

TSAI, KUEI-YU

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WORK EXPERIENCES

System Engineer	06/2025 – Present
<i>Foxconn Industrial Internet - Houston, Texas, United States</i>	
<ul style="list-style-type: none">Migrated legacy PHP server applications to the CodeIgniter 3 framework, delivering responsive, modular web interfaces that improved maintainability and user experience.Developed centralized portals for user management and Microsoft 365 license automation, enabling enhanced visibility and delegated provisioning across regional IT teams.Designed and implemented CI/CD pipelines with Docker to streamline deployment for test environment and improve development efficiency.Architected and optimized MySQL database schemas, with automated data refresh and dynamic dashboards for reporting.Automated user management and Microsoft 365 license assignment workflows leveraging Active Directory, PowerShell, and PHP frameworks, significantly improving operational efficiency.	
Full Stack Developer	05/2023 – 08/2024
<i>ELITE English Language Institute of Testing Education - Taipei, Taiwan</i>	
<ul style="list-style-type: none">Collaborated on Figma to create cohesive website content and server.Developed and maintained the website full stack using WordPress, PHP, and JavaScript API.Integrated third-party web services and achieved a 50% cost reduction in web development.	
Intern, Product Management (Tech)	03/2022 – 01/2023
<i>Shopee Pte. Ltd. – Taipei, Taiwan</i>	
<ul style="list-style-type: none">Provided insights for user-friendly product development.Created Product Requirement Documents and test scripts.Managed databases with PostgreSQL and implemented automated testing with Cypress and Appium.Tested Android applications using Android Studio.	

RESEARCH EXPERIENCES

Customer Service Audio Analyzer	02/2025
<ul style="list-style-type: none">Built the prompt compilation engine to transform audio transcription and evaluation metrics into structured prompts.Designed the LLM evaluation flow and output integration logic to assess agent performance.Created the frontend architecture and developed the analytics dashboard in React.Implemented metric-based trend graph generation and employee-specific analysis filters with statistical breakdowns.Led the full-stack integration, coordinating backend services, WebSocket real-time communications, and frontend dynamic updates to ensure system reliability.	
Sports Semantic Action Search System	12/2024
<ul style="list-style-type: none">Developed a semantic search engine enabling users to query sports actions and retrieve timestamped video segments.Implemented action detection and classification using YOLOv11 to accurately identify 33 Olympic sports actions, achieving 84.49% Top-1 accuracy and 94.91% Top-5 accuracy.Designed and built a scalable database schema for indexing annotated video segments, including action labels, timestamps, and metadata, to support fast and precise video retrieval.Optimized system performance by mitigating action misclassification through threshold optimization and annotation consistency strategies.Enhanced user experience by implementing seamless results, metadata display, and playback of selected video segments.	
Predicting NVIDIA Stock Prices Trends with Recurrent Neural Networks	04/2024
<ul style="list-style-type: none">Developed a unique RNN model from scratch, emphasizing understanding of mathematical and algorithmic principles.Collected and preprocessed daily stock prices, including normalization for effective modeling.Visualized results showing training and validation losses, and RMSE, illustrating model convergence.Provided recommendations for model optimization, including optimal layer configurations, monitoring training progress, and further experimentation with hyperparameters.Contributed to the understanding and application of RNNs in financial forecasting and sequential data analysis.	
Hide & Survive	02/2024
<ul style="list-style-type: none">Designed a hide and seek game with Virtual Reality in mobile development.Collaborated with UI/UX designers to create an intuitive user interface.Implemented Physically Based Rendering techniques using C# and JavaScript within Unity3D.Using Photon to create a multiplayer game mode.	
Two Hands, Two Touchpads: Optimizing Text Entry on Televisions	12/2023
<ul style="list-style-type: none">Proposed touch-based controllers at UTD for virtual on-screen keyboards to enhance interaction.Utilized drag-based touch interactions on a traditional keyboard layout for a balance between learnability and efficiency.Demonstrated fluent single-motion key selection to reduce the learning curve, serving as a viable substitute for existing remote-based input techniques.Conducted a user study comparing input methods, including TV remote, single cursor, and dual cursor.Comparative analysis highlighted distinctions in user preferences, emphasizing factors like ease of use, input speed, error rate, learnability, and personal preference.	
Intelligent Tutoring System of Piano	01/2022
<ul style="list-style-type: none">Created an innovative web project at NCCU, focused on enhancing music learning through AI integration.Conducted an investigation into existing Intelligent Tutoring Systems for music education, resulting in a cutting-edge smart piano tutoring system with gamified elements.Developed course materials and guidelines using advanced algorithms like Elo Rating Algorithm and dynamic programming.Leveraged JavaScript and the Web MIDI API for an interactive user interface, resulting in a 95% improvement rate.	

EDUCATION

The University of Texas at Dallas – Richardson, Texas, United States	08/2023 – 05/2025
M.S. in Computer Science, specialized in Interactive Computing	
National Chengchi University – Taipei, Taiwan	09/2018 – 06/2022
B.S. in Computer Science	

CERTIFICATES

Collegiate Programming Examination	12/2021
ICPC - ACM International Collegiate Programming Contest	

SKILLS

<i>Human-Computer Interaction Development</i>	C#, JavaScript, Python, Unity3D
<i>Full Stack Development</i>	Node.js, React, Flask, PHP, CodeIgniter, Wordpress
<i>Test Development</i>	TypeScript, Jest, Cypress, Appium
<i>Other Programming Languages</i>	C/C++, SQL
<i>Software Proficiency</i>	Git, Docker, Figma, Xcode, Android Studio