Diwen Huang

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Technical Skills

Languages: Python, Swift, Kotlin, TypeScript, JavaScript, Java, C++, HTML/CSS

Frameworks & Tools: SwiftUI, React, React Native, Next.js, Firebase, Gemini API, Git, GCP, Android Studio, Figma

Machine Learning: PyTorch, TensorFlow, CoreML, OpenCV, YOLOv5, ONNX, CUDA, Kalman Filtering

Experience / Research

Founder & Lead Developer | *Smashspeed AI*　　　　　　　　　　　　　　　　　　May 2025 – Present

- Developed the core real-time computer vision pipeline for iOS using YOLOv5, CoreML, and Kalman filtering to calculate badminton smash speeds with high precision on-device.
- Achieved 93% model accuracy by personally labeling 13,000+ images and training YOLOv5 on a custom, user-collected dataset of 15,000+ images using NVIDIA A100 GPUs on Google Cloud.
- Architected the application's scalable Firebase backend to support thousands of active users with authentication, cloud storage, and real-time data synchronization.
- Led a team of 6 engineers and designers to scale the iOS app, driving user growth to over 10,000 downloads by engineering a viral marketing campaign that generated 1M+ views.
- Currently spearheading the expansion to Android, leading development of a cross-platform app with React Native and Kotlin, and porting the vision models using the ONNX format for on-device inference.

Freelance Software Engineer | *Self-Employed*　　　　　　　　　　　　　　　　　Aug 2025 – Present

- Partner with a diverse clientele of small businesses, non-profits, and individuals to translate their requirements into functional specifications and project roadmaps.
- Engineer and deploy full-stack web applications using modern frameworks like React and Next.js, resulting in improved online presence and user engagement for clients.

Computer Vision Researcher | *Independent*　　　　　　　　　　　　　　　　　May 2025 – Sep 2025

- Authored and published a research paper on arXiv detailing the novel vision-based algorithms developed for the Smashspeed AI application.
- Validated the system's performance and accuracy through rigorous testing under the mentorship of experts from Stanford (PhD, CS) and UPenn (MEng, Data Science).

Certified Badminton Coach | *NCCP Level 2*　　　　　　　　　　　　　　　　　Sep 2024 – Present

- Improve athlete performance at provincial and regional levels by integrating Smashspeed AI into private coaching sessions ($90/hr) to provide data-driven, real-time biomechanical feedback.

Projects

Founder & Developer | *STEMsf.org*　　　　　　　　　　　　　　　　　　　　　Sep 2025 – Present

- Founded a non-profit to promote STEM education, developing its web platform with React, TypeScript, and Firebase, including a secure portal with role-based access control.
- Manage a team of 7 executives across 2 chapters to coordinate outreach and plan educational workshops.

Technical Author | *Amazon Bestselling Books*　　　　　　　　　　　　　　　　　　　　Aug 2025

- Authored two programming guides, *Python FastStart* and *Swift FastStart*; the latter achieved #1 Bestseller status in App Development and ranked Top 50 in the Artificial Intelligence category on Amazon.

Regen　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Jan 2025

- Developed an AI-powered website using HTML, CSS, and the Gemini API to generate custom-tailored recipes from food photos.
- Awarded 2nd place in a Vancouver hackathon for its innovative application of generative AI.

Education

Port Moody Secondary School – IB Diploma Candidate　　　　　　　　　　　　　　　Port Moody, BC

Expected Graduation: June 2027

- **Academics:** 4.0 GPA (97.1% average), Rank: 2/300. Pursuing IB Higher Levels in Math AA and Physics.
- **Standardized Tests:** SAT 1530 (790 Math, 740 English).
- **Certifications & Coursework:** Deep Learning Specialization (Coursera), Google UX Design Specialization (Coursera), Linear Algebra & Multivariate Calculus (Imperial College London).