Contact

www.linkedin.com/in/
wolfganggerlach (LinkedIn)

Top Skills

Research
Bioinformatics
Science

Languages

English (Full Professional)
German (Native or Bilingual)

Wolfgang Gerlach, PhD

Software Engineer at NetApp working on a Kubernetes management solution
Naperville, Illinois, United States

Summary

Senior Software Engineer with a PhD in bioinformatics. Strong expertise in architecting and implementing complex Kubernetes-native backend solutions using Golang for industrial and scientific applications in areas such as data management, IoT and bioinformatics. Experience in design and management of Kubernetes-based production-level infrastructures, including architecting and implementing microservices and APIs, to developing and implementing novel algorithms and data structures to analyze biological sequence data. Microservice- and object-oriented, concurrent and distributed programming experience in Linux/Unix environments, strong focus on Golang.

Experience

NetApp
Software Engineer
January 2022 - Present (1 year 11 months)
Naperville, Illinois, United States

Implementing core-functionality features for NetApp Astra, a Kubernetes management solution

Argonne National Laboratory
9 years 10 months

Programming, Sr. Analyst
2019 - January 2022 (3 years)
Lemont, Illinois, United States

• Technical management of server-side infrastructure for SAGE, an NSF-funded national-scale cyberinfrastructure to enable AI at the edge. Designed overall software architecture, planned and implemented microservices and API's to meet project requirements.
• Deployed and managed bare-metal Kubernetes production cluster (Kubespray, Rook Ceph, MetalLB) to support diverse software infrastructure

(MySQL, InfluxDB, Jenkins and other in-house developed software and web services)
• Developed IoT service to manage edge devices deployed in the field all over the US (Python, MySQL, SSH) (https://github.com/waggle-sensor/beekeeper)
• Developed an "app-store" for containerized AI applications for the edge which uses Jenkins for automated testing (https://github.com/sagecontinuum/sage-ecr/, Python)
• Developed a custom storage service on top of an S3 backend (https://github.com/sagecontinuum/sage-storage-api, Golang) and an OAuth2-compliant token introspection endpoint to enable token-based authentication and authorization for all user-facing web services.
• Planned internships and onboarding for about 20 students.

Bioinformatics Senior Software Engineer
July 2016 - November 2019 (3 years 5 months)
Greater Chicago Area

• Implementation of a CWL-compliant workflow engine for scientific applications. (Golang)
• Management of a 20+ machines CoreOS service cluster and a 500-nodes compute cluster for MG-RAST (http://metagenomics.anl.gov/)
• Installed and configured various software components, including distributed databases such as Cassandra and Elasticsearch (10-20 nodes)

Senior Software Engineer, Internet of Things
October 2015 - July 2016 (10 months)
Greater Chicago Area

• Waggle research project (http://wa8.gl): Responsible for the software stack of Waggle (Python, RabbitMQ, Cassandra), an Internet of Things (IoT) platform that enables sensor-driven environmental science and smart city research. This platform was used by Chicago's Array Of Things project.

Bioinformatics Senior Software Engineer
April 2012 - September 2015 (3 years 6 months)

• Designed and installed a distributed fault-tolerant production server infrastructure based on CoreOS/Docker technology (a PXE-boot bare-metal deployment with 15 servers) for a scientific web service (MG-RAST, http://metagenomics.anl.gov/) with over 45,000 users.
• Supervised and organized transition of existing software stack (including Solr, MySQL, Apache, MongoDB, Memcached, Nginx and other) onto new CoreOS deployment.

• Designed and implemented an extension to a distributed multi-cloud scientific workflow system that automatically orchestrates Docker containers for individual tasks in workflows. (Golang).

Education

Universität Bielefeld
Doctor of Philosophy (Ph.D.), Bioinformatics and Genome Research · (2007 - 2012)

Universität Bielefeld
Diplom, Applied Computer Science in the Natural Sciences · (2001 - 2007)