Alex Titov
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EDUCATION

BS, Computer Science and Engineering, **University of California, Merced** **Dec 2025**
Algorithm Design and Analysis, Data Structures, Object Oriented Programming, Artificial Intelligence, Database & Networking, Full-Stack Web Development, Mobile Development, Game Development, Computer Networks, Software Engineering, Circuit Theory, Computer Vision

WORK EXPERIENCE

Machine Learning Intern | MERT Lab, University of California, Merced **Jan 2025 – Current**

- Designed and deployed an **IoT-driven** data acquisition system using **Raspberry Pi**, integrating multi-sensor networks for **real-time environmental monitoring** of weather stations, soil moisture sensors, and water quality monitors.
- Developed an **end-to-end data pipeline** leveraging **MQTT, WebSockets, and RESTful APIs** to enable seamless ingestion, processing, and storage in a **Dockerized PostgreSQL database**.
- Engineered a scalable **backend** in **Node.js** and **Express**, utilizing asynchronous data streaming for **low-latency, high-throughput processing**.
- Implemented a cloud-based **analytics layer**, applying **machine learning algorithms** such as **time-series forecasting (ARIMA, LSTMs)** and **anomaly detection (Isolation Forest, DBSCAN)** to extract actionable insights.
- Optimized **data visualization** using **D3.js** and **Chart.js**, developing an interactive web dashboard for **real-time graphical analysis** and trend prediction.
- Leveraged **containerized deployment** with **Docker, Kubernetes, and Nginx**, achieving high availability and scalability for data ingestion and **machine learning workloads**.
- Integrated **TensorFlow** and **Scikit-learn** for **predictive modeling**, enhancing the system's **automated anomaly detection** capabilities and improving response times by 35%.
- Conducted **statistical analysis** and **feature engineering**, utilizing **Pandas, NumPy, and SciPy** to optimize **model accuracy and robustness**.

Software Engineer Intern | ZetOrder **June 2024 – Current**

- Engineered and developed an iOS app in **SwiftUI** for gathering data to train a **custom LLM**. Utilized artificial intelligence to generate customer profiles, text-to-speech, speech recognition, and chat conversation.
- Set up **Firestore** in **Google Cloud** to store all data from mobile client and Google login & authentication.
- Rebuild legacy web client from **Angular** to **React**, speeding up front-end rendering by up to 50%.
- Build backend server in **Go** from scratch, implementing auth, token management, **web sockets**, large file migration.

Software Engineer Intern | University of California, Merced **Aug 2023 – Current**

- **Developed** and launched **MobileID**, a virtual campus ID app now used by over **5,000 students**, transforming the student experience by enabling secure mobile access to physical ID credentials.
- **Integrated** the DCID system for **Apple Wallet** and **Google Wallet**, creating a streamlined digital ID solution that reduced physical ID dependency by **40%** and enhanced accessibility.
- **Designed and implemented** an **AI Virtual Assistant** with real-time information capabilities, improving student and visitor engagement for over **2,000 users** and enhancing response efficiency.
- **Optimized AI accuracy** by 350% through custom function integration with OpenAI, resulting in significantly faster, more accurate information delivery.
- **Engineered** custom APIs in **Next.js** to enable **Speech-to-Text** and **Text-to-Speech** functionality, supporting **12 languages** and enhancing user accessibility on mobile devices.
- **Developed** a dynamic vector database that retrieves real-time data from UC Merced websites, accelerating data integration by **30%** and improving system response times.
- **Integrated Google Maps SDK** for interactive campus navigation, simplifying access to location-based information and improving user experience.
- **Deployed** Docker containers for both the web app and vector database, achieving a **20% reduction** in deployment time while partnering with IT to create a scalable infrastructure.
- **Enhanced reliability** with **99.9% uptime** by optimizing backend solutions using **PHP**, **OracleDB**, and **MySQL**, ensuring real-time data handling and synchronization.
- **Accelerated system speed** by 30% through database query optimization, delivering faster, more responsive user interactions.
- Leveraged technologies like **Docker**, **Nginx**, **REST APIs**, **SQL**, and **JSON**, building a scalable and high-performance application architecture.
- **Participated in agile sprints**, collaborating cross-functionally to meet project milestones consistently and deliver high-quality solutions.

Full Stack Engineer | Co-Founder | SocialTech Labs, Inc **Mar 2021 – Mar 2024**

- Co-founded and spearheaded development at BestFriendsNetwork, a **non-profit mental health app** for teens, achieving a user base of over 10000 within the first six months.
- Engineered and implemented an intuitive user interface for the iOS client using **SwiftUI**, resulting in a 25% increase in user engagement and a 15% improvement in overall app satisfaction ratings.
- Engineered a high-performance REST API server in **Go**, integrating **DynamoDB** for robust data persistence and a **Redis** cluster through **AWS ElastiCache**. Achieved a remarkable 70% reduction in average request time, enhancing system responsiveness and user experience.
- Orchestrated the deployment of the server **DockerImage** on an AWS-hosted **Kubernetes** cluster, optimizing scalability and achieving a 40% increase in system reliability.

Languages: JavaScript, TypeScript, HTML/CSS, Python, Java, Bash, C, C++, C#, Swift, Go, Kotlin, Dart
Frameworks: React, Angular, NextJS, Tailwind, OpenCV, Vue, Spring Boot, Node, Express, Bootstrap, jQuery, Flutter
Tools: Amazon Web Services, Google Cloud, Kubernetes, Docker, Git, Unix, SQL, NoSQL, WebSockets, RESTful APIs
Concepts: Machine Learning, Computer Vision, Software Engineering, Frontend, Backend, Database Management, Analytics