# Ashkan Khademi Gharalar

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## Education

**Toronto Metropolitan University** — Toronto, ON
*Master of Engineering in Electrical and Computer Engineering (AI Specialization)* — *Starting September 2025*

**York University** — Toronto, ON
*Bachelor of Science in Computer Science* — *September 2020 – December 2024*

- Courses: Advanced Object-Oriented Programming (Java), Computer Organization, Introduction to Database Systems, Fundamentals of Data Structure, Operating System Fundamentals, Software Design

## Technical Skills

**Languages**: Java, Python, JavaScript, HTML, CSS, SQL, C
**Frameworks/Libraries**: React.js, Node.js, Express.js, Spring, jQuery, EJS, JUnit, Pandas, NumPy, Scapy, Axios
**Tools/Technologies**: Git, Docker, MongoDB, PostgreSQL, REST APIs, VS Code, Agile

## Work Experience

**Software Developer Intern** — February 2024 – Present
*ReliablyME Inc.* — *Toronto, ON*

- Created a Python-based cohort projection model using Pandas and NumPy to forecast revenue growth, churn, and conversion across subscription plans.
- Engineered a cohort tracking system to monitor customer transitions across 4 plan tiers, improving retention visibility and enabling monthly CAC and churn reporting.
- Devised predictive models to simulate 24-month trends and generate churn, MRR, and retention forecasts using historical cohort and acquisition data.

## Research Experience

**Cybersecurity and DPI Anomaly Detection** — September 2024 – December 2024
*York University* — *Toronto, ON*

- Researched real-time anomaly detection with Beta-VAE and Suricata, improving detection from 0.1% to 77.8%.
- Designed an AI-driven intrusion detection system, analyzing 50,000+ network packets for suspicious activity.
- Integrated live packet monitoring with Scapy, enabling real-time analysis of encrypted and unencrypted traffic.

## Projects

**RTSP Client (Java, Sockets, Networking)**

- Refined a Java RTSP client for MJPEG streaming over UDP/TCP, improving playback stability at 25 fps.
- Implemented three RTSP features (SETUP, PLAY, PAUSE) for real-time video control and smooth streaming.
- Optimized frame buffering logic to reduce delays and handle out-of-order packet delivery.

**Music Recommender (Node.js, Express.js, EJS, Axios)**

- Constructed a Node.js music recommender using Last.fm's API to deliver 100+ tailored song suggestions by genre.
- Developed a recommendation engine for 5+ genres with API integration and filtering to boost user engagement.
- Refined API calls to minimize latency and improve response speed by streamlining request handling.

**Budgeting System Application (Java, JSON, Agile)**

- Built a Java-based budgeting application using JSON to manage and categorize 100+ user transactions effectively.
- Applied Agile development practices for iterative updates, increasing feature delivery speed, and reducing bugs.
- Collaborated with a 5-person team to enhance performance, improve UI responsiveness, and expand core features.

**Hospital Management System (Java, OOP, Database Management)**

- Crafted a modular system to manage 500+ records, standardize input, and streamline departmental data flow.
- Utilized OOP principles to streamline staff workflows and reduce admin task time by 20 minutes per entry.

## Volunteering Experiences

**Canada Learning Code** — September 2023 – August 2024

- Volunteering as a mentor with Canada Learning Code, part of a program with 11,000 events and 977,000 learners.
- Mentored 4–5 learners in Python and web development, providing support during live coding and Q&A sessions.