ARNAV MALHOTRA

437-436-0797 | arnav196@my.yorku.ca | github.com/arnavmalhotra | arnavmalhotra.com/

EDUCATION

Bachelor of Engineering in Software Engineering   Expected May 2027
York University   *Toronto, ON*

EXPERIENCE

Software Engineering Intern   Jul 2025 – Dec 2025
Quarkle.ai   *Remote*
- Designed and deployed an **agentic AI system** with Python FastAPI websockets for real-time retrieval; boosted knowledge retention by **85%** and reduced hallucinations by **60%** through custom pipelines and memory indexing.
- Optimized a **Next.js frontend** to handle documents up to **1M words** using debouncing, diffing, and caching; cut rendering latency by **40%** and improved performance by **45%**, enabling seamless long-document handling.
- Built a **public document-sharing system** enabling authors to showcase work and collaborate; drove a **30% increase in engagement** across a community of **500+ writers**.

Software Development Contractor   Apr 2025 – Jun 2025
Markis Investments   *Remote*
- Delivered a **direct booking website** for a luxury resort using **Next.js**, **PostgreSQL**, **Git LFS**, and **S3 buckets**; increased sales by **40%** and processed **$100K** revenue in the first month.
- Built a **QR-based event management system** providing real-time attendee tracking and analytics; deployed across **5 events** with **500+ participants**, reducing manual errors and bottlenecks.
- Developed **guest-facing portals** for facility booking, payments, and information access; improved customer experience and adoption by **150+ users** within the first month.

Software Developer   Oct 2024 – Apr 2025
York University   *Toronto, ON*
- Engineered a **data scraping pipeline** aggregating from **20+ sources** with validation, retries, and exception handling; ensured **98% accuracy** in extracted datasets for downstream applications.
- Developed a **React-based calendar** surfacing cultural events across campus; adopted by **1,300+ students and faculty**, strengthening accessibility and engagement.

Research Fellow   May 2024 – Jul 2024
Indian Institute of Technology, Roorkee   *Roorkee, Uttarakhand*
- Trained **nnU-Net models** on MRI data from **85 subjects** with 5-fold cross-validation, achieving Dice score **0.52 ± 0.05** for epilepsy lesion segmentation; results published in *Frontiers in Artificial Intelligence*.
- Designed an **automated slice selection method** ranking MRI slices by voxel intensity to highlight lesion-rich regions; improved lesion detection accuracy by **30%** for FCD Type II.

PROJECTS

OneTimeTable *(link)* | *FastAPI, MongoDB, Next.js*
- Built and deployed a platform that converts syllabi and timetables into interactive semester dashboards, organizing schedules, assignments, and exams; served **100+ students**, saving each **8 hours/semester** on planning.
- Developed **AI pipelines and a chatbot** that parsed course materials and generated reminders; achieved **99% scheduling accuracy** and coordinated **1,000+ events** each semester.

SuperchargedNotes *(link)* | *FastAPI, PostgreSQL, Next.js, TypeScript*
- Created an **AI-powered study tool** that digitizes handwritten notes into editable text and flashcards; adopted by **20+ students**, saving each up to **6 hours/week**.
- Engineered **PDF/image parsing and quiz generation** using OCR + LLMs; reached **92% accuracy** in content extraction and reduced manual editing by **70%**.

TECHNICAL SKILLS

Languages: Java, Python, C, JavaScript, TypeScript, HTML, CSS, SQL
Frameworks: FastAPI, Next.js, React, Node.js
Databases: PostgreSQL, MongoDB, Redis, Vector DBs
Libraries/Tools: PyTorch, NumPy, Pandas, Matplotlib, Selenium, Git, Docker, Tailwind CSS, JWT