Karanvir (Karan) Khanna

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EDUCATION

University of Toronto — Apr. 2026
Honours Bachelor of Science in Computer Science — CGPA: 3.7/4.0 · Dean's List
- *Coursework:* Neural Networks and Deep Learning, Fundamentals of Machine Learning, Software Engineering, Data Structures, Operating Systems, Algorithm Design & Analysis, Information/Computer Security

TECHNICAL SKILLS

Languages: Java, Python, C/C++, JavaScript, TypeScript, Bash, SQL, PHP, Assembly (x86)
Frameworks & Tools: Node.js, Flask, Django, TensorFlow, PyTorch, scikit-learn, pandas, NumPy, Selenium, JUnit, LaTeX, Pyomo, SCIP, CPLEX
Optimization: MINLP, nonlinear solvers, multistage model design
Infrastructure: NGINX, DigitalOcean, MongoDB, Conda, Ubuntu, WordPress, Docker
DevOps: Git, Bitbucket, GitHub, GitHub Actions, CI/CD, JSON, REST, Shell scripting
Cloud & APIs: AWS, Azure, OpenAI API, GCP, Google Apps Script, Amazon Rainforest API
Security: CAPTCHA, SQLmap, Ghidra, Burp Suite, Wireshark, WPScan, cryptographic tools
Data Governance: Microsoft Purview, data discovery, data lineage, data cataloging, DAMA DMBOK principles
Data Quality & MDM: data profiling, data validation, deduplication, Golden Record creation, Informatica

EXPERIENCE

E-commerce Software Developer — Jun. 2024 – Sept. 2025
IPPINKA — Toronto, ON
- Automated listings, purchase orders, and reporting for 5K+ Amazon SKUs (Node.js, TypeScript, Google Apps Script, GCP).
- Built PO optimization and demand forecasting (Pyomo/SCIP/CPLEX) on 10y sales data; improved ordering accuracy and supplier compliance.
- Developed spreadsheet-driven UIs and supplier-facing tools; automated PDF invoicing and push-to-email workflows.
- Deployed scalable services on DigitalOcean and GCP with NGINX + Cloudflare; engineered metadata-aware caching to cut Sheets API load.
- Integrated Rainforest API and Flodesk to monitor reviews, flag listings, and drive automated marketing campaigns.
- Implemented monitoring and reporting pipelines; created ops dashboards for inventory health and PO status.
- Hired and mentored 3 developers; authored internal docs covering solver orchestration, retries, and CI/CD for automation.

AI Engineer – Data Governance — May 2023 – Oct. 2023
KPMG LLP — Toronto, ON
- Prototyped AI assistants (ChatGPT) to streamline governance workflows, knowledge access, and compliance.
- Built automation algorithms, mock UIs, and data pipelines for governance and inventory use cases.
- Authored KPMG's Data Governance Playbook; evaluated Informatica, Purview, and Collibra for vendor selection.
- Outlined AWS/Azure reference architectures; applied ML heuristics to optimize internal tooling and workflows.

PROJECTS

Tarazoo (Hack the North 2025 Winner) — AI e-commerce platform: camera-to-cart checkout + MINLP procurement optimization. Demo

Automated PO System — Solver-backed PO generation for 5K+ SKUs; UI + invoicing (Node.js/Python, Pyomo/CPLEX/SCIP). Documentation

Tormented by Lights (Game Jam 2025 Winner) — Puzzle-action game built in 24h. Demo

Definition Finder (DeerHacks 2022 Winner) — Automated research assistant with Google APIs + UiPath. Demo

RESEARCH

Matroid Theory Research | *University of Toronto* — May 2023 – Sep. 2023
- Studied volume estimation of matroid polytopes and their polar duals using combinatorial + geometric techniques.
- Adapted Hepp bounds and T-invariants; validated conjectures in Sage with rank-jump analysis.
- Authored research under Prof. Ahmed Ashraf on polytope duality + symbolic methods. Paper

CERTIFICATIONS AND AWARDS

DAMA Certified Data Management Professional (CDMP — Associate) — Certification in data governance, lineage, and quality management.

Hack the North Winner (2025) ● Halton Game Jam Winner (2025) ● UofT Hacks Runner-up (2023) ● DeerHacks Winner (2022) ● Dean's List (2021–Present)