# **Punnawish Thuwajit**

☐ (608) 440 4120 • ☑ thuwajit@wisc.edu • ⑤ konkuad.github.io • ᠺ konkuad

## **Education**

### University of Wisconsin Madison, Class of 2026 (Madison, WI, USA)

2022 - Present

GPA: 4.00 Computer Sciences and Mathematics Majors, related coursework includes:

- CS639 (Deep Learning in Computer Vision)
- MATH376 (Multivariable Calc & Differential Eq.)

CS400 (Programming III)

MATH375 (Multivariable Calc & Linear Algebra)

#### Suankularb Wittayalai School (Bangkok, Thailand)

2016 - 2022

GPA: 4.00 Graduated Valedictorian

# **Technologies**

- o Languages: Python, Java, JavaScript, Bash, HTML, CSS, LaTeX
- o Machine/Deep Learning: (Development) PyTorch, TensorFlow, SK-Learn (Deployment) Streamlit, Flask, Ngrok
- o Data Sciences: (Analysis) NumPy, SciPy, Pandas (Visualization) Matplotlib, Plotly, Seaborn

# **Work Experiences**

#### Waisman Center, UW-Madison (Madison, WI, USA)

2022 - Present

Team Member and Research Intern: Undergraduate Student

O Currently working on denoising fast and noisy (1-2 minutes) MRI scans into meaningful brain images

# Faculty of Medicine Siriraj Hospital, Mahidol University (Bangkok, Thailand)

2022 - Present

Post-hackathon Collaboration

 Currently working on implementing a real-time in ward blood pressure (along with other vital signs) monitoring for hypertension, cardiovascular disease, and myocardial infarction patients

- O Planned to extend into an Al-in-medicine service under the name "RuOK Make Sure They are OK"
- NXPO (Higher Education Science Research Policy Council) (Bangkok, Thailand)

2021 - 2022

Intern: Àl Engineer

O Analyzed over 1 million publications to determine weak signals of growing fields in research for policy construction.

Department of Computer Engineering, Chulalongkorn University (Bangkok, Thailand)

Intern: Al Engineer

2021 - 2022

O Developed a full-stack application for schistocyte detection and enumeration from blood smear images of anemia patients.

# Vidyasirimedhi Institute of Science and Technology (VISTEC) (Rayong, Thailand)

2020 - Present

Team Member and Research Intern: Undergraduate (formerly High-school) Student

- O Developed a fast and accurate algorithm for seizure detection via EEG signals for epilepsy diagnosis.
- Developed a novel algoritm for respiratory rate estimation via variable PPG signals for real-time monitoring.
- O Currently working on an algorithm for real time sleep-staging and sleep disorder analysis via variable PPG signals.

#### **Publications**

- Osathitporn, P., Sawadwuthikul, G., Thuwajit, P., Ueafuea, K., Mateepithaktham, T., Kunaseth, N., ... & Wilaiprasitporn, T. (2022). RRWaveNet: A Compact End-to-End Multi-Scale Residual CNN for Robust PPG Respiratory Rate Estimation. arXiv preprint arXiv:2208.08672. (Co-corresponging Author)
- Thuwajit, P., Rangpong, P., Sawangjai, P., Autthasan, P., Chaisaen, R., Banluesombatkul, N., ... & Wilaiprasitporn, T. (2021). EEGWaveNet: Multiscale CNN-based spatiotemporal feature extraction for EEG seizure detection. IEEE Transactions on Industrial Informatics, 18(8), 5547-5557.

# **Awards and Certifications**

- o TensorFlow Certificate for Machine Learning Development: awarded for fluency in the framework.
- O Regeneron ISEF 2022 Finalist: International Science and Engineering Fair (Atlanta, GA, USA)
- First and Second Hackathon Awards: for medical innovation hackathons hosted by the Faculty of Medicines Siriraj and Ramathibodi Hospitals, Mahidol University.
- O Mathematics Olympiad: Thailand Mathematics Olympiad gold medalist, IMO team selection camp attendee.

# **Additional Skills**

- O Bilingualism: English (Proficient), Thai (Native)
- Origami Artist: designer and folder. Combined mathematical concepts into designing new models.

# **Reference Persons**

- O Assist. Prof. Theerawit Wilaiprasitporn, PhD (VISTEC, Rayong, Thailand): theerawit.w@vistec.ac.th
- O Steven Kecskemeti, PhD (Medical Physics, UW-Madison, WI, USA): kecskemeti@wisc.edu