(603) 617-9302
Durham, NH

Bocheng Cui

GitHub: noahcui
bocheng.cui@unh.edu

Skills

Programming Languages	Golang, C, Python, C++, Java
Tools	Docker, Git, Bash, Mini-net, AWS, GCP, Azure, LaTeX, MarkDown, HTML, Conda, R, SQL, Node.js, PHP, OpenWhisk
Others	Distributed Systems, Algorithm, Data Structure, Networks, etc

Experience

Teaching Assistant **Aug 2021 — Present**
University of New Hampshire *Durham, NH*

- Served as a teaching assistant for both graduate and undergraduate courses, developing bash and python scripts for homework grading, creating solutions and sample outputs for coding assignments, and utilizing LaTeX to compose and revise assignment descriptions.

Researching Assistant **May 2022 — Aug 2022**
University of New Hampshire *Durham, NH*

- Conducted evaluations and optimizations of existing consistency protocols, focusing on improving efficiency and reliability in distributed systems.

Cloud Software Developer **May 2022 — Aug 2022**
Center for Coastal and Ocean Mapping/NOAA-UNH Joint Hydrographic Center *Durham, NH*

- Implementation and testing of cloud based software and architectures for hydrographic and exploration bathymetric mapping

Programming Assistant **Aug 2021 — May 2022**
University of New Hampshire *Durham, NH*

- Assisted students with programming in modern languages such as C, C++, Java, and Python, while teaching key concepts in data structures, algorithms, and computer system knowledge.

Projects

RepeatFS in the cloud **2024**

- Designing and developing a provenance software for cloud platforms, based on the existing RepeatFS technology, aimed at providing enhanced data tracking and management functionalities for cloud environments.

Mencius Revisited **2023**

- Conducted an in-depth study of state machine replication protocols, including Mencius, E-Paxos, and Paxos, with a focus on enhancing the Mencius protocol.
- Implemented optimizations in the failure handling mechanisms of the Mencius protocol, significantly increased max throughput by improving the protocol.

Cloud latency test **2023**

- Designed and implemented a comprehensive tool for testing latency in cloud environments.
- Conducted thorough evaluations and studies on latency performance and stability across various Cloud Providers, including AWS, GCP, and Azure.

Fault Tolerance Sharded K/V Storage System with MapReduce **2021**

- Engineered a fault-tolerant K/V storage system, implementing Raft for reliability, and a sharding algorithm with customizable shard placement for efficient large-scale data handling.
- Developed a non-disruptive data migration algorithm and integrated Google MapReduce for enhanced data processing and analysis.

Publications

- Owen Hilyard, **Bocheng Cui**, Marielle Webster, Abishek Bangalore Muralikrishna, Aleksey Charapko. “Cloudy Forecast: How Predictable is Communication Latency in the Cloud?”, *arXiv preprint arXiv:2309.13169*, 2023. [PDF]

Education

Ph.D. in Computer Science, *University of New Hampshire* Since 2022
Master. in Computer Science, *University of New Hampshire* 2018 - 2022
Bachelor of Material Science, *Qingdao University of Science & Technology* 2014 - 2018

Activities and Honors

UNH College of Engineering and Physical Sciences (CEPS) Dean Scholarship 2018 - 2022
Vice President of the Students Union at Qingdao University of Science and Technology 2015 - 2017