

AARON GUROVICH

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EDUCATION

Texas Tech University

Computer Science B.S. / Minor in Mathematics

GPA: 3.76

Lubbock, TX, USA

Graduation Date: May 2026

Relevant Coursework: Object-Oriented Programming (Java), Data Structures (C), Programming Principles (C), Computer Architecture, Linear Algebra, Calculus I-III, Mathematical Statistics for Engineers, Modern Digital System Design

Achievements/Awards: President's List, Dean's List, Presidential Transfer Scholarship, Competitive Chess Scholarship

EXPERIENCE

Texas Tech University | Research Assistant

Lubbock, TX, USA | October 2024 – Present

- Developed **MalScape**, a full-stack interactive network visualization tool using **Cytoscape.js**, **Flask**, and **Pandas**, enabling cybersecurity analysts to upload **CSV** data for visualizing and analyzing network activity.
- Designed advanced **filtering**, **clustering**, and **protocol-based grouping** features to help cybersecurity analysts efficiently detect and investigate anomalies.
- Optimized and personally developed the backend data processing system using the **High Performance Computing Center** at my university, utilizing **vectorized operations**, **IP classification**, and **Union-Find clustering** to significantly improve performance when handling large-scale datasets.
- Contributed to a **50–80% reduction** in incident response times by automating key investigative tasks and providing intuitive data visualization.

ProofPerks | Software Developer Intern

Remote | August 2024 – December 2024

- Deployed **biometric verification models** using **Python**, improving model accuracy.
- Optimized complex **PostgreSQL queries** by implementing strategic indexing, query refactoring, and performance tuning, achieving a **35% reduction** in execution times and substantially boosting database performance.
- Implemented a robust **Redis caching** layer to offload frequent query loads, resulting in a **50% reduction** in response times under high-concurrency conditions.
- Refactored and streamlined backend logic for deployment on **Google Cloud Server** infrastructure, reducing latency and enhancing overall request handling efficiency.
- Developed and integrated **high-performance data pipelines** for **real-time processing** of **biometric data**, ensuring **scalable ingestion** and **processing capabilities** to support future system growth.

SKILLS

- Programming Languages:** Python, Java, JavaScript, C, SQL.
- Libraries/Frameworks:** Node.js, Express.js, D3.js, React.js.
- Tools / Platforms:** Git, VS Code, GitHub, Docker, Linux, Cloudflare, AWS/GCP.
- Databases:** PostgreSQL, Redis.

PROJECTS

Banking Management System

Python

- Engineered a comprehensive **banking simulation system** featuring robust **account management**, **transaction processing**, and **financial reporting** functionalities.
- Leveraged efficient data structures, including **arrays/lists** for optimal account storage, **queues/stacks** for streamlined transaction handling, and implemented **binary search** for rapid account retrieval.
- Developed high-performance **financial reporting** tools by integrating advanced algorithms such as **merge sort** and **quicksort** to accurately rank accounts by balance, significantly enhancing data retrieval efficiency.
- Guaranteed **data integrity and security** through rigorous **input validation**, **error handling**, and enforcing **hierarchical access control** via tree and graph-based structures.

Real Estate Property Search

Python

- Architected an innovative **spatial property search system** leveraging **R-tree indexing** to efficiently store and query multidimensional real estate datasets.
- Integrated sophisticated **range queries**, **nearest neighbor searches**, and **multi-criteria filtering** mechanisms to optimize property retrieval based on location, price, and features.
- Deployed advanced sorting algorithms (**merge sort** and **quicksort**) in conjunction with **priority queues** for swift and accurate ranking of property listings.
- Enhanced overall system performance by optimizing **database operations and indexing** strategies, significantly boosting search efficiency and elevating real estate market analysis.

ACTIVITIES

- Chess Team Member**
Represented Texas Tech in national tournaments, refining strategic thinking and decision-making under pressure. Volunteered at local tournaments to support chess outreach in the community. **USCF: 1907.**
- Hillel Member**
Engaged in Hillel's cultural and community programs, fostering connections among Jewish students through discussions, events, and leadership opportunities.