

JUNXIAN WU

Senior AI Engineer | Computer Vision, Multimodal & Edge AI

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PROFILE

Senior AI Engineer with production depth in camera AI, computational photography, edge deployment, and C++/Android integration. I turn model behavior and visual-quality feedback into deployable systems, hard-case evaluation, and maintainable handoff, while building public tested references for reliable agent workflows. Target roles: Applied AI Engineer, Forward Deployed Engineer, Computer Vision Engineer, and Multimodal AI Engineer.

Production: Vision & Edge AI | **Domain:** Computational Photography | **Adjacent:** Reliable Agent & Multimodal Workflows

PROFESSIONAL EXPERIENCE

Senior AI Engineer | Black Sesame Technologies (Singapore)

Jan 2025 - Present

- Own end-to-end camera and image AI delivery, translating product requirements and field feedback into technical scope, prototypes, hard-case evaluation, release gates, and production handoff.
- Lead real-time composition and portrait-imaging systems combining detection, optical-flow tracking, segmentation and matting, monocular depth, GPU rendering, and application state.
- Drive model-to-device integration across PyTorch, quantization, TFLite/ONNX, native C++/Android, GPU pipelines, and on-device debugging.
- Coordinate product, camera tuning, runtime, QA, and customer-facing teams around reproducible issue sets, acceptance decisions, and release readiness.

AI Engineer | Black Sesame Technologies (Singapore)

Aug 2022 - Jan 2025

- Productized models for portrait segmentation and matting, monocular depth, object detection, and camera-oriented image processing.
- Built repeatable training-to-deployment workflows spanning data preparation, quantization, export validation, runtime assumptions, and model replacement checks.
- Integrated models into C++ and Android camera pipelines and developed depth-aware bokeh workflows with device debugging, golden cases, and release-review tooling.

RESEARCH EXPERIENCE

Research Intern | National University of Singapore | Dec 2021 - Jul 2022

Computer-vision research for construction-site safety; co-authored a peer-reviewed Automation in Construction paper.

Research Assistant | Shandong University | Sep 2019 - Jun 2021

Applied computer vision and machine learning to interdisciplinary psychology research, datasets, experiments, and reporting.

SELECTED PUBLIC SYSTEMS

Reliable Agent Workflow: Provider-neutral Python reference for retry, fallback, validated outputs, confidence gates, traces, and executable hard cases. github.com/vemodalen-x/vemodalen-x.github.io/tree/main/agentic_workflow

Photography Mentor: Browser-local image diagnostics, retrieval, practice planning, review state, and evidence-aware coaching. vemodalen-x.github.io/photography-mentor-agent.html

TECHNICAL STACK

- **AI and vision:** PyTorch, TensorFlow, OpenCV, segmentation, matting, monocular depth, detection, optical flow, local retrieval
- **Runtime and quality:** Python, C++, Android/NDK, TFLite, ONNX, TensorRT, OpenGL/GLSL, Docker, quantization, hard cases, traces, release gates

EDUCATION

Master of Technology, Intelligent Systems | NUS-ISS | 2021 - 2022 | GPA 4.33 / 5.00

Bachelor of Engineering, Software Engineering | Shandong University | 2017 - 2021 | GPA 86.86 / 100 | Outstanding Graduate

PUBLICATION

Co-author, "Automated classification of 'cluttered' construction housekeeping images through supervised and self-supervised feature representation learning," *Automation in Construction*, 2023. doi.org/10.1016/j.autcon.2023.105095