Jachym Putta

Email: jachym.putta@yale.edu | **Website:** jachymp.me | **LinkedIn:** linkedin.com/in/jachymp | **GitHub**: github.com/JachymPutta

Education

Yale University, New Haven, CT (Aug 2023 – May 2025)
(Completed Ph.D. coursework and research; conferred Master's degree)
Advisor: Prof. Anurag Khandelwal

Yale-NUS College, Singapore (Aug 2018 – Dec 2022)
B.S. (Honors) in Computer Science – Major GPA: 3.8/4.0

University of Oxford, Oxford, UK (Oct 2022 – Dec 2022)
Visiting Student in Math and Computer Science (Oriel College)

Skills

- **Programming Languages:** Python (Flask, PyTorch), Rust, C/C++, OCaml, SQL
- **Tools & Technologies:** Docker, Linux, Nix, WASM, Git, ONNX, HTML, CSS
- **Domains & Concepts:** Distributed Systems, Cloud Infrastructure, Machine Learning, AI, Systems Programming

Experience

Graduate Research Assistant (Systems), Yale University, New Haven, CT (Aug 2022 – May 2025)

- Instrumented various machine learning models with **Intel Pin**, **NVBit**, and **Linux Perf** to profile performance across memory tiers.
- Developed a performance estimation model in **Python** to evaluate memory tiering strategies (TPP, Hemem, Chrono) for optimal data placement across memory hierarchies.
- Built a **Rust**-based testbed to emulate a multi-tenant cloud environment, enabling evaluation of distributed resource allocation strategies.
- Profiled and analyzed performance of programmable network switch code; implemented batch processing in **C** to boost packet throughput by up to **12×**.

Software Engineering Intern, CDN77, Prague, Czech Republic (May 2023 – Aug 2023)

- Built and optimized a video streaming stack using **Rust/C++**, improving performance of the edge nodes by **5%.**
- Implemented a caching system at the network edge to enable efficient stream multiplexing, improving throughput and reducing latency for live video.
- Contributed to designing an improved network topology for content delivery, enhancing scalability of the CDN infrastructure.

Research Assistant (Machine Learning), Yale-NUS College, Singapore (Jan 2023 – June 2023)

- Developed and evaluated multiple machine learning models in **PyTorch** to detect liveness in cyclic **SDF graphs**, classifying them based on accuracy, recall and perplexity.
- Created a synthetic dataset generator for SDF graphs and built a test suite for the **Kiter** framework, increasing code coverage by 20%.

Software Engineering Intern, Upskills, Singapore (Apr 2021 – Aug 2021)

- Built and deployed a **Flask-based** internal licensing server using **PostgreSQL** and **Docker**, replacing manual license management.
- Implemented comprehensive unit and API tests in **TypeScript** to ensure robust functionality and reduce deployment issues across the product suite.

Publications

- **Spirit: Fair Allocation of Interdependent Resources in Remote Memory Systems**
  Seung-seob Lee, **Jachym Putta**, Ziming Mao, Anurag Khandelwal
  Symposium on Operating Systems Principles [**SOSP'25**]

Open Source

- **DAWN**: Debugger and **DAP** implementation for **Nix** written in **Rust**
- **RaiVE**: AI-assisted music generation. Built and deployed the app end-to-end with **WASM**, **Rust** and **Vite**
- **Dailies**: Daily journaling in plain **Markdown**, also available as a **Neovim** plugin
- **Detypstify:** Developed a **WebAssembly**-based OCR tool in **Rust** for the **Typst** typesetting language, enabling automatic generation of markup code for mathematical formulas.
- **Dotfiles (Nix):** Configured a reproducible development environment using **Nix**, automating the setup of development tools and environments across systems.
- **Burn (Rust DL Framework):** Contributed to the open-source **Burn** deep learning framework by extending its **ONNX** integration with 9 new operator implementations, improving model compatibility with exported neural network models.
- **Nixpkgs:** Maintainer – **dailies, dailies.nvim**