Tze Yi (Ty) Tiong

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Education

University of Michigan, Ann Arbor **Aug 2023 - Dec 2025**
B.S. in Computer Science (GPA: 3.7)

- **Leadership/Part-Time:** Michigan Hackers iOS Project Lead, AUP Head of Activities, University IT Consultant
- **Relevant Courses:** Web Systems, Database Systems, Machine Learning, CyberSecurity, Operating Systems, Data Analysis, Computer Organization, Data Structures & Algorithms, Human Centered Software, Object Oriented Programming Java

Technical Skills

Languages: Python, C++, C, JavaScript, Swift, SQL, HTML/CSS, Shell Script
Frameworks & Databases: Django, Flask, Express, React, Vue, PyTorch, Scikit-Learn, Firebase, PostgreSQL, ElasticSearch
Infra & Tool: AWS (EC2, S3, Lambda, SNS, QuickSight, CloudFormation), Git, Docker, OpenShift (Kubernetes), RabbitMQ, CI/CD

Work Experiences

IBM **May 2025 - Aug 2025**
Solutions Architect Intern (Platform Engineering) | Python, OpenShift

- Resolved critical OpenShift (Kubernetes) installation failures by debugging system logs and YAML configurations in collaboration with IBM's global engineering team, protecting a $50K/year renewal contract
- Prototyped LangGraph-based RAG chatbot (Python, WatsonX, Elasticsearch) with explicit state management for healthcare client, demonstrating improved multi-turn conversation accuracy over production LangChain system
- Deployed IBM Maximo AI-powered asset maintenance platform on OpenShift for energy client, delivering demos, PoC environments and workshops addressing predictive model accuracy and industry compliance questions

Pantas Climate Solutions **May 2024 - Aug 2024**
Software Engineer Intern | Python, PostgreSQL, AWS

- Built Python data pipeline to fetch, clean and enrich data from Bloomberg API, Excel inputs and PCAF datasets, optimized with AWS Lambda and SNS to reduce retrieval time (4 → 2 min), deployed to production for client carbon footprint analysis
- Developed REST APIs in Django to generate QuickSight reports asynchronously using RabbitMQ task queue and resolved N+1 query issues, reducing page load time by 300ms in production
- Designed SQL schema for 5 financial asset classes, linking 5,000+ user and third-party records for carbon accounting

University of Michigan - Transportation Research Institute **Dec 2024 - Mar 2025**
Software Engineer | JavaScript, Vue

- Migrated legacy query tool frontend from jQuery to Vue.js/Vuetify architecture, improving design and code maintainability
- Built interactive dashboards using Chart.js and Google Maps API to visualize 500K+ crash records for Michigan highway safety researchers, integrating legacy PHP backend services

Interactive Sensing and Computing Lab **Aug 2024 - Dec 2025**
Software Engineer (Research) | Python, PyTorch, Swift, PostgreSQL

- Fine-tuned Hugging Face AST model in PyTorch using transfer learning, achieving 75% activity classification accuracy as part of privacy-preserving audio sensing system for autoimmune disease research
- Optimized real-time Python audio processing pipeline on Orange Pi hardware, reducing latency by 60% via multiprocessing
- Developed full-stack data annotation app with SwiftUI, Django, and PostgreSQL to label audio data for ML training, implementing Push Notifications, WiFi provisioning and token authentication for multi-device communication

Project Experiences

MapReduce Search Engine | *Python, React, Flask, AWS* **Oct 2024**

- Built Hadoop-inspired MapReduce framework in Python with TCP, UDP job distribution and heartbeat monitoring for fault tolerance, ranking 10,000+ Wikipedia documents using TF-IDF
- Developed React search engine with document sharding across 3 Flask servers on AWS EC2, enabling parallel queries

Network File Server | *C++, Sockets, Multithreading* **Nov 2025**

- Built multithreaded client-server file storage system in C++ with socket programming, utilizing upgradable reader-writer locks and hand-over-hand locking to optimize concurrency, handling 3,000 requests in 0.9 seconds

GPT-2 From Scratch | *PyTorch* **May 2025**

- Implemented and trained GPT-2 transformer architecture in PyTorch with multi-head attention and BPE tokenization; fine-tuned model achieving 92% accuracy on spam email classification