Edward J Tan

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Experience

GTSP Group **Santa Clara, CA**
Software Developer Intern *Dec 2024 – Feb 2025*

- Developed backend infrastructure for a digital-twin platform combining LLM conversations with real-time 3D avatar animations in Unreal Engine 5, orchestrating **GPT-4 API** responses through **ElevenLabs/Azure TTS** into facial-animation triggers
- Implemented **gRPC** services connecting the conversational AI pipeline to the avatar system, processing LLM outputs via emotion detection for gesture selection, phoneme extraction for lip-sync, and real-time streaming protocols to achieve **sub-150 ms** response latency
- Automated deployment with **GitHub Actions**: built **Docker** images on PR merges, pushed to **Amazon ECR**, and triggered **Kubernetes** rolling updates via **kubectl apply**

Independent Contractor **New York, NY**
Freelance Web Developer *Aug 2024 - May 2025*

- Developed RESTful APIs with **Spring Boot** for a Chinese-painting e-commerce platform: catalog management, advanced search/filter by artist/style, and buyer inquiry notifications—supporting **500+ artworks** at **sub-200 ms** response times
- Designed **PostgreSQL** schema using **JSON** columns for flexible metadata, full-text search for descriptions, and trigger-based audit logs—optimizing retrieval over **500+** records
- Built serverless image-processing pipeline (**AWS Lambda** + **S3**): JPEG optimization, watermarking, and multi-size variants (thumbnail, display, original), reducing file sizes by **70%** without quality loss

Software Developer & Research Assistant **Beijing, China**
Peking University *May 2024 - Aug 2024*

- Built a versatile 3D rendering engine in **TypeScript** supporting point-cloud, Gaussian-splat, and SMPLX models—reverse-engineered proprietary formats for real-time web rendering in the NeRF pipeline
- Created **Three.js** camera-control components (rotation/scaling/panning via quaternions, raycasting selection) and optimized render loops to sustain **60 FPS** on 10 MB point clouds
- Implemented bidirectional **WebSocket** streaming with **MessagePack** serialization for camera poses and model metadata between Python NeRF backend and React front end, achieving **60 Hz** updates with **50%** bandwidth savings over JSON
- Reduced initial bundle from **3.2 MB** to **850 KB** via **Vite/Rollup** code-splitting and lazy-loading Three.js modules

Projects

LeetTrack: Full-Stack LeetCode Progress Tracker *Feb 2024*

- Launched an algorithm-review platform (**React · Flask · MongoDB on GCP**) in a 2-person team, raising users' 30-day recall accuracy by **20%**
- Built real-time pipeline with **GCP Cloud Tasks** to off-load e-mail & analytics, cut **REST API** latency by **43%** and kept GitHub Actions deploys under **3 min**

Education

University of Rochester *Rochester, NY*
BS in Computer Science; BS in Business Informaition Systems *Sept 2021 – May 2025*

Skills

Languages: Python, Java, JavaScript, TypeScript, C++, Rust, SQL

Frameworks: React, Next.js, Django, Spring Boot, FastAPI, Flask

Databases & Tools: PostgreSQL, MongoDB, Redis, Kafka, Prometheus/Grafana, Pandas, OpenAI SDK

Cloud & DevOps: AWS (EC2, Lambda, S3), GCP, Docker, Kubernetes, Terraform, CI/CD (GitHub Actions)