

# Guntitat Sawadwuthikul

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## EDUCATION

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### Korea Advanced Institute of Science and Technology

B.Sc. (Hons) Computer Science and Electrical Engineering (GPA: 4.03/4.30)

Daejeon, Korea

August 2019 - Current

### Kamnoetvidya Science Academy

High School Diploma (GPA: 4.00/4.00)

Rayong, Thailand

May 2016 - February 2019

## EXPERIENCES

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### Vidyasirimedhi Institute of Science and Technology

Research Assistant

Rayong, Thailand

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

Data Analyst Intern

Bangkok, Thailand

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

Research Intern

Daejeon, Korea

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

Robotics Engineer Intern

Bangkok, Thailand

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

Backend Developer Intern

Bangkok, Thailand

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

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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

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- (2022) Spring 2022 Dean's List of College of Engineering, KAIST
- (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

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- 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