Guntitat Sawadwuthikul

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Education

Korea Advanced Institute of Science and Technology — Daejeon, Korea
B.Sc. (Hons) Computer Science, Electrical Engineering, and AI (Summa Cum Laude, GPA: 4.06/4.30) — August 2019 - February 2023

Kamnoetvidya Science Academy — Rayong, Thailand
High School Diploma (GPA: 4.00/4.00) — May 2016 - February 2019

Experiences

Vidyasirimedhi Institute of Science and Technology — Rayong, Thailand
Research Assistant — April 2019 - June 2019, March 2022 - Current

- Propose a communication framework between human and waiter robot that helps the robot navigate to the customer in dynamic positioning setting which aims to minimize the number of interactions between the human and the robot using active learning. (Supervisors: Prof. Poramate Manoonpong, Dr. Nat Dilokthanakul)
- Apply deep learning to extract biosignals and events (e.g. respiratory rate and sleep apnea) and predict sleep deprivation severity from PPG signals. (Supervisor: Prof. Theerawit Wilaiprasitporn)

Siam Commercial Bank — Bangkok, Thailand
Data Analyst Intern — June 2022 - August 2022

Join the Credit Risk Data Analytics team to improve the reject inference method applied to the bank's decision engine.

- Repurpose a proposal from state-of-the-art which employs semi-supervised learning to apply with tabular data trained using LightGBM, doubling the F1 score compared to the previous implementation.
- Conduct a proof-of-concept of introducing deep learning using PyTorch API to tackle reject inference which later lacks explainability.
- Document a tutorial of valuable tools that can be used to track ML experiments such as TensorBoard, DataBricks widgets, and custom loss in LGBM models for the team.

Institute for Basic Science — Daejeon, Korea
Research Intern — December 2021 - August 2022

- Research and engineer experiments for climate downscaling super-resolution tasks using a deep residual neural network under the supervision of Prof. Meeyoung Cha. The work has been published in SIGKDD 2022.

AI and Robotics Ventures — Bangkok, Thailand
Robotics Engineer Intern — January 2022 - February 2022

Joined ROVULA business unit which develops an end-to-end subsea inspection solution.

- Design and integrate sensors and acoustic devices for bathymetric survey equipment (XGateway).
- Create an API for contour map analysis and visualization between GS4, Surfer, and Google Earth.

True Digital Group — Bangkok, Thailand
Backend Developer Intern — June 2021 - August 2021

- Joined True Digital Group via True Academy Project. Worked as a back-end developer intern under the CMS team adopting NestJS and GraphQL to integrate with the existing infrastructure and increase the efficiency of data query.

Publications

Special markers: * = first author

[1] P. Osathitporn*, **G. Sawadwuthikul***, P. Thuwajit, K. Ueafuea, T. Mateepithaktham, N. Kunaseth, T. Choksatchawathi, P. Punyabukkana, E. Mignot, and T. Wilaiprasitporn. "RRWaveNet: A Compact End-to-End Multi-Scale Residual CNN for Robust PPG Respiratory Rate Estimation". In: *arXiv* (2022). [paper]

[2] **G. Sawadwuthikul***, T. Tothong, T. Lodkaew, P. Soisudarat, S. Nutanong, P. Manoonpong, and N. Dilokthanakul. "Visual Goal Human-Robot Communication Framework With Few-Shot Learning: A Case Study in Robot Waiter System". In: *IEEE Transactions on Industrial Informatics* 18.3 (2022), pp. 1883–1891. [paper]

Honors and Awards

- (2023) Summa Cum Laude and Outstanding Graduate (top 7%) of 2022 - 2023, KAIST
- (2022) KAIPlus Scholarship Award, KAIST
- (2022) 2x Dean's List of College of Engineering, KAIST (Spring, Fall 2022)
- (2021) Creativity Prize - Thailand Machine Learning for Chemistry Competition (TMLCC)
- (2021) Most Human-Centered Award - CS374 Design Project, KAIST
- (2019) Valedictorian of the Class at Kamnoetvidya Science Academy
- (2018) Champion Team Award - American Regions Mathematics League Local Thailand
- (2018) Honorable Mention - International Mathematical Modeling Challenge

Tools

- Machine Learning & Deep Learning: PyTorch, Tensorflow, scikit-learn, Tensorboard, LightGBM
- Data Platform: Databricks, Google Cloud Platform
- Web Development: Next.js, React, Django, NestJS, GraphQL, TailwindCSS