

# Ali Akbari

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## EDUCATION

### University of Calgary

Bachelor of Science in Computer Science

Calgary, AB

Expected Graduation Date: April 2026

- **Cumulative GPA:** 3.8/4.0
- **Awards:** Dean's List (2024), Jason Lang Scholarship (2024), Three Year Honour Society (2022)
- **Relevant Coursework:** Artificial Intelligence, Data Science, Data Analysis, Object-oriented programming, Data Structures & Algorithms, Computer Machinery, Information Security, Programming Paradigms

## PROJECT EXPERIENCE

### AI-Based Scheduling Optimization System

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- Collaborated in a team of 5 to design and implement a search-based system in Python, aimed at optimizing the scheduling of games and practices for a sports organization while meeting strict hard constraints and effectively minimizing soft constraint penalties to achieve a balanced and highly optimized schedule
- Engineered and integrated a set-based search model that utilized an or-tree and a genetic algorithm to explore optimal scheduling solutions, leveraging efficient data structures and algorithms and computational efficiency
- Developed a robust input parser to process complex constraints and assignments from structured text files, enabling accurate interpretation, efficient error handling, and ensuring consistency across multiple data inputs

### Bike Demand Analysis and Visualization

Calgary, AB

- Developed a Python-based data analysis application using Pandas and SQLite to categorize and analyze bike rentals, streamlining data handling by 40% through efficient data manipulation and categorization
- Leveraged advanced SQL techniques to construct database views for calculating key performance metrics that calculated average rentals per temperature and season, enhancing data accuracy and consistency
- Using Matplotlib created compelling bar charts to represent average rentals, enhancing insights with labeled axes, descriptive titles, improving the readability and interpretability of bike rental trends by 50%
- Demonstrated problem-solving and analytical skills by addressing data inconsistencies through data cleaning procedures, ensuring precise and actionable insights into seasonal and weather-driven bike rental patterns

### Unity Endless Runner Game

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- Utilized C# and Unity to design and develop a feature-rich 3D endless runner game, seamlessly integrating smooth movement mechanics, real-time collision detection, physics-based interactions, and highly responsive gameplay that achieved 99% accuracy in comprehensive and rigorous object interaction tests
- Engineered and implemented engaging game mechanics, including player inputs, collision dynamics, and physics-based interactions, creating a dynamic and interactive gameplay experience for engagement
- Designed and integrated progression mechanics such as difficulty scaling and increasing game speed over time, significantly enhancing replayability, user retention, engagement, and overall game challenge

## SKILLS & TOOLS

**Skills:** Python, Java, C, SQL, C#, HTML, CSS, Javascript, Assembly, Haskell, Prolog, Unit Test, UML

**Tools:** Git/Github, Linux/Unix, Tableau, Pandas, Matplotlib, Microsoft Office (Excel), Latex, Tensorflow

## EXTRA-CURRICULAR ACTIVITIES

### Competitive Programming Club

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University of Calgary

September 2023 - Present

- Collaborated in a team of 3-4 students to solve and assess coding problems and weekly exercises involving various data structures and algorithms, practicing and improving problem-solving proficiency
- Contributed to developing efficient and innovative solutions for coding problems, emphasizing performance optimization, algorithm complexity, scalability, and space utilization in Big-O notation
- Actively participated in mock competitions, working under time constraints to solve sets of challenging programming problems, fostering teamwork, time management, and problem-solving skills