

Esad Kaya

Ottawa, ON

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Education

Honours Bachelor of Science in Computer Science (Co-op)

Sept 2022 – May 2027

University of Ottawa, Ottawa, ON

Awards:

- Winner of Hack The Hill II: Ross Video FPGA Challenge (2024)
- Admission Scholarship by University of Ottawa (90–95% admission average)
- 1st Place in Region by University of British Columbia Michael Smith Physics Olympics (2021)

Relevant Coursework (selected): Data Structures & Algorithms, Design and Analysis of Algorithms, Programming Language Concepts, Databases, Advanced C++ Programming, Computer Architecture, Software Quality Assurance, Operating Systems.

Technical Skills

- **Languages:** Python, Java, JavaScript/TypeScript, C/C++, PHP, Lisp (Racket), SQL, DAX, Rust, Go
- **Libraries / Tools:** NumPy, Pandas, Matplotlib, Scikit-Learn, TensorFlow, ONNX Runtime, OpenCV, RKNN Toolkit, PyQt, BeautifulSoup, Selenium, Playwright, Firebase, Supabase, PostgreSQL (incl. PostGIS), Redis, Power BI
- **Web Development:** Flask, HTML/CSS, XML, JavaScript (ES6+), React, TypeScript, Node.js, NestJS, RESTful APIs, GraphQL
- **Data Science & AI:** NLP, Machine Learning, Time-Series Analysis, Edge AI (quantized CV models, ONNX), Data Visualization, Web Scraping, Large-Scale Data Processing
- **DevOps & Parallelization:** `concurrent.futures`, Threading, Multiprocessing, Docker, Git/GitHub, API Integrations, Cloud Services (AWS EC2, Cloudflare, Firebase, Gemini API), Linux shell scripting
- **Operating Systems:** Windows, Linux (Ubuntu/Debian), macOS
- **Embedded Systems & Hardware:** ESP32, Orange Pi, Arduino, Sensors (mmWave, accelerometer, GPS), LTE modems, FPGA (Quartus), PCB Design (KiCAD), CAD (SolidWorks)
- **Other:** OCR, Financial Data Analysis, Agile Development, UML Diagrams, Edge-to-Cloud System Architecture

Relevant Experience

Software Engineer Intern

May 2026 – Present

Entrust, Ottawa, ON, Canada

- Delivered front-end and back-end changes on the IDaaS platform using **TypeScript**, **JavaScript**, and **Java**.
- Improved insights and real-time data analysis over anonymized customer usage on production systems serving **10,000,000+** users.
- Architected **AWS S3** data storage for customer-success records — fast lookup, access-controlled.
- Collaborated in **Agile** ceremonies (stand-ups, grooming) to grow the platform's capabilities.
- Built a **Redis**-based heartbeat that paged on-call within **5 minutes** of failure.
- Wrote **Jest** mock and DOM tests to catch regressions before they shipped.
- Built the full Identity Threat Detection and Response dashboard end-to-end on Redis, designed to be modular so individual pieces could be swapped out.

Support Engineer Intern

Sept 2025 – Dec 2025

Solace, Canada

- Diagnosed and resolved technical issues for Solace PubSub+ products, ensuring high customer satisfaction.
- Authored and maintained knowledge base articles to accelerate solution delivery for customers and internal teams.
- Translated complex technical solutions for diverse customer audiences, maximizing clarity and understanding.

Software Developer Intern

Jan 2025 – April 2025

Communications Research Center, Canada

- Developed cross-platform GUI research tools using **PyQt**, enhancing researcher workflow efficiency.
- Generated data visualizations for technical reports using **Matplotlib**, improving clarity of research findings.
- Optimized data pipelines using Python **parallelization**, reducing execution time.
- Implemented automatic script generation for quick setup, reducing setup time by **98%** and startup time by **95%**.

Student Junior Business Analyst

May 2024 – Aug 2024

HR – Infrastructure Canada, Ottawa, ON

- Prototyped, designed, and built interactive dashboards using **Power BI** and **DAX** for senior directors.
- Ensured data consistency by performing cleaning and transformation on HR datasets using **Power Query**.
- Streamlined data pipelines by standardizing formats and handling missing data, improving report generation speed.
- Delivered data-driven insights through reports and dashboards, supporting senior management's decision-making.

Technical Support Officer

Jan 2020 – Present

Raindrop Janitorial Services Corp., Ottawa, ON

- Resolved hardware, software, and network issues, ensuring secure and uninterrupted business operations for head office.
- Efficiently executed payroll with **QuickBooks**, handling 50+ employee paychecks accurately and on time.
- Developed and maintained the company website using **PHP**, **HTML/CSS**, and **JavaScript**, enhancing online presence and customer engagement.
- Developing a new internal WFM system to optimize employee scheduling and task management using **React** and **Node.js**.

Projects

Raindropticon: Workforce Management System

(Private Production-Grade Project) | www.raindropticon.com

- Developed a full-stack monorepo solution (NestJS, React 19, React Native) for managing distributed cleaning workforces.
- Engineered a **geospatial engine** using **PostGIS** for sub-meter accurate geofence validation, preventing false clock-ins.
- Implemented **AI-assisted configuration**, reducing first-time startup time by **90%**, and integrated **Gemini Vision** for task verification.
- Built a cross-platform mobile app with **battery-aware** background tracking native modules.

Parkopticon: Smart Parking & Edge AI Sentinel

GitHub: [Integer-Conversion-Error/parkopticon](https://github.com/Integer-Conversion-Error/parkopticon)

- Developed a cross-platform mobile app (**React Native/Expo**) for crowdsourced real-time parking and enforcement tracking.
- Designed an **Edge AI Sentinel** system using **Orange Pi 5 (RK3588S)** and **ESP32** nodes for vehicle security.
- Implemented **low-power computer vision** pipelines (YOLOv8) processing mmWave radar and camera feeds.
- Engineered a distributed IoT mesh for 360° monitoring with <50Wh overnight power consumption.

Put It Down: AI Focus & Distraction Monitor

GitHub: [Integer-Conversion-Error/put-it-down](https://github.com/Integer-Conversion-Error/put-it-down)

- Developed a desktop application combining **computer vision** (MediaPipe) and **OS monitoring** to quantify user focus.
- Implemented real-time **head pose estimation** to detect distractions (e.g., looking at phone) using **OpenCV** and vector math.
- Built a responsive **Tkinter GUI** utilizing **multithreading** to maintain high frame rates while tracking window activity.
- Designed configurable tracking algorithms to correlate gaze direction with active application states for precise metrics.

AutoTrader Web Scraping Application

GitHub: [Integer-Conversion-Error/AutoScrapper](https://github.com/Integer-Conversion-Error/AutoScrapper)

- Developed a Python/Flask web app to automate AutoTrader.ca vehicle searches with advanced filtering.
- Implemented **concurrent scraping** ('concurrent.futures') and **persistent storage** of search criteria/results using **Firestore**.
- Integrated **AI analysis** for listing reliability, pricing insights, and negotiation points via Google Custom Search API.

Kaya-Auto: Autotrader-like Web Application

GitHub: [Integer-Conversion-Error/Kaya-Auto](https://github.com/Integer-Conversion-Error/Kaya-Auto)

- Developed a comprehensive web application similar to Autotrader for vehicle buying/selling.
- Implemented distinct user roles (Customer, Private Seller, Dealer, Admin) and robust backend (Node.js/Express.js) and dynamic frontend (React/Vite).
- Designed and integrated a sponsored listings feature with payment gateway (Stripe/PayPal) and automated expiry management.
- Structured a PostgreSQL database schema, including detailed UML diagrams for data modeling.

Notesplicer: Note Summarization and RAG System

GitHub: Integer-Conversion-Error/Note-Splicer

- Developed an AI system for processing, organizing, and querying personal notes using Retrieval-Augmented Generation (RAG).
- Transformed unstructured text notes into a structured, searchable knowledge base with generative AI.
- Built a persistent ChromaDB vector database for efficient semantic search and information retrieval.
- Implemented RAG with Gemini 2.5 for coherent answer generation from notes.
- Used LoRA fine-tuning to enhance model performance on domain-specific note content.

AI Budget Agent Web App

GitHub: Integer-Conversion-Error/Budg-It

- Developed an **AI-driven** budgeting tool using **Gemini 2.0** and Python to assist users in managing financial scenarios.
- Implemented **receipt parsing** with **OCR** to automatically extract and categorize expenses.
- Designed an intuitive web interface for seamless user interaction and financial tracking.
- Integrated data visualization to provide users with clear insights into their spending habits.

Hugging-Stocks: Stock Market Analysis Tools

GitHub: Integer-Conversion-Error/Hugging-Stocks

- Developed Python tools applying **ML** for stock market insights, exploring sentiment analysis, time series modeling, and external data integration.
- Implemented **sentiment analysis** (NLP on news/GDELT) and **Hidden Markov Models (HMMs)** for **time series analysis** to identify market states/patterns.
- Analyzed stock analyst price predictions to identify trends and assess potential correlations with market movements.
- Demonstrated skills in Python, Machine Learning (ML), Natural Language Processing (NLP), Time Series Analysis, and handling diverse financial data sources.

Transferable & Soft Skills

- Analytical problem solver and quick learner
- Excellent communication & teamwork; strong work ethic
- Resourceful, self-taught in new technologies through tinkering hobby
- Time management, attention to detail, and adaptability
- Languages: Native English and Turkish; intermediate French; elementary Russian