered clinical care for patients in the departments of internal medicine, surgery, emergency medicine, neurology, and radiology

Osaka Medical College Hospital | Emergency Medicine and Oncology — Osaka, Japan
International Rotation Program — Apr 2018 - May 2018

University of Rochester, Strong Memorial Hospital | Neurology and Pediatric Neurology — Rochester, NY
Clinical Elective Internship — Mar 2018 - Apr 2018

Icahn School of Medicine, Mount Sinai Hospital | Neurosurgery — New York, NY
Clinical Observer — Feb 2018 - Mar 2018

HONORS AND AWARDS

Neuroscience Top- Off Award, University of Washington — Sep 2021

Graduate Program Neuroscience Fellowship, University of Washington — Sep 2021

First Prize, **5th National Taiwan University Student Laureate for Philosophical Treatise, Science section** — Jun 2015
- Topic: *"Is 'truth' from data and theories of science the real 'truth'?"*

Academic Excellence Award, National Taiwan University — Mar 2015, Mar 2016, Sep 2018, Mar 2019, Sep 2019
- Awarded to the top 5% students for distinguished academic performance

Hsiu-Shan Fully-funded Scholarship for Medical Students, National Taiwan University — May 2015 - May 2018
- Awarded to 3 medical students out of the 140+ class

JASSO Scholarship, Scholarship for Short-term Study in Japan — May 2018
- Awarded to distinguished international students for studying in higher education institutions in Japan

Second Prize, Physiology Quiz in Japan 2018 — May 2018
- Awarded to the winning teams in the annual all-Japan inter-medical-school physiology competition

First Class Medal of Honor, Taipei Jianguo High School — Jun 2012
- Awarded to 5 students out of the 1300+ graduating class for significantly honoring the school

LEADERSHIP AND VOLUNTEER ACTIVITIES

International Summer Program 2019, Tokyo Medical and Dental University — Tokyo, Japan
Invitee — Jul 2019
- Discussed medical innovation beyond 2020 with medical professionals and students from the US and Asian countries

Boston Consulting Group, Strategy Consulting: Approach & Practice — Taipei, Taiwan
Consultant Trainee — Sep 2019 - Jan 2020
- Identified key problems for a startup tech company and presented solutions with potential five times revenue growth

Baseball Varsity Team, College of Medicine, National Taiwan University — Taipei, Taiwan
Captain — Sep 2016 - Aug 2017
- Coached the varsity team to win the second place in annual tournament, the best record in the past two decades

MatchMarrow — Taipei, Taiwan
Co-founder and Officer of Public Relations — Sep 2014 - Jun 2015
- Initiated the first student-run program in Taiwan to promote bone marrow donation for patients with hematological diseases
- Recruited more young donors to join the National bone marrow database through campaigns

International Federation of Medical Students' Associations 63rd August Meeting   Taipei, Taiwan
Organizing committee and Visa Coordinator   Sep 2013 - Aug 2014
  • Organized and facilitated the annual international meeting of 800+ medical student leaders from 100+ countries

CERTIFICATIONS AND SKILLS

Physician Certification, Taiwan Ministry of Health of Welfare   Jul 2020
Programming language: Python, C/C++, Matlab
Tools: Git, Github, MySQL, Visual Studio, Docker