

# Diwen Huang

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## Technical Skills

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

**Frameworks & Tools:** SwiftUI, React, React Native, Next.js, Tailwind CSS, Firebase, Gemini API, Git, GCP, Android Studio, Figma, Bash, Pygame

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

## Experience / Research

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**Product Manager & Software Developer** | *Solace – UC Berkeley Web3 Startup* Oct 2025 – Present

- Building an AI wellness agent for a Web3 startup based at UC Berkeley, backed by Virtuals Protocol.
- Leading product development and engineering iOS and Android applications using React Native and TypeScript with Supabase backend for authentication, database, and real-time data synchronization.

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

- Developed 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 on 15,000+ images using NVIDIA A100 GPUs on Google Cloud.
- Architected scalable Firebase backend supporting thousands of registered accounts with authentication, cloud storage, and real-time data synchronization.
- Led team of 6 engineers and designers, scaling iOS app to 25,000+ users and ranking #1 in Taiwan (Sports) and #2 in Vietnam (Sports) on the App Store through viral campaign generating 1M+ views; spearheaded Android release using React Native, Kotlin, and ONNX.

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

- Authored and published research paper on arXiv detailing novel vision-based algorithms for Smashspeed AI; validated system performance under 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) for data-driven, real-time biomechanical feedback.

## Projects

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**Real-time Gaze Tracking System** | *Pilot project for Cluely* Oct 2025

- Built lightweight, local-only gaze tracking prototype using webcam to infer eye/pupil position and head pose, classifying gaze direction at 15–30 FPS with swappable face/landmark detection, five-point calibration, and temporal smoothing.
- Designed privacy-first architecture with no frame storage or network transmission, achieving CPU-only performance with <100ms latency and dual outputs (debug overlay + NDJSON/WebSocket stream).

**Steve the Freakysaur** Sep 2025

- Built Chrome Dino-style game controlled hands-free with real-time tongue detection using segmentation model on webcam input; prototyped in Pygame, ported to web with Next.js and TypeScript; awarded 1st place (124 participants, 50+ projects) at Daydream Game Jam, BC's largest youth hackathon.

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

- Founded non-profit to promote STEM education; developed web platform with React, TypeScript, and Firebase, including secure portal with role-based access control; manage team of 7 executives across 2 chapters.

**Technical Author** | *Amazon Bestselling Books* Aug 2025

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

## Education

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**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).