

Watcharapong Wongkaew

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PROFESSIONAL SUMMARY

I am a first-class honors graduate in civil engineering from Chulalongkorn University. I have keen interests in Geography, Railway Transportation, Urban Planning, and Artificial intelligence. I have three years of experience in data sciences and research, mostly in transportation science.

EDUCATION

12th Grade, STEM Concentration

March/2019

Mahidol Wittayanusorn School, Salaya, Nakhon Pathom

- Applying GIS in evaluating and surveying areas which in risk of flood in Nakhon Pathom, Thailand
- Study on environmental and physical issues caused by water hyacinth using drone and satellite images
- Bronze medalist International Geography Olympiad
- Started a podcast about transportation, history, and science

Bachelor's Degree in Civil Engineering, Transportation Engineering

June/2023

Chulalongkorn University, Bangkok, Thailand

- **Finished as a first-class honors graduate**
- Acquired research apprenticeship at Chulalongkorn University Transportation Institute between 2021 - 2023
- Received TED Fund on AI news agency: researching de-biasing news
- President at Chulalongkorn University Model United Nations Club
- Head of the alumni department at Intania Open Innovation Club
- Head of RTUS Ideathon Bangkok Transportation team: EU-led youth incubation program in urban development
- Dissertation on contemporary 4-Step-Transportation-Modeling of public transportation in Nakhon Ratchasima

EXPERIENCE

Research Assistant

July/2021 – September/2024 (Current)

Chulalongkorn University Transportation Institute, Bangkok

- Support in analyzing motorcycle self-reported accident surveys: Chulalongkorn University | May 2022
- Coordinate workshops and lectures on the topic of Bangkok congestion charge, assist in workshops organization: Thailand Clean Mobility Program | GIZ | June - August 2022
- Research and report in transportation policy and planning areas with logistics and railway engineering focus: Strategic Agenda Team, Thailand Science Research and Innovation (TSRI) | 2022 – 2023
- Survey Don Mueang airport, and review data on airport access and egress data collection. Also, analyze and supervise those collected airport egress data. Write and report the results in academic articles: Airports of Thailand | 2023
- Research and review law and strategic plans about Climate Sensitive Transportation Planning in Thailand, work as a researcher in Chiang Mai and Khon Kaen. Create pilot project and report on results: UrbanAct Project, GIZ | 2023
- Review laws and safety statistics, conduct focus group, and analyze collected data about the motorcycle (Tuk-tuk) safety program. Write and report the results to the agency: Department of Land Transportation, DOT | 2023 – 2024
- Supervise garbage collection program and analyze garbage collection logistics data, environment-sensitive areas: Bangkok Garbage Improvement Project, Bangkok Metropolitan Administration | 2023
- Assist in organizing and working on pilot projects about informal transportation: VREF Living Lab | 2023 – 2024
- Lead and ideate the independent project on public transportation cost and navigating public transportation in Thailand: Chulalongkorn University | 2024

Operations Intern

May/2022 – August/2022

Toshiba Infrastructure Systems & Solutions Corporation, Tokyo (Online training)

- Model urban railway line operations in crew/ train scheduling with a real-world example and results compared to operation are at 80% accuracy in BTS Monorail Yellow Line and BTS APM Gold line
- Run operation plans and create new operation curves in planned railway projects.

Guest Lecturer

July/2020 – September/2024 (Current)

Mahidol Wittayanusorn School, Nakhon Pathom

- Create a syllabus and curriculum in the National Geography Olympiad
- Train students in Geography Olympiad courses: Geography Fieldwork and Human Geography

SKILLS

Transportation Engineering: Four-step sequential modeling/ Modal split modeling/ Travel behavior survey and analysis | **Railway Engineering:** Detection of railway defect | **Data analysis and statistics:** Forecasting and time series analysis | **R/ Python Programming** | **Machine Learning & AI:** Traditional statistical modeling | **Geographical skills:** Qualitative fieldwork | **Project Management** |

CERTIFICATIONS

- Sustainable Transportation Networks and Streetscapes, Johns Hopkins University – 2023
- Transportation, Sustainable Buildings, Green Construction, Johns Hopkins University – 2023
- Sustainable Regional Principles, Planning and Transportation, Johns Hopkins University – 2023
- Sustainable Neighborhoods, Johns Hopkins University – 2023
- Technology and Innovative Entrepreneurship, Stanford University – 2023
- The Data Scientist's Toolbox, Johns Hopkins University – 2023
- Geographical Information Systems, École Polytechnique Fédérale de Lausanne – 2023
- Introducing Cellular Automata, Coursera – 2023

AWARDS/RECOGNITIONS/VOLUNTEER WORK

- Volunteer as an academic tutor at Police Border School in Chumpon
- Volunteer in Environmental Conservation camp at the University Anurak CU club
- Finalist at AEON SDG Hackathon on the topic of Beyond Biodiversity on the topic of upcycling
- Finalist in Thailand Innovation Awards 2021: On-demand ride application in urban area
- Honorable mentions at GPSC Greenovation Startup Sandbox on the topic of **hydrogen buses**
- Honorable mentions at AWS Build on ASEAN on the topic of **tracking low CO2 emissions from delivery users**
- Honorable mentions at the German Embassy EV Hackathon on the topic of **Superblock problems**
- Honorable mentions at Last Mile Hackathon by EIT on the topic of **first-last mile problems** in Bangkok
- Honorable mentions and popular votes of Falling Walls Lab on the topic of **on-demand transportation**
- Third place at Environhack by the Ministry of Natural Resources and Environment on **motorcycle EV conversion**

COURSEWORK: RESEARCH/TERM PAPER/TERM PROJECT

- **Prediction and validation of motorcycle drivers' behavior:** report on motorcycle self-reported accident survey by running the LOGIT model and PROBIT model. Statistics Method for Transportation Analysis | May 2022
- **Operation and Infrastructure of SRTET Red commuter railway:** report on surveys and additional operation information. Railway Transportation System | December 2022
- **Mumbai Urban Transportation Plan:** report on research of Mumbai urban transportation infrastructure. Urban Transportation Planning | December 2022
- **Impact of social media news on the usage and attitudes towards various public transportation modes:** conduct a survey and analysis within the university area and write up a report. Travel Behavior Survey and Analysis | May 2023
- **Neural Networks Model to detect the defects on railway tracks:** AI for Engineering | December 2022

ACADEMIC RESEARCH EXPERIENCE: ARTICLES/PRESENTATIONS/CONFERENCES

- **Risk Assessment of Railway Tracks in Floodplain area using Digital Surface Model:** First Author and presenter at International Conference on Civil and Building Engineering Informatics 2023. Article published in proceedings
- **Integrating Digital Surface Model for Flood Risk Assessment of Railway Networks in Thailand:** First Author and presenter at the International Conference of Rail Transportation (ICRT 2024). The article is accepted at the conference and will be considered to be published in **Railway Engineering Science**.
- **Data-Driven Machine Learning Prognostics of Buckling Failure Modes in Ballasted Railway Track:** First Author in this article and it is submitted to **Railway Engineering Science**.
- **Using Travel Demand Survey Data to Predict Mode Shift by Machine Learning Techniques; Case Study: Bangkok:** First Author and will be presented at 17th International Conference on Travel Behavior Research. The article is currently accepted at the conferences and will be considered to be published in the **Transportation Research Record**
- **Modelling passengers' mode choice by integrating travel demand survey and land use with machine learning method:** First Author in World Society Transport and Land Use Research Conference. The article is currently under review at the conference board.
- **The Impact of Public Transportation Availability on Airport Passenger Egress Mode Choice: Don Mueang International Airport:** write and survey on public transportation at Don Mueang Airport. The article is currently under review by the **Transportation Research Record**

References & Articles upon request: Prof. Dr. Saksith Chalermpong