

DAVID PETRE

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EDUCATION

The University of Chicago

Chicago, IL

Bachelor of Science in Computer Science, Bachelor of Arts in Economics, Minor in Mathematics

Expected, June 2025

- Honors: Chicago Public Schools Full Tuition Merit Scholarship, National Merit Scholar, Illinois State Scholar.
- Relevant Coursework: Theory of Algorithms, Computer Systems, Database Systems and Design, Discrete Mathematics, Linear Algebra, Proofs in Analysis, Statistics: Models and Methods, Economic Analysis, Investments, Financial Accounting, Robotics
- Extracurriculars: Philosophy Club, Grappling Club, CompileHer, Chicago Maroon, UC Socially Responsible Investment Group

PROFESSIONAL EXPERIENCE

University of Chicago Department of Computer Science

Chicago, IL

Grader – MPC5 51046: Intermediate Python Programming

September 2023 – Present

- Participate in the code review of ~20 graduate-level students studying python programming at the University of Chicago.
- Partnered with the course design staff to update assignments, develop grading rubrics, and establish the course outline.

Center for Spatial Data Science | Anselin Lab – UChicago research lab focused on the development of GeoDa.

Chicago, IL

Software Engineer Intern

May 2023 – September 2023

- Upgraded the GeoDa graphics library to a more modern implementation using React and Kepler.gl.
- Assisted in refactoring the GeoDa Javascript library (Composed of ~1000 lines) into Typescript.
- Improved documentation on the GeoDa ecosystem by making grammatical / textual edits.

CNC Designs – Small Business focused on Insert manufacturing.

Chicago, IL

Partner

August 2021 – October 2023

- Cofounded a manufacturing firm that produces effective table saw inserts for top brands such as DeWalt, Bosch, and SKIL.
- Personally built, polished, and quality tested ~4,000 table saw inserts. Went to the shop during my school breaks and on weekends.
- Designed two inserts using AutoCAD for the SKIL and Bosch lines which generated ~\$20,000 in revenue because of extensive market research to gain competitive advantage.

Momentum Capital – Private Impact Investing Firm

Chicago, IL

Market Research Intern

January 2023 – March 2023

- Researched ~200 small businesses across the United States to properly target them for low-interest loans according to both profitability and ESG metrics.
- Wrote a python script that automated the procedure for the team to accelerate the development of the deliverable.

TECHNICAL PROJECTS

Kalshi_Rust – API wrapper written in Rust

October 2023

- Implemented an open-source API wrapper for the Kalshi events trading platform that is asynchronous and also more performant than the official developer's Python API. ~2000 lines of Rust code.
- Enables algorithmic traders and hobbyists to write trading bots for the Kalshi exchange using the Rust programming language.

DaDB – Database Management system written in Rust

May 2023

- Wrote a database management system in Rust that was composed of ~700 lines of multithreaded code for my database systems class.
- Implemented queries based on operators found in Relational Algebra and custom-designed my own serialization from data to disk.

Robotics Tag Matching – Reinforcement Learning, Computer Vision Robotics Project.

October 2023

- Implemented a modified Q-learning algorithm on bespoke data matrices to train a turtlebot3 to properly pick up sticks of different colors and drop them next to certain tags. Composed of ~600 lines of Python using ROS' python library.
- Designed software that allowed the Robot to perceive the difference between different colors and AR tags, moving to them at will.

SKILLS & INTERESTS

Programming Languages: Proficient: Python, Rust, C, Javascript / Typescript. Working Knowledge: Haskell, Golang, R, C++, Java
Frameworks / Computer Skills: Proficient: HTML / CSS, SQL, React, NextJs.13, TailwindCSS, NumPy, Pandas, MySQL, Postgres, Git, Bash scripting. Working Knowledge: Tidyverse, Nix / NixOs / ROS.2

Languages: English – Fluent | Romanian – Native Speaker | Mandarin Chinese – Working knowledge | French – Elementary command

Other: SAT: 1550/1600 (800 Math)

Interests/Hobbies: Brazilian Jiu Jitsu, Kickboxing, Reading, Camus, Robotics, Starcraft 2.