

# Sehej Brar

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## EDUCATION

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### UNIVERSITY OF ALBERTA

Edmonton, AB

Faculty of Science, BSc with Specialization in Computer Science

Dec. 2026

- **Relevant Coursework:** Software Engineering, Algorithms, Machine Learning, Information Retrieval

## EXPERIENCE

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### Software Developer

Otipemisiwak Government

May 2024 - Present

- Enacted a **54-page policy** containing methods to **mitigate cyberthreats** and **maintain software**.
- Spearheaded the development of a DMARC parser using **PyTorch**, reducing manual intervention by **85%**.
- Developed **two React-based e-commerce websites**, increasing **purchases and bookings by 2.5×**.
- Implemented an **intranet** using **React**, **SPFx**, and **JavaScript** to promote communication for **400+ employees**.

### Software Engineer

Canadian Center for Welding and Joining

January 2025 - May 2025

- Redesigned and developed a **Python GUI** for a fluid flow measurement system, improving **data visualization** and **user interaction**.
- Integrated GUI and **Arduino serial communication** to log real-time flow rate and droplet collection data.
- Optimized **multithreading** and **event handling** in **PyQt6** for real-time data logging and UI responsiveness.
- Led the transition to a **C-based system** for direct **hardware control** and improved efficiency.

### NeurAlbertaTech

Vice President of Education

April 2024 - Now

- Developed and implemented comprehensive educational curricula, including workshops and seminars on emerging neuroscience and IT technologies.
- Built and maintained relationships with educational institutions, tech companies, and neuroscience research organizations to strengthen program offerings and expand outreach.

## PROJECTS

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### Deepfake Detection | PyTorch, Flask, Angular

<https://github.com/sehejb/Better-2.0>

- **Generated a dataset** through **OpenCV** by capturing frames from the FaceForensics Dataset.
- Fine-tuned a **CNN** to reduce overfitting by implementing **dropout layers** and a **transformation pipeline**.

### Graph Retrieval Augmented Generation (RAG) | Neo4j, Python, Streamlit, Pandas

<https://github.com/nimithejeagerist/neodatahackathon>

- Developed a **Graph RAG** pipeline using **Neo4j** to analyze semantic relationships between entities.
- Utilized **ClinicalBERT** for embeddings and used **cosine similarity** with PyTorch to return *k* best results.

## ADDITIONAL SKILLS

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- **Languages:** Java, Python, C, SQL, JavaScript, CSS, Neo4j, C#, Assembly
- **Libraries:** pandas, Firebase SDK, MongoDB, NumPy, Scikit-learn, Matplotlib
- **Frameworks:** React, Firebase, Android SDK, Angular, Tailwind CSS, PyTorch, JUnit
- **Developer Tools:** Git, VS Code, Visual Studio, Android Studio