Jonathan Wang

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Education

University of Illinois Urbana-Champaign — Champaign, IL

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

GPA: 4.00/4.00

Certifications: AWS Cloud Practitioner, Bloomberg Market Concepts Certificate, Illinois Leadership Certificate

Awards: 4th Place, University of Illinois Fall CTF 2024 (cybersecurity competition)

Teaching Assistant: CS 450 - Numerical Analysis | **Course Assistant**: CS 411 - Database Systems

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 | Computer Security

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, PostgreSQL, MongoDB, Neo4j (graph database), AWS RDS, InfluxDB

Developer Tools: Git, Bash, Docker, Linux, Google Cloud Platform, Amazon Web Services (EC2, ECS, ECR)

Experience

Full Stack Developer Intern — Jun. 2025 – Present

Ensaras, Inc. — *Champaign, IL*

- Architected and automated a prod-mirrored CI/CD testing environment on AWS (GitHub Actions, CodeDeploy, EC2, ECS) that enabled full integration testing prior to release, cutting deployment time by 65%.
- Streamlined Celery Beat scheduling by extracting task logic into reusable, modularized components, eliminating 45% of the duplicated code and cutting the spin-up/testing time for new jobs to under 30 minutes, with clear documentation for rapid onboarding.

Research Assistant — Sep. 2023 – May 2024

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

- Built an interactive co-authorship network discovery tool for SIGCOMM leveraging React for front-end development and D3.js for dynamic data visualization.
- Automated data cleaning and normalization with Python scripts, trimming data preprocessing time by 60%.
- Designed and tuned a Neo4j database to increase query throughput by 35% while scaling to over 100,000 records.

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.

Real-time ADS-B Tracking and Collision Warning System | *JavaScript, Python, Raspberry Pi*

- Built an open-source pipeline with 3D CesiumJS UI that streams & renders 300+ aircraft with collision warning.
- Designed a CPA-based collision-risk engine with spatial hashing and Gaussian scoring, and integrated Isolation-Forest anomaly detection to slash down pairwise checks and eliminate false alerts with little latency.

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 the mean squared error function to achieve high mean average precision (mAP).