Keith Chester

✉ kchester@gmail.com
908 955 3484 ☎

 hlfshell.ai
github.com/hlfshell

Experienced senior software engineer fueled by an unwavering passion for software and robotics aspires to work on the forefront of robotic technology. Seeks to leverage extensive expertise in software, leadership, and technology to join a team powering the next revolution in robotics.

Education

Masters of Science in Robotics Engineering

Worcester Polytechnic Institute (WPI) *2021-present*

Curriculum encompasses kinematics, system dynamics and controls, motion planning and navigation, artificial intelligence, computer vision, as well as deep learning and reinforcement learning, shaping a profound expertise in cutting-edge robotics engineering.

Technologies: Python, TensorFlow, PyTorch, C, OpenCV, ROS, ROS2, MATLAB

Bachelors of Science in Robotics Engineering

Worcester Polytechnic Institute (WPI) *2005 -2009*

Work Experience

Osaro — Infrastructure Engineering Manager / Senior Infrastructure Engineer — *2021-2023*

Served as both senior engineer for the Infrastructure Team at a Robotics as a Service (RaaS) in the form of self-contained pick and place robotic cells. Was promoted to Manager of the team after approximately a year.

- Orchestrated the Infrastructure Team, optimizing resource allocation, fostering global collaboration, and architecting tailored solutions for the needs of all engineering teams.
- Developed a dynamic deep learning pipeline automating model performance evaluation, training, and deployment to robotic cells for constant pick and place improvement.
- Created a custom offline encrypted transfer mechanism to support securely transferring data required for model training for edge compute situations with little to no network connectivity.
- Slashed infrastructure costs significantly (66%) saving approximately $500,000 annually.

Technologies: GCP, AWS, Kubernetes, Cloud Run, Pub/Sub, Dataflow, Big Query, Terraform, CircleCI, GRPC, Python, Tensorflow

Brain Corp — Senior Software Engineer — *2018 – 2021*

Architected and developed numerous systems responsible for the management, coordination, and control of a global fleet of over ten thousand robots. Developed code for a monolithic Golang application that provided RESTful and GRPC APIs for robot configuration and management, as well as a distributed

state system for robot data. Later broke the monolith down to microservices and began migration to Google Cloud Platform (GCP).

- Led a team of engineers to architect and develop an efficient and scalable pipeline for data collection across Brain Corp's robotic fleet while providing tooling for application-level real time reaction to data via Apache Kafka. The pipeline optimized LTE data usage to manage fleet-wide costs and was designed to be both cloud agnostic (AWS and Azure targeted) and client-side applications were resilient to poor network connectivity.
- Spearheaded developing key features to improve scalability of the platform's simultaneous online devices from a hundred robots to tens of thousands. Engineered a custom AWS RDS PostgreSQL database pooling system that intelligently distributed application server load across and allowed high load recovery. Additionally created an additional subservice utility that allowed services to dynamically change behavior based upon database load.
- Collaborated closely with the Data Analytics Team to design and implement ETLs capable of seamlessly migrating hundreds of gigabytes of monthly data from diverse services into Snowflake DB, facilitating advanced analytics and insights.
- Designed and deployed a comprehensive authorization system through our services, seamlessly allowing multitenancy for customers and key manufacturing partners in our API services, databases, and data analytics.
- Created a configurable internal and customer-facing event-based notification and webhook system that handled over 100 million events a month, powering our third party partnerships.
- Devised a cloud architecture migration from AWS to GCP services.

Technologies: AWS RDS, S3, Kinesis, Elasticache (Redis), PostgreSQL, Kubernetes, GCP Cloud Storage, Cloud Function, Pub Sub, Firestore, Apache Kafka, Terraform, protobuf, GRPC, Golang, Python, Terraform

Fusion Marketing — *Senior Developer / Product Researcher* — *2013 – 2018*

Originally hired to be a full stack web developer, transformed the position into developing custom technological solutions - onsite interactive crowd pleasers, custom onsite CRM, social media sharing tools, and white-labelable products. Acted as a Research and Development Lead and then as a Senior Developer.

- Invented novel applications of technologies such as BLE beacons, computer vision, projection mapping, and IoT solutions towards client-oriented marketing products and services.
- Built reusable microservices for quicker product deployments and white labeling
- Programmed and deployed client sites and service applications for dozens of clients as a full stack developer

Technologies: AWS EC2, DynamoDB, CouchDB, GCP Firebase, MySQL, Electron, Angular.JS, Embedded C, Typescript, node.js, Python, C#, Java

Hub City Media — *Application Developer* — *2010 – 2013*

Ask me about…

- LLM empowered robotics
- LLM + generative agents
- Past + future RL projects

- Building tech and DIY communities
- Hardware DIY projects
- Evolutionary algorithm projects

- Distributed state syncing
- Scaling robotic fleets
- Books – I'm an avid reader!