Colm Lang

Software Engineer   San Francisco, CA

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Education

University of San Francisco – Bachelor of Science in Computer Science   Expected May 2024

Experience

Software Development Teaching Assistant, University of San Francisco – San Francisco, CA   May 2023 – Present
- Developing a centralized, automated grading pipeline, harnessing Go's testing features through Github Actions; increasing efficiency and saving instructors hundreds of hours
- Enhancing project and homework solutions by leveraging expertise in Go and MySQL, collaborating closely with the professor, streamlining and accelerating course development
- Holding weekly office hours and code-reviews to cultivate intuition for quality code and good system design

Data Visualization Research Assistant, University of San Francisco – San Francisco, CA   May 2022 – August 2023
- Implemented memory-efficient data structures and update techniques for a 230% increase in data-size capability, enhancing render speed and garbage collection time on mobile devices
- Created interactive software for a Data Visualization Literacy study on Node-Link Graphs and Treemaps, selected to present at the 2023 Eurographics conference for education-based papers and later selected by a scientific journal

Full-Stack Software Engineer, University of San Francisco – San Francisco, CA   May 2023 – August 2023
- Spearheaded the design and development of a full-stack web application in TypeScript, harnessing the power of React, Next.js, tRPC, and Vercel's serverless edge functions to empower individuals to secure housing in East Oakland
- Leveraged the robust Google Sheets API and Gmail service to log submissions and generate catered emails to provide invaluable resources to thousands of monthly users at risk of home displacement

Projects

Distributed File System and Computation Engine – Golang   January 2023 – May 2023
- Created a Distributed File System and Computation Engine based on the research papers for Google File System, HDFS, and MapReduce, strengthening practical knowledge of big data and distributed systems
- Developed fault tolerance mechanisms, load balancing, and datatype-aware chunk partitioning for optimized resource utilization, increased computation throughput, and data locality
- Designed communication pipelines using Protocol Buffers and web sockets for scalability and robustness in handling large-scale data processing tasks across machines with tested support for 1000s of active nodes

Duets.ai – Python   August 2023 – December 2023
- Designed and developed a distributed microservice-based platform, harnessing OpenAI's GPT and Whisper to enhance post-Zoom-meeting insights and provide multilingual transcription
- Enhanced transcription efficiency through the development of an optimized, scalable data pipeline within our Django server, which seamlessly integrated with the ZoomAPI and harnessed Whisper technology for multilingual transcription, resulting in a significant increase in our transcription throughput

NOAA Climate Data Streaming Analysis – Spark, Python   April 2023 – May 2023
- Extracted valuable insights into spatiotemporal climate patterns through in-depth analysis of over 10TB of climate data from NOAA using Apache Spark for data processing and Matplotlib for data visualization
- Developed efficient Spark jobs to filter, aggregate, and process extensive climate data, optimizing parallel processing for enhanced performance and minimized computation time

Skills

Languages: Golang, TypeScript, JavaScript, HTML, CSS, Python, C, Java
Frameworks: gRPC, HTMX, Next.js, React, Node.js, D3.js, Tailwind
Tools: SQL, AWS, GCP, Azure, Docker, Redis, MongoDB, PostgreSQL, MySQL, Protobuf

Hobbies

- Passionate rock climber and youth climbing coach
- Avid language learner (currently learning Japanese)