Divjot Bhogal

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EDUCATION

University of Waterloo — Waterloo, Ontario
Bachelors in Computational Mathematics — *Sept 2020 – Dec 2025*

PROFESSIONAL EXPERIENCE

CrackInterview — Remote
Backend Developer — *July 2024 - September 2024*
- Researched, designed, and developed an advanced chatbot system using DialoGPT libraries and PyTorch, trained on PDF-based questionnaires and deployed via Flask. Led backend development and AI integration initiatives.
- Engineered a real-time, peer-to-peer chat system leveraging WebSockets and asyncio for 1-1 communications.
- Developed scalable video meeting rooms utilizing WebRTC, SocketIO, PeerJS, and TURN servers to facilitate high-quality, secure video conferences.
- Integrated front-end components into the backend using Vite and JavaScript, delivering a seamless UX.

Credit Valley Hospital; Trillium Health Partners — Mississauga, Ontario
Software Developer, Business Intelligence — *Aug 2019 - Feb 2020*
- Led the development of the "Priority Tracking Tool," which was adopted across Trillium Health Partners in the Greater Toronto Area, improving operational efficiency for over 1.75 million patients annually.
- Designed and developed custom web applications and reports, optimizing workflows and significantly reducing patient wait times for healthcare professionals.
- Utilized HTML, CSS, JavaScript, MSSQL, and C# to create robust effective front-end and back-end solutions.

Replic — Waterloo, Ontario
Junior Full Stack Developer — *July 2021 - May 2022*
- Developed a dynamic startup website using Microsoft Visual Studio, MVC, and ASP.NET, implementing controller logic to ensure smooth functionality based on JIRA tasks.
- Used MSSQL for database, C# for back-end, CsHtml for front-end, and deployed the solution on AWS RDS.

Waterloo Rocketry Club — Waterloo, Ontario
Propulsion Engineer Team — *June 2023 - Present*
- Co-led the development of the University of Waterloo's first liquid engine rocket using NOS and Ethanol, advancing the team's technical capabilities and expertise.
- Created precise CAD models using SolidWorks and led the machining efforts for liners, nozzles, and ablative test stands while managing project planning and execution.

PROJECTS

- **NASA Agriculture Data Tool (AgriTech)**
  - Developed an AI-powered tool for NASA's Space Challenge, analyzing satellite data (MODIS, Landsat) to predict groundwater levels, precipitation, and land temperature in precision agriculture.
- **Medical Emergency Caller (VitalSense)**
  - Designed and developed an emergency calling system integrating Twilio API for emergency calls and Gemini AI for instant diagnostics. Used React, Vite, and ExpressJS for front-end and back-end, coupled with Arduino..
- **Instagram Clone**
  - Built a full-stack Instagram clone using TypeScript, React, and Vite, with Appwrite as the backend database. Integrated OAuth and user authentication features, allowing users to securely log in, upload content, etc.
- **C# Compiler**
  - Developed a custom C# compiler, implementing lexical analysis, tokenization, and parsing.

TECHNICAL SKILLS

- **Languages**: Assembly, C#, C++, C, SQL, HTML, Java, CSS, JavaScript, R, Python, Swift, (Learning Go)
- **Technologies**: AWS, GIT, React, ASP.NET, Google Cloud, Node.js, Vite