Ying Zhang

+1 224-417-9968 | yingzhang2024@u.northwestern.edu | linkedin.com/in/ying-zhang-b92959149/

EDUCATION

Northwestern University   Evanston, IL
Ph.D. in Computer Science   *Sep 2024 – present*
  Advisor *Fabián E. Bustamante*

Northwestern University   Evanston, IL
Master of Science in Computer Science   *Sep 2022 – Dec 2023*
  Concentration: *Distributed Systems and Networks*

University of Wisconsin Madison   Madison, WI
Bachelor of Science in Computer Science, Minor in Mathematics   *Aug 2016 – May 2020*
  Coursework: *Data Structures and Algorithms, Database, Computer Networks, Operating System*

PUBLICATION

- Caleb Wang, **Ying Zhang**, Qianli Dong, Esteban Carisimo, Ram Durairajan, and Fabián E. Bustamante. *Threading the Ocean: Mapping Digital Routes Across Submarine Cables using Calypso.* In ACM SIGCOMM 2025, Coimbra, Portugal.

- Vaibhav Bhosale, **Ying Zhang**, Sameer Kapoor, Robin Kim, Miguel Schlicht, Muskaan Gupta, Ekaterina Tumanova, Zachary Bischof, Fabián E. Bustamante, Alberto Dainotti, and Ahmed Saeed. *Assessing LEO Satellite Networks for National Emergency Failover.* IN ACM IMC 2025, Madison WI, USA

RESEARCH EXPERIENCE

TikTok Inc with Dr. Feng Qian   June 2025 – Present
Algorithm Intern at VoD Multimedia Team   *San Jose, CA*

Northwestern University AquaLab with Professor Fabián E. Bustamante   Jan 2023 – Present
RouteStress - weighing the submarine cables criticality   *Evanston, IL*
- Developed Route Stress metric to quantify the reliance on a specific submarine cable by calculating the proportion of routes in a traceroute dataset that traverse the cable.
- Designed a mapping function to link traceroutes with undersea cable infrastructure for more precise network analysis.
- Leveraged iGDB to map terrestrial cable connections and align them with submarine infrastructure.
- Developed constraints to reduce available submarine cable bundle size from landing points to landing points.

IP Geolocation Accuracy Enhancing Project   *Evanston, IL*
- Proposed a novel approach to IP geolocation by considering the collective information from traceroutes, enabling more accurate and context-aware geolocation.
- Leveraged IP addresses' geolocation in traceroutes through Round-Trip Time (RTT) and hostnames in Reverse DNS(RDNS), trying to infer reasonable IP geolocation.
- Introduced a weighted module that evaluates the coherence of IP geolocation within entire traceroutes by analyzing the logical alignment of IP hops before and after each point.
- Integrated results into a comprehensive database, incorporating data from CAIDA's Hoiho (Holistic Orthography of Internet Hostname Observations).

Industry Experience

Rubrik Inc.   Feburary 2024 – Sep 2024
Software Engineer at Core Infrastructure team   *Palo Alto, California*
- Led a cost-optimization initiative for GCP dev developments.
- Deployed this project across ∼100 long-running GCP dev deployments and automated its rollout for all future fresh deployments.
- Diagnosed and resolved recurring pipeline failures, ensuring minimal disruption.
- Facilitated fast, seamless weekly releases with cross-team collaboration.
- Used **Python, Kubernetes, GCP, Docker, Jenkins**

Software Engineer Intern at Core Infrastructure team   *Palo Alto, California*
- Integrated the RSC (Rubrik Security Cloud) deployment system with GCP for fast Kubernetes development.
- Reduced GCP dev deployments cost by **40%** (potentially $400k saving per year).
- Reduced the time to iterate on code changes by **60%** and attributed cost of all dev deployments to future teams.
- Utilized **Kubernetes autoscaling (HPA & VPA)** to dynamically adjust resource allocation based on workload demands, ensuring optimal performance and cost-effectiveness.
- Used **Python, Kubernetes, GCP, Docker, Jenkins**.

Bytedance Inc.   Aug 2020 – July 2022
Backend Software Engineer at Douyin E-commerce   *Beijing, China*
- Developed Buyin platform to facilitate live-streaming sales sessions for live-streamers on Douyin.
- Minimized noises on Buyin for live-streamers by **30%**, boosted message coverage rate by **30%** by updating inbox mechanism and assisted streamers in improving live-streaming skills by introducing essential features on Douyin.
- Restricted unwanted menus without permissions down to zero by upgrading Buyin menu system.
- Used **Go, Redis, MySQL, Hadoop, Kafka, CronJob, Faas, Api Gateway**.

Backend Software Engineer at Pre-Kid   *Beijing, China*
- Used HTTP as a backup of WebSocket to enhance stability and reduce commotion during live classroom sessions.
- Integrated live classroom to assist foreign teachers and local students in multiple apps both on PC and mobile.
- Reduced latency of interactions in live classrooms from overseas by **20%** using CDN.
- Successfully landed a web page to provide SOP, such as video-editing SDK for producing courses.
- Used **Go, Http, WebSocket, MySQL, Redis, Hadoop, Elastic Search, RTC, CDN**.

Teaching and Mentoring

Northwestern Teaching Assistant   September 2024 – Present
- CS340: Introduction to Computer Networking
- Held weekly office hours to assist students with coursework and answer technical questions.
- Collaborated with faculty to develop grading rubrics and address student performance concerns.
- Managed Piazza forum duties in collaboration with other peer mentors, providing timely responses to student inquiries.

Northwestern Peer Mentor   Jan 2023 – Present
- Conducted weekly mentoring sessions for a group of 10-20 students enrolled in CS336: Introduction to Algorithm.
- Conducted weekly mentoring sessions and answered questions on piazza for class CS340: Introduction to Computer Networking.

Technical Skills

Languages: Golang, Python, Java, C/C++, SQL (Postgres), JavaScript, HTML/CSS, R
Frameworks and protocols: Flask, Gin, Hertz, FaaS (Function as a service), API, RPC, WebSocket
Developer Tools: Git, Kubernetes, Docker, Google Cloud Platform, Amazon Web Services, Redis, MySQL, Kafka, API Gateway, Tableau
Libraries: pandas, NumPy, Matplotlib