Supasun **Khumpraphan**

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EDUCATION

University of Essex (Distinction) | *Master of Science Degree*   Jan 2022 – Jan 2023

- Achieved first-class honors with distinction(GPA: 3.78/4.).
- I received the highest score in machine learning and natural language processing subjects.
- I will submit an "Experimental Analysis of Speech Emotion and Gender Recognition" paper to the IEEE Transactions on Affective Computing journal(Q1, Impact factor: 13.99.), which is under review(I am a first author.).

Thammasat University | *Bachelor of Sciences Degree*   Jun 2015 – Jun 2018

- Active in extracurricular activities, including engineering and coding camps.
- Participated in Techjam and Wongnai coding competitions.
- I have experience as a teaching assistant for Web Application subjects to help students create websites with PHP and Javascript.

EXPERIENCE

Accenture   Feb 2021 – Dec 2021
Data Engineer   Bangkok, Thailand

- Engineered a low-code, near-real-time big data framework using Azure Databricks.
- Developed an ELT pipeline with Azure Data Factory, enhancing data processing efficiency.
- Managed database operations in Azure using SQL and Spark, encompassing creation, editing, and deletion of data.
- Handled diverse data formats (deflate, parquet, CSV.GZ, XML) for database integration using Azure Databrick and Data Factory.
- Implemented data cleansing processes with Python, SQL, and Spark.
- Orchestrated the collection and refinement of hundreds of databases for data scientists' use, ensuring data integrity across SQL and NoSQL systems.
- Special Assignment: Focused on data solutions for Thailand's leading retail and mobile network companies (CP and DTAC).

Trinity Roots Co., Ltd.   Jun 2019 – Mar 2020
Data Engineer   Bangkok, Thailand

- Developed predictive models using multiple regression for inventory management.
- Executed customer segmentation using k-means clustering to boost sales in targeted demographics.
- Applied the Apriori algorithm for promotional strategies.
- Produced visual data insights using Tableau and Power BI for non-technical stakeholders.
- Automated operational processes using Alteryx tools.
- Special Assignment: Led inventory optimization and demand forecasting in healthcare and agricultural sectors, including data warehouse migration and forecasting model development using Airflow.

Botnoi Consulting   Jan 2018 to May 2019
Data Scientist   Bangkok, Thailand

- Developed the BotNoi AI chatbot in the Line app, engaging over 3 million users.
- Created BotNoi-Weather, a real-time weather prediction chatbot for 300,000+ users.
- Built BotNoi-Football for real-time sports updates on multiple social media platforms.
- Implemented TFITF and Dialogflow for chatbot responsiveness.
- Utilized SQL (PostgreSQL) and NoSQL (MongoDB) for database management.
- Developed APIs and big data collection methods using Flask, connecting Cloud Heroku and Google Cloud Platform.
- Executed web scraping with Selenium and Beautiful Soup.
- Contributed to machine translation and text-to-speech projects for localization and accessibility.

Witsawa Corporation Co., Ltd.   Jul 2017 - Nov 2017
Full Stack Developer Internship   Bangkok, Thailand

- Built a web-based learning platform with 1000 active users using HTML, CSS, React, PHP, Express, and Loopback.
- Managed project workflows using Trello and implemented Storybook for template efficiency.

PROJECTS

- My Natural Language Processing (Over 30 projects) | *GitHub Link*
  - This project covered areas like Text Classification, Question Answering, Generate Transformer, Document Classification, Named Entity Recognition, Part of Speech Tagging, Sentiment analysis, text preprocessing, Text to Speech, Word embedding, Word sentence representation, Soundex, and Dialogflow.
- AI Chatbots and NLP Development: Innovations in AI chatbot technology at Botnoi Consulting.
- Healthcare Inventory Optimization and Forecasting: Advanced analytics projects at Trinity Roots Co., Ltd.
- Agricultural Products Forecasting: Data transformation and forecasting model development.
- Business Enhancement for Coffee Chain: Implemented data-driven strategies for sales growth at Trinity Roots Co., Ltd.
- Cloud Migration: Successfully led the transition to Google Cloud for data management and analysis at Trinity Roots Co., Ltd.
- Educational Website Development: Developed an educational platform during Witsawa Corporation Co., Ltd. internship.
- Enterprise Big Data Framework Development: Led the development of a low-code, real-time big data framework and efficient ELT pipeline using Azure Databricks and Azure Data Factory.
- Retail and Mobile Network Data Analysis: Managed large-scale data integration projects for major retail(CP) and telecom(DTAC) companies in Thailand, overseeing the collection and analysis of diverse data sets.

SKILLS

- Programming Languages: Python, PHP, CSS, JavaScript, HTML.
- Frameworks and Libraries: Pandas, NumPy, SKLearn, TensorFlow, Flask, Django, PySpark, Spark.
- Data Science: Big Data Analytics, AI, Machine Learning, Deep Learning, Transformer model, NLP, Classification, Clustering, Regression.
- Database Management: SQL (MySQL, MS SQL Server, PostgreSQL), NoSQL (MongoDB, ElasticSearch), Redis.
- Data Visualization: Tableau, Power BI, Cytoscape, Dgraph, Maltego, Alteryx.
- Cloud Computing: Azure, GCP, AWS.
- Strong background: developing scalable data solutions and predictive models.
- Data Engineer: ETL (PySpark, Redis), SQL, NoSQL, Azure, GCP, AWS, Data Cleansing(Python).

CERTIFICATION

- Stanford University Course Machine Learning by Andrew Ng Certification
- National Central University Summer Short Data Scientist Course Program Certification
- Exploratory Data Analysis for Machine Learning by IBM
- Getting Started with AI Using IBM Watson
- Intro to Machine Learning by Kaggle

RESEARCH

1. ### Experimental Analysis of Speech Emotion and Gender Recognition

    Co-Authors: Supasun Khumpraphan(First author), Guangming Huang(Second author), and Dr. Cunjin Luo(Third author).

    - Objective and Innovation: Spearheaded a pioneering study focusing on the combined prediction of emotion and gender in speech emotion recognition. A key innovation of this re-

search was the integration of Convolutional Neural Network (CNN) models with ensemble learning techniques to enhance predictive accuracy and robustness.

- Methodology: Employed advanced data processing and feature transformation techniques, including Zero Crossing Rate, Root Mean Square, and Mel Frequency Cepstral Coefficient, to prepare the datasets for the CNN-ensemble model.
- Evaluation and Analysis: Utilized comprehensive evaluation methods, including classification reports, accuracy scores, and confusion matrices. These tools allowed for a detailed assessment of the model's precision, recall, and performance across various emotion classes, thereby validating the effectiveness of the combined CNN and ensemble learning approach.
- Comparative Performance: Demonstrated superior performance in comparison to existing studies, achieving the highest reported accuracy rates on multiple datasets and 17 models. This underscores the effectiveness of the CNN-ensemble model in speech emotion recognition, setting new benchmarks in the field.

REFERENCE

- Professor Phromphat Thansirichaisree, PhD (Cantab), MA, MEng Associate Professor, Department of Civil Engineering, Thammasat University, Tel. (+66)863669312, E-mail ckrisada@engr.tu.ac.th
- Professor Sirisilp Kongsilp, Assistant Dean for Special Affairs at Faculty of Engineering, Thammasat University, Tel. (+66)93-561-3555, E-mail: sirisilp@engr.tu.ac.th
- Professor Phisan Kaewprapha, Asst.Prof.Dr in the Electrical and Computer Engineering. Faculty of Engineering, Thammasat University, Tel. (+66)2564-3001-9, E-mail: kphisan@engr.tu.ac.th
- Professor Cunjin Luo, Lecturer in School of Computer Science and Electronic Engineering University of Essex, UK, Email: cunjin.luo@essex.ac.uk