

# ACHIRARAT CHOTTIANCHAIWAT

## SOFTWARE ENGINEER



## PROFILE

Electrical Engineer with Master's in Communication Engineering and Bachelor's in Industrial Electrical Engineering (Second-Class Honors). Industry experience in automotive and rail signaling. Proficient in MATLAB, C, and Python. Passionate about bridging theory with practical applications.

## CONTACT

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## SKILLS

- MATLAB/ SIMULINK
- Python
- C/ C++
- SQL
- LabView
- Git
- SVN
- Linux
- Jira
- IBM DOORS
- AUTOSAR
- V2X/ ASPICE/ AGILE
- Project Management
- Problem-solving

## LANGUAGES

- English (Full Professional proficiency)
- German (Intermediate)
- Thai (Native)
- Japanese (Intermediate)



## WORK EXPERIENCE

- Research Student Assistant** Oct 2024 - Apr 2025  
Resilient Communication Systems, TU Darmstadt *Darmstadt, Germany*
  - Implementing the offline and real-time decoder for the molecular communication using **Python** and PyQt5
  - Implementing the Pocket Lab-on-Chip test kit
- R&D Software Developer (Internship)** Oct 2022 - Mar 2023  
Keysight Technologies Deutschland GmbH *Böblingen, Germany*
  - Integrating the **RTCM/ RTK** message from GSG-8 into US-CV2X stack.
  - Testing the **GNSS** tracker for the GSG-8 system.
  - Support GSG-8 Lab testing environment
- Software Engineer** Sep 2020 - Oct 2021  
ALSTOM Transportation Thailand *Bangkok, Thailand*
  - Software design, implementation, and subsystem integration in the signaling of the **CITYFLO650** model (Gold line APM and Pink/Yellow monorail projects in Bangkok, Thailand) using **C** programming language
  - Support site issues for Gold line APM skytrain
  - Testing and tuning the train's propulsion and brake for drivability
- Software Engineer** Jul 2017 - Aug 2020  
Toyota Tsusho Denso Electronics Thailand (TDET) *Bangkok, Thailand*
  - Analyzing the vehicle function requirement and implementing software for vehicle function using **MATLAB & SIMULINK**
  - Testing Automotive Software with **MILs** (Model in the loop) and **HILs** (Hardware in the loop) with **dSPACE** control unit
  - Implementing and testing **CAN** and **LIN** communication systems using **Vector CANoe**
  - Conduct as a configuration manager to keep track of the software development process, software and paper versions
  - Instructor for the software development, MATLAB library usability and software development process for newly graduated members



## EDUCATION

- MSc. in Communication and Information Engineering** 2021 - 2025  
Technische Universität Darmstadt *Darmstadt, Germany*
- BEng. in Industrial Electrical Engineering** 2013 - 2017  
Thammasat University *Patumtani, Thailand*



## ACHIEVEMENTS

- The representative of TDET company to attend the Capability Maturity Model Integration (CMMI) exam
- The representative of TDET company to attend "Denso's Global New Year Message Event, Bangkok, Thailand"
- Earned the first-runner-up award of TDET programming contest round 2/2019
- Elected as the student committee of the TU-PINE engineering program
- Area team leader in the Cheer club for the CU-TU traditional Football Match
- The representative of the faculty for joining the Robot design contest
- Certificate of Academic Excellence, Faculty of Engineering, Thammasat University, 8 semesters of studying

## HOBBYS

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- Walking
- Hiking
- Badminton
- Travelling



## CERTIFICATES

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- Programming a Quantum Computer with Qiskit, Coursera Project Network, 05/2021
- Convolutional Neural Networks, deeplearning.ai, 05/2021
- Structuring Machine Learning Projects, deeplearning.ai, 04/2021
- NDG LINUX SERIES, NDG, 03/2021
- The Bits and Bytes of Computer Networking, Google, 01/2021
- Mathematics for Machine Learning: Linear Algebra, Imperial College London, 05/2020
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization, deeplearning.ai, 05/2020
- Neural Networks and Deep Learning, deeplearning.ai, 04/2020
- Introduction to Programming with MATLAB, Vanderbilt University, 04/2020
- Crash Course on Python, Google, 04/2020
- Essential SQL for Everyone, Born to Dev, 02/2020
- Learning LabVIEW, LinkedIn Learning, 11/2019
- Mind at work, Denso Training Academy, 10/2019
- On The Job Training (OJT), Denso Training Academy, 09/2019
- Python for Data Science, AI & Development, IBM, 07/2019



## PROJECTS & THESIS

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- **Master's Thesis:** Optimization of Molecule Mixtures in Molecular Communication – Analyzed molecule mixtures and implemented algorithms for optimal receptor selection in cross-reactive sensing arrays.
- **Bachelor's Thesis:** Vehicle Datalogger – Developed a CAN-based datalogger using MATLAB/SIMULINK for vehicle speed analysis.
- **Project Seminar Signal detection and Parameter estimation:** Implemented MATLAB and analyzed the likelihood of the estimator based on the paper “Maximum Likelihood Speed and Distance Estimation for OFDM Radar”.
- **Project Seminar Emerging Topics in MIMO Communication Networks:** Implemented MATLAB for target detection and parameter estimation based on the paper “System-Level Analysis of Joint Sensing and Communication Based on 5G New Radio”.
- **Convex Optimization:** Implementing MATLAB and the CVX library, determine the best antenna for sending and receiving data to improve BER based on the paper. “Receive Antenna Selection Based on Union-Bound Minimization Using Convex Optimization”
- **Antenna Arrays and Beamforming:** Analyzed antenna performance equations across varying parameters (frequency, gain, radiation pattern) to optimize design. Simulated and evaluated trade-offs for enhanced efficiency.
- **Reinforcement Learning:** Created an automated Snake game using Reinforcement Learning in Python.
- **Bio-Information:** Analyzed protein structures to identify drug targets in the human genome using PyMOL.
- **Radar-based Human Gait Recognition:** Conducted experiments to capture micro-Doppler signatures of human gait for recognition and fall detection. Analyzed spectrograms to identify torso and limb movements, using MATLAB/Python.
- **Biomedical Signal Processing Project:** Measured and analyzed blood pulse (PPG) and respiration signals using Bitalino sensors. Processed and visualized data in MATLAB for cardiac and respiratory cycle analysis.