KAI–CHENG TSOU

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Summary

AI engineer and **AI solution/product builder** with experience delivering **OCR systems**, **3D medical imaging**, and **real-time AI applications**. Skilled at translating **business needs → deployed AI**, managing stakeholders, and improving product reliability and user experience. Targeting **AI Solution Manager / AI Project Manager** roles.

Education

Purdue University **Aug. 2023 – Dec. 2024**
M.S., Electrical & Computer Engineering (AI focus) *West Lafayette, USA*

Purdue University **Aug. 2019 – May 2023**
B.S., Game Development *West Lafayette, USA*

Work & Professional Experience

Remex Medical **Jul. 2025 – Present**
Senior Software Engineer *Taichung, Taiwan*

- Led deployment of medical imaging features via **GitLab CI/CD**, improving release reliability across device types.
- Built a **real-time endoscope UI** (capture, denoise, zoom, recording) used in clinical workflow tests.
- Developed **bleeding-detection AI** with full data pipeline and real-time inference.
- Coordinated with biomedical & hardware teams to ensure stable performance across resolutions and hospitals.

Taiwan Semiconductor Manufacturing Company (TSMC) **Jun. 2024 – Aug. 2024**
AI Software Engineering *Hsinchu, Taiwan*

- Developed a custom OCR model for high-variance slide content, improving **character accuracy from ∼70% to 96–97%**.
- Engineered advanced preprocessing (denoising, contrast normalization) and **NLP post-processing** to reduce false positives and enhance contextual accuracy.
- Fine-tuned PaddleOCR on a hybrid dataset (real-world + synthetic) with hyperparameter optimization, yielding **significant gains in precision, recall, and robustness** on noisy inputs.

Industrial Technology Research Institute (ITRI) **Jun. 2023 – Aug. 2023**
Software Engineering, Unreal Engine Developer *Hsinchu, Taiwan*

- Built a lifelike **AI avatar** by integrating ChatGPT, Microsoft TTS, and NVIDIA Audio2Face with Unreal Engine Metahuman for real-time voice + facial animation.
- Implemented real-time OSC communication between Audio2Face and Unreal Engine, improving lip-sync and gesture fidelity; created a user-friendly Unreal UI for non-technical users.

Selected Project

Hydration Level Detection System (Wearable) — Purdue University
XGBoost — Bio-impedance (1–400kHz) — Embedded/Wearable **Aug. 2023 – May 2024**

- Classified hydration states using multi-frequency bio-impedance signals and **XGBoost**.
- Collected/analyzed signals (1–400kHz) via MAX30009 hardware; identified **50kHz** as optimal for total-body water prediction.
- Led data collection, signal preprocessing, and model development; collaborated across teams to prototype a real-time wearable alert system.

Technical Skills

Programming/Tools: Python, PyTorch, TensorFlow, Scikit-learn, C++, C#, Java, SQL, JavaScript, Angular, HTML, Unreal Engine, Git, Docker, REST APIs
AI/ML: Deep Learning, Transfer Learning, OCR, Computer Vision, NLP, Data Augmentation, Model Evaluation (Precision/Recall/F1), Real-time Inference
Software: VS Code, Jupyter, GitHub, Postman, MATLAB, Advanced Excel