Maksim Lavrenko

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Education

Purdue University West Lafayette, IN
Master of Science, Computer Science *Aug 2024 — May 2026*
- GPA: 3.90/4.0 | Dean's List | Advised by **Tamal K. Dey**
- Coursework: Statistical ML, Computational Complexity, Compilers, Randomized Algorithms, Numerical Linear Algebra

Purdue University West Lafayette, IN
Bachelor of Science, Computer Science and Mathematics *Aug 2022 — May 2025*
- GPA: 3.99/4.0 | Dean's List, Highest Distinction.

Work Experience

Teaching Assistant | CS381, CS251, CS250, CS182 Jan 2024 — May 2025
Purdue University *West Lafayette, IN*
- Courses Assisted: Analysis of algorithms, Data Structures, Computer Architecture, Discrete Mathematics
- Instructed and supported classes ranging from **60** to **800** students, adapting teaching strategies to varied class sizes.
- Conducted grading, held office hours, facilitated labs, and led collaborative sessions.

Community Assistant May 2024 — August 2025
Purdue University *West Lafayette, IN*
- Managed check-in and check-out procedures for over **200** attendees, ensuring a smooth transition.
- Responded to emergency situations with quick, effective decision-making.
- Provided high-level customer service, including the distribution and management of equipment, keys, and mail.

Research Experience

Ensemble Methods Survey (mxksm.github.io/files/project_report.pdf) Aug 2024 — Dec 2024

- Conducted a **12-page** survey of ensemble methods, including **random forests**, **adaboost**, and **xgboost**.
- Applied ensemble methods across **8** real-world datasets, including the **Adult Dataset**, **Bank Marketing Dataset**, and more.
- Implemented and evaluated models in **scikit-learn** using a variety of performance metrics.

Projects

LLVM Compiler | C++, LLVM Jan 2025 — May 2025

- Developed an LLVM-based compiler in C++ for a subset of the C language.
- Implemented multiple **optimizations**, such as **dead code elimination**, **natural loop detection**, **SSA form conversion**, and more.

Better Housing Bot | Python, Discord.py, BeautifulSoup November 2023 — December 2023

- Built a **Discord Bot** that streamlined the search for on-campus housing at Purdue University during a housing crisis.
- Implemented **real-time** availability tracking with web scraping, featuring **automatic updates**, **on-demand checks**, etc.
- Helped peers (and myself) **secure** on-campus housing, avoiding costly alternatives.

Skills

- **Programming**: Python, C++, C, Java, R, SQL, Julia, Bash
- **Libraries**: PyTorch, TensorFlow, scikit-learn, NumPy, Pandas, Matplotlib, BeautifulSoup, Discord.py, LLVM
- **Core Areas**: Algorithms & Data Structures, Compilers, Machine Learning, High-Performance Computing.