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Jackson Clark

Publications

Chen*, Y., J. Pan*, J. Clark, Y. Su, N. Zheutlin, B. Bhavya, R. Arora, Y. Deng, S. Jha, and T. Xu (2025). "STRATUS: A Multi-agent System for Autonomous Reliability Engineering of Modern Clouds". In: *Advances in Neural Information Processing Systems (NeurIPS)*. Accepted. arXiv: 2506.02009 [cs.DC].

Jha*, S., R. Arora*, Y. Watanabe, T. Yanagawa, Y. Chen, J. Clark, et al. (2025). "ITBench: Evaluating AI Agents across Diverse Real-World IT Automation Tasks". In: *Proceedings of the 42nd International Conference on Machine Learning (ICML)*. Oral Presentation (Top 1%). arXiv: 2502.05352 [cs.AI].

Experience

University of Illinois Urbana-Champaign — Urbana, IL (Onsite, Full-Time)
Graduate Research Assistant, xLab — Fall 2024 – Present

- Co-authored **STRATUS**, an LLM-based multi-agent system enabling autonomous Site Reliability Engineering (SRE) for cloud services; formalized a novel Transactional Non-Regression (TNR) safety specification and demonstrated 1.5–5.4× improvement over state-of-the-art AI SRE agents on AIOpsLab and ITBench benchmarks.
- Lead maintainer of **AIOpsLab**, an open-source framework for benchmarking LLM-based AIOps agents (700+ GitHub stars).
- Developed and deployed microservice-based testbeds for AI-driven incident detection, localization, and mitigation.
- Integrated and expanded **Chaos Engineering** techniques, including eBPF-based fault injection to simulate realistic hardware and software failures.
- Co-authored **ITBench** (with IBM), focusing on benchmarking AI agents in Site Reliability Engineering and cloud automation.
- Designed and instrumented cloud-native applications to generate real-time telemetry data (metrics, logs, and traces) for AI-based observability.
- Built Kubernetes-based environments with automated workload orchestration and fault injection for testing AI models in cloud reliability.
- Applied Large Language Models (LLMs) to SRE workflows, enabling automated fault diagnosis and self-healing cloud systems.
- Experienced in infrastructure-as-code tools (Helm, Terraform) and cloud-native monitoring stacks (Prometheus, Jaeger, OpenTelemetry).

NASA Marshall Space Flight Center — Huntsville, AL (Onsite, Full-Time)
Software Engineer Intern, Huntsville Operations Support Center (HOSC) — Summer 2023

- Developed a forward error correction library in C++ based on CCSDS standards (BCH, LDPC, and convolutional codes) for NASA's GPDM mission.
- Contributed to software automation tools supporting flight controllers.

NASA Ames Research Center — Mountain View, CA (Remote, Full-Time)
Research Intern, Intelligent Systems Division — Summer 2023

- Led reinforcement learning research for multi-agent pathfinding (MAPF) in urban air traffic management, leveraging Python, PyTorch, TensorFlow, and Docker on a supercomputing cluster.

NASA Goddard Space Flight Center — Greenbelt, MD (Remote, Part-Time)
Software Engineer and Data Science Intern, HEASARC — Fall 2022 – Spring 2023

- **Spring Project:** Trained ML models (scikit-learn, TensorFlow) to classify neutron star spectra using NICER payload data.
- **Fall Project:** Redesigned SkyView, a React + Flask data catalog system for querying astrophysics datasets by sky position.

NASA Marshall Space Flight Center Huntsville, AL (Onsite, Full-Time)
Software Engineer Intern, Payload Operations Integration Center Summer 2022

– Designed an automation tool for ISS flight controllers to streamline timeline change processes.

Freelance Remote, Illinois
Software Engineer Sept 2020 – Sept 2023

– Earned over $60,000 on Upwork developing cross-platform apps using Electron.js, React, and Express; managed full client lifecycle from proposal to delivery.

RoboThink Remote, Illinois
Software Engineer June 2018 – Sept 2020

– Lead developer for RoboThink's educational tools built with Electron.js and React.

Education

University of Illinois Urbana-Champaign Urbana, IL
Ph.D. Computer Science Fall, 2024–Present

University of Illinois Urbana-Champaign Urbana, IL
B.S. in Information Sciences + Data Science, GPA: 3.82/4.00 2020–Spring, 2024

Teaching

- **Instructor** at Discovery Partner's Institute Summer 2024, Summer 2025
  *D*esigned and taught a 2 week Data Science Intensive program to educate Chicago Public School teachers to create their own data science lessons for their classrooms.
- **Course Assistant** at UIUC Spring 2023 - Spring 2024
  Data Science Discovery (CS 107)