

Huaxin Li

Work Experience

Microsoft

Software Engineer 2
Jun 2021 - Now

- Engineer within Azure Core Networking, enabling seamless migration of VMware workloads from on-premises environments to Azure private cloud infrastructure built on dedicated bare-metal Azure hardware.
- Contribute to the Azure Compute Allocator platform, which performs large-scale VM placement and optimization across Azure by assigning VMs to appropriate compute nodes and co-locating similar workloads to maximize infrastructure utilization and efficiency across availability zones containing up to ~250K nodes.
- Develop solutions within the Azure Compute Capacity Optimization team to deliver reliable near real-time (NRT) capacity telemetry and capacity evaluation services across the Azure platform, leveraging Kafka-based data pipelines to transmit and process large-scale capacity data for infrastructure planning and operational decision-making.
- Project - Future Capacity Reservation**
Implemented an event-driven workflow that enables customers to reserve VM capacity for future use, supporting advance planning while giving Microsoft earlier visibility into demand. The workflow consumes reservation plans from a message queue, validates requests, orchestrates downstream capacity locking, persists reservation state, and publishes responses.
- Project – Rack Failure Simulation**
Developed a rack failure simulation framework to validate whether Azure clusters and availability zones maintain sufficient capacity buffers during rack outages. Simulated multiple rack selection strategies and VM selection scenarios, and evaluated allocable VM capacity across cluster and zone levels, enabling data-driven buffer policy adjustments to mitigate capacity risks and improve resiliency.
- Project – Private Cloud Pre-Provisioning**
Enhanced Azure control plane provisioning workflows in F# to proactively deploy hybrid networking resources, including gateways, vWANs, and firewalls, prior to customer requests. Reduced private cloud creation failures by 31%, hybrid resource provisioning failures by 59%, and overall provisioning latency by 11%.
- Project - ExpressRoute circuits SPOF Resiliency**
Implemented resiliency improvements enabling customers to continue performing CRUD operations on ExpressRoute circuits and related artifacts during single-device failures in redundant device pairs, improving service availability and supporting the platform’s 99.9% control plane SLO.

Software Developer
Dec 2018 - May 2021

Hughes Network Systems

- Developed the Element Management System for satellite-user terminal communication: built front-end UI (HTML, CSS, JavaScript, jQuery), enhanced back-end with Java/Grails framework, managed MySQL database, and wrote Linux bash scripts.
- Built a statistics collector in C++ for the Integrated Satellite Module to aggregate JSON messages from message queues. Designed 4G LTE modem interfaces for data sessions setup, channel setup, and modem commands interactions.
- Developed Python-based test software for motherboard validation, reducing runtime by 80%. Implemented tests (boot, memory I/O), automated report submission, and contributed to documentation and operational manuals.

Self Projects

Multimodal Movie Poster Generation

- Fine-tuned a multimodal generative model on the TMDB dataset to create movie posters from combined image and text inputs, with CLIP as visual encoder and GPT for tokenization and input embedding generation.
- Implemented Caption Loss (Cross-Entropy Loss) to optimize alignment between generated captions and input movie descriptions, alongside Generation Loss (MSE Loss) to align model-generated embeddings with Stable Diffusion embeddings, improving semantic consistency and the visual quality of generated movie posters.

AI-Powered Syllabus RAG Agent

- Built an LLM-based RAG agent to answer complex, course-specific questions from syllabus.
- Implemented a retrieval pipeline to segment syllabus files, vectorize content, retrieve and rerank relevant chunks, and generate final answers using different LLMs including Llama, GPT, Qwen and GLM.
- Added function call for syllabus retrieval, weather lookup, and news summarization to improve flexibility.

Video Scene Segmentation

- Built a self-supervised video scene segmentation model to identify scene boundaries in long videos by framing each shot as a binary boundary classification task. Pre-trained and fine-tuned on MovieNet dataset.
- Implemented a Scene Consistency training pipeline that uses real-time k-means clustering and augmented query-shot representations to select positive and negative samples, making shot selection more robust to non-linear narratives.

E-commerce Online platform

- Built a RESTful web app to sell clothes using front-end skills including HTML, CSS, JavaScript and Bootstrap, and implement back-end using Node.js with MySQL database.
- Implement features including user registration and OAuth-based third party login, shopping cart management, product and orders CRUD operations, products rankings and reviews, Paypal and Visa checkout.

Personal Info

Visa

Lawful Permanent Resident

Major

Computer Science

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Education

Pennsylvania State University

Cumulative GPA: 3.8/4.0	2015 - 2017
B.S. in Computer Science:	Graduated

University of Southern California

Cumulative GPA: 3.6/4.0	2021 - 2024
M.S. in Computer Science:	Graduated

Skills

Programming Languages:

C, C++, C#, F#, Java, Python, Swift, PHP

Web Development:

HTML, CSS, JavaScript, BootStrip, jQuery, Angular.js, Vue.js, React.js, Node.js, Spring Boot, MySQL, MongoDB

Artificial Intelligence:

Machine learning, Computer vision, Natural language processing, PyTorch, Tensorflow, Numpy, RAG

Others:

Docker, Kubernetes, Kafka Pipeline
Cloud platforms (AWS, Azure, GCP)
GitHub, Linux, Matlab

Languages

Mandarin, Cantonese, English, Japanese