CHENG, CHAO-HSIANG

 qazasd2518995 | a11317005@mail.ntust.edu.tw | +886-970-733-372

EDUCATION

Bachelor of Arts in Applied Foreign Languages   Sept 2024 - Sept 2026 (Expected)
National Taiwan University of Science and Technology (NTUST), Taipei, Taiwan
Double Major: Electrical and Computer Engineering
Minor: Computer Science and Information Engineering
GPA: 4.28/4.3
Relevant Coursework: Text Mining and Analysis, Introduction to Information Security, An Overview of Big Data Analysis, Introduction to Data Science, Color Natural Language Processing in Generative AI, Applying Machine Learning to Text Mining, Programming Language, Data Structure

Exchange Student – Computer Science and Information Engineering   Sept 2023 - Dec 2024
The Catholic University of Korea, Seoul, South Korea
Major: Computer Science and Information Engineering
GPA: 4.5/4.5 (Perfect Score)

Exchange Student – Business Informatics   Mar 2023 - Jun 2023
University of Leipzig, Leipzig, Germany
Major: Business Informatics
Language Class: 1.0/1.0 (Perfect Score)

Associate Degree in English   Sept 2019 - June 2024
Wenzao Ursuline University of Languages, Kaohsiung, Taiwan
Minor: German
GPA: 4.1/4.3
Relevant Coursework: Information Technology, Word Processing, Data Processing

RESEARCH EXPERIENCE

Research Assistant – Lab of Data Analytics in Human Science, NTUST (lab-website-kohl.vercel.app)
2024 - Present

- Conducting quantitative research in foreign language acquisition using advanced statistical techniques including Structural Equation Modeling, Item Response Theory, and Multilevel Modeling
- Applying machine learning and text mining methodologies to analyze language learning processes and individual differences in language acquisition
- Developing interactive educational tools and research software for language acquisition studies
- Collaborating on meta-analyses investigating language learning motivation and technology-enhanced language learning
- Utilizing R and Python for data analytics, statistical modeling, and research visualization

Research Assistant – Law & Technology Innovation Center, NTUST (www.ltic.ntust.edu.tw)
Feb 2025 - Sept 2025

- Assisted in analyzing domestic and international geothermal project technical parameters, cost structures, and regulatory mechanisms for the "Legal and Governance Models for Geothermal Energy Development Systems" project
- Demonstrated high efficiency in literature screening, database design, and multi-source data integration
- Utilized Python to complete statistical summaries and analytical reports, showcasing exceptional logical reasoning and engineering literacy

- Participated in the feasibility assessment of health data applications and services, responsible for designing and constructing third-party audit systems, institutional self-verification modules, and data withdrawal and destruction mechanisms

National Science and Technology Council (NSTC) Undergraduate Research Project – Accepted
August 2025
Project: "Text Mining and Machine Learning in Religious Scriptures: A Data-Driven Analysis of Value Alignment Between the Bible, the Dhammapada, and the Tao Te Ching with Taiwan's Generation Z". Accepted for competitive undergraduate research funding from the National Science and Technology Council.

National Science and Technology Council (NSTC) Undergraduate Research Project – Accepted
August 2025
Project: "Digitization and Preservation of Indigenous Language Through Software Development: In the Case of Atayal". Accepted for competitive research funding focused on indigenous language preservation through technology.

Contributing Editor August 2025

- Contributed to *Text Analysis in Social Sciences: Applications of R* by Prof. Wen-Ta Tseng, published by Wu-Nan Book Inc.
- Assisted in data verification and proofreading of statistical analyses
- Compiled and edited code appendices for R programming examples
- Book URL: www.wunan.com.tw/bookdetail?NO=17408

PROJECTS

Machine Learning for Password Strength Assessment Feb 2025
Developed a Markov model-based password strength assessment system comparing with industry-standard zxcvbn. Implemented 4-gram analysis with Laplace smoothing. Technologies: Python, Scikit-learn, Markov Chain. Results: Achieved AUC ∼0.75, Precision ∼60%, Recall ∼75%.

Text Mining of Taiwan's Bilingual Education Policy News Feb 2025
Conducted large-scale text mining analysis on 613 news articles (421,879 words) regarding Taiwan's bilingual education policy using R. Performed sentiment analysis, TF-IDF, and co-occurrence network analysis. Technologies: R, Python Selenium, OpenAI API, NLP. Results: Identified key trends and media sentiment patterns.

Multimodal Grammar Learning Chatbot with RAG Jan 2025
Built an intelligent grammar correction chatbot focusing on English article usage, integrating RAG and fine-tuning techniques. Supports file upload and screenshot analysis. Technologies: Gemma3, LlamaFactory, PyTorch, Google Colab. Results: Reduced loss from 4 to 0.18 over 60 epochs.

Instagram Donation Platform (Industry Collaboration with PSK Cosmetics) Jan 2025
Developed an interactive donation system for Taiwan's Whale & Dolphin Association leveraging Instagram engagement (1 like = 1 NTD donation) with automated lottery functionality. Technologies: Next.js, React, Node.js, MongoDB Atlas, Facebook Graph API. Results: Successfully increased brand social engagement.

TEACHING & WORK EXPERIENCE

Teaching Assistant – Applying Machine Learning to Text Mining Sept 2025 - Present

- Instructed students in applying machine learning algorithms to text mining applications
- Taught implementation of Random Forest and Bayesian models for text classification and analysis
- Technologies: Scikit-learn, Random Forest, Naive Bayes, feature engineering for NLP

Teaching Assistant – Language Acquisition Mar 2025 - Jun 2025

- Taught students to deploy local LLMs and fine-tune open-source models to simulate human language acquisition theories
- Demonstrated fine-tuning workflows using LlamaFactory to model cognitive language learning processes
- Technologies: Gemma3, LlamaFactory, PyTorch, local LLM deployment

Teaching Assistant – Text Mining and Analysis   Sept 2024 - Dec 2024

- Instructed students in fundamental text mining workflows and methodologies
- Guided hands-on practice in data preprocessing, tokenization, and text analysis techniques
- Technologies: R, Python, NLP, text processing pipelines

SKILLS

Programming Languages   R, Python, C++, JavaScript, Java, MATLAB, SQL

Tools & Technologies   Git, LaTeX, TensorFlow, PyTorch, NLP, MySQL, PostgreSQL, DynamoDB, LLM, Chatbot

Statistical & Analytical   Machine Learning, Text Mining, Data Analysis, Statistical Modeling, Research Methodology

Languages   Mandarin (Native), English (C1), German (B1), Korean (TOPIK 1)

HONORS & AWARDS

Scholarships

Undergraduate Research Project Scholarship   Ministry of Science and Technology, Summer 2025
Project: "Text Mining and Machine Learning in Religious Scriptures: A Data-Driven Analysis of Value Alignment Between the Bible, the Dhammapada, and the Tao Te Ching with Taiwan's Generation Z". Competitive research funding awarded to support undergraduate research initiatives.

Undergraduate Research Project Scholarship   Ministry of Science and Technology, Summer 2025
Project: "Digitization and Preservation of Indigenous Language Through Software Development: In the Case of Atayal". Competitive research funding for indigenous language preservation through technology.

Academic Excellence Scholarship   Spring 2025
Awarded for outstanding academic performance at National Taiwan University of Science and Technology.

Academic Excellence Award for Graduating Students – First in Class   Spring 2024
Ranked first in class among all graduating students at Wenzao Ursuline University of Languages.

Ministry of Education Overseas Exchange Student Financial Assistance Grant   Spring 2023
Ministry of Education scholarship for study abroad programs, awarded based on academic excellence and merit.

Academic Excellence Scholarship   Fall 2022
Awarded for outstanding academic performance.

Scholarship for Outstanding Conduct and Academic Performance   Fall 2020
Recognized for exceptional academic achievement and exemplary conduct.

Scholarship for Outstanding Conduct and Academic Performance   Spring 2020
Recognized for exceptional academic achievement and exemplary conduct.

Academic Excellence Scholarship   Fall 2019
Awarded for outstanding academic performance.

Competitions

NODASS Ocean Big Data Contest National Academy of Marine Research, 2025
Project: "Optimizing Marine Conservation through Data Mining: A Comprehensive Assessment of Marine Protected Area Effectiveness in Taiwan's Northeast Waters Using Environmental DNA and Machine Learning Approaches". Advanced to final round (currently competing).

4th NTUST United Nations Sustainable Development Goals (SDGs) Presentation Competition – Second Place 2025
Project: "Mindful Minds – Developing a Mental and Physical Health Education App". Awarded second place among all competing teams.

AIoT Innovation System Training Program – First Place in Final Project Competition National Taiwan University, Jul 2025
Achieved first place in the Final Project Competition on Artificial Intelligence of Things (AIoT) held on July 18, 2025. Presented to Team Five, competing among five teams in the innovation system training program.

CERTIFICATIONS & TRAINING

Certificate of Course Completion – Python Programming National Taiwan University, Jan 2025
Successfully completed the Python Programming course at the Information System Training Program in the Department of Computer Science and Information Engineering from January 13, 2025 to January 23, 2025.

Certificate of Course Completion – C++ Programming National Taiwan University, Feb 2025
Successfully completed the C++ Programming 101 course at the Information System Training Program in the Department of Computer Science and Information Engineering from November 13, 2024 to January 08, 2025.

Certificate of Course Completion – Artificial Intelligence and Internet of Things (AIoT) National Taiwan University, Jul 2025
Successfully completed the Artificial Intelligence and Internet of Things (AIoT) Practice with Arduino course at the Information System Training Program in the Department of Computer Science and Information Engineering from July 18, 2025 to July 07, 2025.

Last updated: October 13, 2025