Robert Chen

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EDUCATION

University of Virginia | GPA: 3.6/4.0 — Charlottesville, VA
B.S. in Computer Engineering & Electrical Engineering — *May 2026*

- Relevant Courses: Data Structures and Algorithms, Machine Learning, Embedded Systems, Computer Systems

EXPERIENCE

DevOps Cloud Automation Engineer Intern — Fairfax, VA
Verint — *May 2025 - Nov 2025*

- **Reduced infrastructure plan/build times** and improved portability by migrating Terraform workspaces to OpenTofu and standardizing remote state plus reusable modules for EC2, S3, and IAM.
- Delivered a **secure file-transfer platform** by deploying an AWS Transfer Family web client on ECS Fargate using CloudFormation, Cognito, DynamoDB, S3, CloudFront, Docker, CloudWatch, and Angular.
- **Cut pull-request feedback time to ~2-3 minutes** across ~30 PRs/week by building CI/CD automations in GitHub Actions and Harness with Python and Bash, eliminating manual PR checks.
- **Improved PR-check precision by 12%** by curating pull-request data and tuning an Azure AI Foundry code-review model.

Software Engineering Intern — Centreville, VA
S&J Chen, LLC — *May 2024 - Aug 2024*

- **Reduced manual rent follow-ups by ~60%** across 2 shopping centers by building and shipping a full-stack tenant payment portal with Next.js, TypeScript, Supabase, and Vercel.
- Cut monthly reporting time from ~3 hours to ~30 minutes by automating Stripe webhook reconciliation and CSV reporting.

Research Assistant (ML & Computer Vision) — Charlottesville, VA
Visual Intelligence Lab, University of Virginia — *Sep 2025 - Present*

- Developed a **Python CV pipeline** that extracts JSON match state from tennis broadcast score overlays using OpenCV, Tesseract OCR, temporal smoothing, and a finite-state machine.
- Built a **reproducible serve-analysis pipeline** in Python and defined a Serve Index using speed, outcomes, and 3D keypoints.

PROJECTS

Badminton Swing Consistency & Deception Analyzer | *Flutter, Dart, Embedded C, BLE, IMU, SQLite*

- Developed an **end-to-end badminton swing analysis system** with firmware, BLE, analytics, Flutter app, and enclosure, capturing 100 Hz IMU and audio data for swing speed and impact analysis.
- Achieved **~95% hit-vs-shadow-swing classification accuracy** in on-court tests by designing FFT-based and physics-based signal-processing features.
- Improved **session reliability and athlete usability** by developing a Flutter app with BLE auto-reconnect, SQLite history, dashboard visualizations, and a WIP video-ML sync module linking phone footage to IMU events.

Photo Curator App | *React Native, TypeScript, TensorFlow.js, NestJS, AWS*

- Built a **cross-platform mobile app** for intelligent photo curation by combining on-device ML for blur detection, facial recognition, and aesthetic scoring with a gesture-driven React Native interface.
- Enabled **secure cloud sync and sub-200 ms similarity search** by developing a NestJS backend with JWT authentication, PostgreSQL with pgvector, and AWS S3.

Machine Learning Web App - Food Insecurity Forecasting | *Flask, Python, JavaScript*

- Built a **Flask web app for real-time food insecurity prediction**, achieving $\mathbf{R^2 = 0.87}$ with a Random Forest model and **MAE** $\approx$ **3,000 lbs** with a Neural Network trained on SNAP, poverty, and labor datasets.

TECHNICAL SKILLS

Programming Languages: Python, C, C++, Java, SQL, JavaScript, TypeScript
Frameworks & Tools: React, Next.js, Node.js, React Native, Flutter, NestJS, Flask, Git, Linux
ML & Data: PyTorch, TensorFlow, scikit-learn, OpenCV, NumPy, Pandas, PostgreSQL, MySQL
Cloud & DevOps: AWS (EC2, S3, CloudFront), Docker, Kubernetes, GitHub Actions, Harness, Terraform, OpenTofu, Bash

LEADERSHIP & ACTIVITIES

Leadership: Yo-Yo Club, President (founder, ~50 members); Taiwanese Student Association (TSA), Sports Chair
Interests: Tennis, Volleyball, Pickleball, Figure Skating, Robotics