PIYAKRIT WONGBOONCHAI

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RESEARCH EXPERIENCE

Ministry of Public Health, Thailand   *2024 - Present*
Research Intern at the Department of Medical Sciences
Supervised by Dr Surakameth Mahasirimongkol.

- Contributed to Genomics Thailand (GeTH), an extensive collaborative research network to enable precision medicine.
- Worked on projects in the second phase of GeTH which aims to integrate genomic medicine to clinical services by developing a digital genomic database and predicting drug response based on pharmacogenes:

  - Ran genome-wide association studies (GWAS) to explore genetic variants linked with drug-induced severe cutaneous adverse reactions (SCARs) and adverse events following immunisation (AEFI).

  - Performed *Mycobacterium tuberculosis* structural variation (SV) analysis using multiple SV callers (IMSindel, Manta) and GATK 4 for single nucleotide variation (SNV) calling.

  - Interpreted BRCA1/2 variants based on guidelines provided by the American College of Medical Genetics (ACMG) to establish a Thai breast cancer variant database.

  - Conducted a proof of concept for the implementation of Amazon Web Services (AWS) to support and accelerate demanding computational tasks, such as large GWAS datasets (>1,000 samples and >500,000 SNPs).

University of York, UK   *2023*
Research project supervised by Prof Jeremy Mottram & Dr Joana Faria.

- Utilised precision gene editing to characterise a putative RNA:DNA helicase in *Leishmania mexicana*.

- Obtained protein predictions from bioinformatic tools (MAFFT, HMMER) and AlphaFold2 for 3D structural analysis.

University of Bristol, UK   *2022*
Dissertation supervised by Prof Rafael Carazo-Salas.

- Experimented with image segmentation and classification techniques for tracking individual human pluripotent stem cells to map differentiation pathways.

- Extracted biological features to predict differentiation characteristics, such as differentiation marker expression, cell cycle length, cell migration distance and cell velocity.

Ministry of Public Health, Thailand   *2021*
Summer internship supervised by Dr Surakameth Mahasirimongkol.

- Conducted genomic analysis of SARS-CoV-2, focusing on the Spike and Nucleocapsid proteins, to monitor viral evolution in Thailand.

TECHNICAL SKILLS

- **Computational/Bioinformatics:** Python, R, Unix, Cloud & Virtual Machine (VM) computing, GWAS, Variant interpretation, Phylogenetic inference

- **Experimental techniques:** PCR, CRISPR/Cas-9, DNA extraction, Western blot, Co-immunoprecipitation, Cell imaging (Widefield & Confocal)

EDUCATION

University of York, UK   *2022 - 2023*

Master of Science (MSc) in Biomedical Sciences

- Awarded with Distinction (GPA: 4.00)

University of Bristol, UK   *2019 - 2022*

Bachelor of Science (BSc Hons) in Biomedical Sciences

- Awarded Second Class Upper Division or 2:1 (GPA: 3.50)

Gjøvik High School, Norway   *2017 - 2019*

International Baccalaureate Diploma Programme (IBDP)

- Main subjects: Biology, Chemistry, English Language & Literature

CONFERENCES & WORKSHOPS

- ***AWS Genomics Community Day*** - Workshop hosted by Amazon Web Services (AWS), *Forthcoming (March 2025)*

- ***MedHackathon Asia 2025*** - Workshop hosted by MedHackathon Asia, *2025*
    - Participated in the planning of a standardised Pan-Asian imputation pipeline to improve precision medicine across Asia.
    - Developed an awareness of common issues in other Asian countries regarding sharing genomic data.

- ***AI in Genomics Medicine*** - Seminar hosted by British Embassy Bangkok, 2025
    - Explored the successes and challenges, both technical and policy-based, that Genomics England faced in AI applications in healthcare.

- ***AWS Public Sector Day Thailand*** - Seminar hosted by AWS, 2024

- ***Transforming Healthcare: AI in Health Data*** - Seminar hosted by Office for National Statistics UK, 2024

- ***Microbial Genomics and Genomic Medicine*** - Symposium hosted by NSTDA Thailand, 2021

PROFESSIONAL MEMBERSHIPS

- **Thai Society of Human Genetics,** 2024 - present

AWARDS

- Thai Society of Human Genetics travel grant for MedHackathon Asia, 2025

RELEVANT EXPERIENCES

Analyst   *2023 - 2024*

- Performed data analysis to improve operations and identified opportunities for businesses, projects include:
    - Real estate development and palm oil optimisation

Volunteer

Biodiversity Survey   *2023*

- 3 month volunteering project, worked in a team of 6 volunteers.

- Analysed the growth of plants and soil conditions for a park.

- Presented findings to stakeholders of the park and provided actionable recommendations for future development.

Tutor   *2017 - 2018*

- Provided individual tutoring to primary school students for several subjects, such as Mathematics, English and Norwegian while undertaking my IB diploma.

CERTIFICATES

- **Introduction to Machine Learning** - Kaggle

- **Data Science for Everyone** - FutureSkill

HOBBIES & INTERESTS

- **Gardening & DIY** - developed a coconut and cacao orchard during my gap year.

- **Rifle shooting** - previously part of a local shooting team in Norway, participated in regional competitions: Hedmark, Oslo (in Norwegian). Learned about the importance of gun safety and control.

- **Video editing** - created vlogs for a gap year project to brainstorm and reflect on ideas.

- **Cross-country skiing**