Sasha Hydrie

✈ hydri001@umn.edu   📞 (612) 232-1484   ⌗ /iCalculated   in /in/shydrie

Education

University of Minnesota, Honors (B.S. in Compsci and Math, 3.96 GPA)	Sep 2021 - May 2025 [Expected]

Experience

Jane Street, Software Engineering Intern (janestreet.com)   Jun 2023 - Aug 2023
- Created macros for low-latency tracing in async systems, revising the scheduler to support introspection.
- Implemented a general purpose library for fitting regularized manifolds with techniques from a paper.
- Rearchitected distributed pipeline for implied volatilites to fit all options for an underlying simultaneously.

CAMB.AI, Machine Learning Engineer (camb.ai)   Jan 2023 - May 2023
- Developed translation pipeline with colloquial phrasing, optimized for longform content and low-resource languages.
- Designed novel convex programming formulation of segment sync problem for aligning translated voiceovers.
- Containerized ML models via Kubernetes and Cogs for robustness and on-demand scaling.
- Experimented with foundation models across various media and inference optimizations such as batching.

Optiver, Software Engineering Intern (optiver.com)   Jun 2022 - Aug 2022
- Aggregated stats from 1000 servers with 15 second cadence, including process data for production event retrospectives.
- Synchronized 750 network devices geographically distributed network device clocks to within 3 nanoseconds.
- Optimized energy consumption in dense computer cluster to be reliably within 0.3% of threshold.
- Validated state of production hosts with Ansible jobs to ensure repeatable deployment of 8000 processes.

CHOICE Lab (CV, RL, Robotics), Undergraduate Researcher (choice.umn.edu)   Oct 2021 - May 2022
- Gained practical experience with SOTA reinforcement learning algorithms.
- Presented at UMN undergraduate symposium about keypoint distillation for efficient state representation space.

FIRST Robotics Competition — Team 4536, Team Captain (minutebots.org)   Sep 2017 - May 2021
- Led outreach events bringing STEM and robotics to underserved communities (Boys & Girls Club).
- Wrote dynamic path generation and following for autonomous routines in Java.
- Designed a hardware abstraction framework to remove build-testing bottleneck.

Projects

iCursor, Hack the North 2023 (devpost)   Python (PyTorch, MediaPipe), WASM, Next.js
- Created an extension to allow mouse control via gaze prediction without specialized hardware—an open research problem.
- Designed a real-time pipeline that predicted pose, applied a CNN for dynamics then refined predictions via saliency mapping.
- Planned to deploy everything to edge via WASM. That went poorly (but was somewhat enlightening)!

HearShot, 2nd @ LAHacks 2023 (github)   Python (Whisper, Silero, JAX), LLMs, Nix, SDR
- Automatically extracted info from police radio to preemptively warn users about dangerous situations.
- Implemented robust live transcription for low-quality audio with voice activity detection and WhisperJAX for inference.
- Built and fine-tuned our own radio receiver with an RTL-SDR to listen to local police radio.

Anony.news, 3rd @ Hack for Humanity 2022 (github)   Python (OpenCV, RTMP), FFmpeg, Docker, Next.js
- Blurred faces of bystanders from real-time news streams using OpenFace and OpenCV.
- Automatically deployed to Digital Ocean on push leveraging Docker Compose and Github Actions.
- Implemented an RTMP proxy server with integrated YouTube streaming (or URI for manual forwarding).

Skills

Achievements: Top 10 @ 1871 Tech Challenge 2021, Speaker @ 2021 MAA NCS, 1st @ CMIMC AI 2021, Top 3 @ 8 Hackathons

Languages: Python (Torch, Stable Baselines, Tensorflow, Seaborn), Typescript, C, C++, React, OCaml, Elixir, Rust

Tools: LaTeX, MongoDB, Postgres, Firebase/Firestore, GCP, AWS, ROS, Docker, Kubernetes, Ansible, Prometheus, Vim, Spacemacs