Connor Sicheri

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Experience

Software Engineer (Backend Systems) May 2025 – Present
League Inc. *Toronto, ON*

- Scaffolded and launched the TELUS embedded client application, supporting **6,600+ activated users** and **over 1M contracted users** on the platform.
- Led end-to-end onboarding of new tenants (Auth, cloud infrastructure, SDK configurations, API specs)
- Extended authentication logic to allow tenant-specific selection of JWT claim fields as the canonical user identifier.
- Worked directly with **cloud infrastructure** (AWS/GCP, containerized services, CI pipelines) to deploy, validate, and debug backend services across environments.

Machine Learning Research Intern May 2024 – Sept. 2024
The Hospital for Sick Children — Lab of Dr. Mike Tyers *Toronto, ON*

- Awarded **Undergraduate Research Opportunity Program** scholarship.
- Designed and optimized a protein design pipeline using RF Diffusion, ProteinMPNN, and AlphaFold2.
- Instrumented high-performance computing workflows to enhance reliability and, through targeted optimization analysis, decreased centralized inference pipeline runtime by **80%** on shared compute infrastructure.
- Implemented automated structural scoring and clustering to evaluate large candidate protein sets at scale.

Bioinformatics Research Intern May 2023 – Sept. 2023
Lunenfeld–Tanenbaum Research Institute — Lab of Dr. Anne-Claude Gingras *Toronto, ON*

- Applied ML methods to **mass spectrometry** (BioID) datasets to identify high-confidence protein interactions.
- Developed clustering workflows to remove contaminants and improve reproducibility in proteomics pipelines.

Projects

User-Level Preemptive Threading Library (C, OS) Sept. 2024 – Nov. 2024

- Implemented a user-level threading system with **preemptive round-robin** scheduling.
- Built spin locks ensuring atomic access to shared data under concurrent execution.
- Designed a multi-level feedback queue scheduler for future performance scaling.

Neural Radiance Fields (NeRF) Renderer (Python, PyTorch) Oct. 2025 – Dec. 2025

- Implemented a complete **NeRF** pipeline for 3D scene reconstruction and novel-view synthesis.
- Developed ray generation using camera intrinsics/extrinsics and stratified sampling with positional encoding.
- Trained an MLP predicting RGB and density using differentiable volume rendering, producing photorealistic views and depth maps.

Protein Sequence Redesign Pipeline (Python, HPC) June 2024 – Aug. 2024

- Automated structure-guided sequence redesign using HHblits, ProteinMPNN, and AlphaFold2.
- Optimized AlphaFold2 batching and caching for high-throughput runs on HPC clusters.
- Applied the pipeline to redesign a plastic-degrading enzyme, producing variants with predicted improvements in thermostability and solubility relevant to industrial recycling contexts.

Education

University of Toronto Toronto, ON
B.Sc., Computer Science Specialist; Major in Mathematics *Sept. 2022 – May 2026*

- **GPA: 3.99 (95% overall)**; Dean's List Scholar.
- Awards: Alen Milne McCombie Award; J.S. Mclean Scholarship.

Technical Skills

Languages: Python, Go, C, C++, Java, JavaScript, R, Bash, SQL
Cloud & Infrastructure: AWS, GCP, Docker, Kubernetes, Terraform, CI/CD, Slurm/HPC
Libraries/Frameworks: PyTorch, NumPy, pandas, Matplotlib, OpenCV, React, OAuth, Auth0

Interests

Algorithm Design; Computability Theory; ML Systems; Algebraic Topology; Secure Systems. On a lighter note, Hiking!