Jonathan Wang

(217)979-7960 | jonathanwang.jb@gmail.com | linkedin.com/in/you-chun-wang | github.com/jonathanwangyc

Education

University of Illinois Urbana-Champaign — Champaign, IL

Master of Computer Science — *Aug. 2024 – Dec. 2025 (Expected)*

Certifications: AWS Certified Cloud Practitioner, Illinois Leadership Certificate
Awards: 4th Place, University of Illinois Fall CTF 2024 (cybersecurity competition)
Planned Courses: Computer Security | Advanced Topics in Database Systems | High Performance Computing

University of Illinois Urbana-Champaign — Champaign, IL

B.S. in Computer Science & Mathematics with Minor in Statistics — *Aug. 2020 – May 2024*

GPA: 3.98/4.00 (Magna Cum Laude, Graduated with Highest Distinction)
Awards: Bronze Tablet (top 3% of graduating class), Campus Honor - James Scholar
Relevant Coursework: Distributed Systems | Computer Networks | Database Systems | Intro to Data Mining | Parallel Programming | Web Programming | System Programming | Algorithms

Skills

Languages: Python, Go, C/C++, Java, TypeScript, JavaScript, HTML/CSS, R, SQL

Frameworks & Libraries: React, Node.js, Express, Flask, Bootstrap, PyTorch, TensorFlow, NumPy, SciPy, pandas

Databases: MySQL, MongoDB, Neo4j (graph database)

Developer Tools: Git, Bash, Docker, Linux, VS Code, IntelliJ, Google Cloud Platform, Amazon Web Services

Experience

Course Assistant — Aug. 2023 – Present

CS 411 - Database Systems — *Champaign, IL*

- Boosted student engagement through facilitating large-scale (400+ students) flipped classroom activities.
- Enhanced student support by holding office hours and providing timely responses to questions on course forums.

Research Assistant — Sep. 2023 – May 2024

PeopleWeave Project - Caesar Research Group — *Champaign, IL*

- Built an interactive co-authorship network discovery tool for SIGCOMM leveraging React for front-end development and D3.js for dynamic data visualization.
- Optimized query efficiency by 40% by architecting a Neo4j graph database to handle over 100,000 records.
- Cut data preprocessing time by 60% through custom Python scripts for data cleaning and standardization, improving database quality and readiness for large-scale queries.

Projects

Distributed Transaction System | *Go, Linux Virtual Machine*

- Built a distributed system with ACID properties supporting large-scale transactions from multiple endpoints.
- Resolved deadlocks by implementing timestamped concurrency control and enabled horizontal scalability through sharding, improving system performance and throughput while ensuring consistency and reliability.

Parallelized Convolutional Neural Networks | *CUDA, C++*

- Accelerated batch processing time for convolutional layers from over 4000ms to 120ms by leveraging parallel computation with CUDA, improving overall training efficiency.
- Achieved a 20% performance increase with optimizations from matrix unrolling, tiled convolution, to streams.

Custom UDP-Based Reliable Transport Protocol | *C++, Docker*

- Developed a TCP-friendly reliable transport protocol over UDP, achieving comparable throughput to TCP by implementing congestion management and flow control mechanisms.
- Enabled stable and efficient file transfers in lossy network conditions through custom timeout handling and packet re-ordering, improving transmission reliability and resilience.

Self-Supervised and Transfer Learning for Object Detection | *PyTorch, Python, Google Cloud Platform*

- Achieved 80% accuracy on CIFAR10 image classification by fine-tuning a self-supervised, rotation-prediction pre-trained model, leveraging transfer learning for improved feature extraction.
- Implemented a YOLO-based object detection model on the PASCAL dataset trained on Google Cloud Platform. Accurately computed classification and bounding box regression loss through mean squared error function to achieve high mean average precision (mAP).