

# GAGANDEEP SINGH

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## CAREER HIGHLIGHTS

- Proficiency in Instruction and Mentorship:** Provided technical mentorship and support during academic projects, fostering a collaborative and inclusive learning environment. Skilled in guiding diverse teams in using Python, SQL, and data science frameworks.
- Administered and maintained databases** – Managed **SQL databases**, optimized queries, and maintained **data integrity** for reporting and analytics.
- Developed an advanced **object detection system** using YOLOv11 for **underwater human detection**, achieving a **mean Average Precision (mAP) of 0.76**, and addressing real-world challenges in **submarine rescue missions** through innovative dataset preprocessing and transformation techniques.
- Award-Winning Collaboration:** Contributed to projects that earned **1st Place in Sustainable Development Goals Hackathon (2023)** and **2nd Place in ELA Hackathon (2023)**, focusing on scalable and impactful data-driven solutions.
- Commitment to Accessibility and Diversity:** Demonstrated experience working in multicultural settings, promoting inclusivity, and adapting to individual needs in both academic and professional environments.

## EXPERIENCE

<b>Co-op Student – Industry Project</b> ACE Red River College	<b>January 2025 – April 2025</b>
<ul style="list-style-type: none"><li><b>Led the team as Scrum Master</b> by facilitating sprint planning, stand-ups, and retrospectives, ensuring effective collaboration and timely delivery of project milestones.</li><li>Developed and maintained a <b>Django REST API</b> for database management, enabling efficient data extraction and <b>analysis</b> of user behavior, including purchase patterns, peak platform activity, and customer engagement trends to support <b>marketing</b> and <b>eCommerce</b> strategies.</li></ul>	
<b>Data Analyst Intern – Cybersecurity Insights</b> Right Turn Security	<b>September 2022 – August 2023</b> Punjab, India
<ul style="list-style-type: none"><li>Analyzed patterns in historical cybersecurity breaches using <b>Python (Pandas, Scikit-learn) &amp; SQL</b> to identify high-risk behaviors, contributing to the development of predictive security protocols.</li><li>Collaborated with the team to define <b>AI/ML standards</b> for threat detection models, such as anomaly detection and classification of malicious activities.</li></ul>	

## EDUCATION

<b>Data Science &amp; Machine Learning Diploma</b> Red River College	<b>August 2023 – April 2025</b> GPA: 4.37
<ul style="list-style-type: none"><li>Comprehensive coursework in AI and machine learning principles, with hands-on experience in Python and SQL programming.</li><li>Completed practical projects focusing on data analysis, model evaluation, and database management</li></ul>	

## AWARDS

<b>2nd position holder, ELA Hackathon</b> Hackworks	<b>November 2023</b> Winnipeg, Manitoba
<b>Top Applied Research Entry Award</b> Sustainable Development Goals (SDG)	<b>April 2023</b> Winnipeg, Manitoba

## CERTIFICATIONS

<b>CS50: Intro to Computer Science</b> Harvard Online - 2025	<b>4 Seasons of Reconciliation</b> RRC Polytech – 2025
<b>Databases: Advanced Topics in SQL</b> Stanford Online- 2024	<b>Google Data Analytics</b> Coursera – 2023
<b>MongoDB Python Developer Path</b> MongoDB – 2024	<b>Certificate in Python &amp; SQL</b> GTB Computer Education - 2023

## PROJECTS

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All the following projects are available in detail along with the data sets here: [gdsai4903 \(gdsai4903\) / Repositories · GitHub](#)

### Underwater Object Detection for Submarine Rescue Missions

This project focused on creating a deep learning-based object detection system using **YOLOv11** to identify humans underwater for submarine rescue operations. The project addressed the challenge of limited datasets for underwater scenarios by leveraging innovative preprocessing and dataset transformation techniques.

Key Features:

- Conducted rigorous **dataset research** to identify suitable underwater datasets.
  - Utilized the **PartSeg dataset** with **CycleGAN** to simulate underwater environments.
  - Created custom datasets by superimposing human images onto underwater backgrounds.
  - Used the **Drowning Detection dataset**, which provided labeled underwater human images.
- Experimented with various deep learning models, including **ResNet50** and **VGG16**, before finalizing on **YOLOv11** for superior performance.
- Achieved a **mean Average Precision (mAP) of 0.76**, indicating reliable detection for real-world applications.
- Refined dataset splits and bounding box annotations, ensuring robust training and validation.
- Technologies Used: TensorFlow, Ultralytics YOLOv11.

Link: [https://github.com/gdsai4903/COMP3704\\_final\\_project](https://github.com/gdsai4903/COMP3704_final_project)

### Machine Learning - Airplane Passenger Satisfaction (Python)

The dataset contained survey responses from airline passengers. The objective of the project was to analyze the data to determine the factors contributing to passenger satisfaction and to predict whether a passenger is satisfied based on these factors. This analysis includes data cleaning, exploratory data analysis (EDA), feature engineering, and building machine learning models.

- **Two machine learning models were evaluated to predict passenger satisfaction:**
- **Decision Tree Classifier**
- **Support Vector Machine (SVM)**

Link: <https://github.com/gdsai4903/airplane-passenger-satisfaction-prediction>

### Python – Online Student Portal

Developed a terminal-based student portal in Python with SQLite for data storage. It allows students to register, log in, manage personal details, upload documents, and pay course fees. The portal includes a status tracking system to monitor student progress and sends email notifications upon fee payment.

Key Features:

- User registration and login
- Profile and document management
- Course selection and fee payment
- Status tracking (Unknown, Candidate, Approved, Enrolled)
- Email notifications for offer letters
- Technologies Used: **Python**, **SQLite**, Email Service

Link: [GitHub - gdsai4903/online\\_student\\_portal](#)

### Power Bi - Airbnb Dashboard

This project aims to provide a comprehensive overview of Airbnb listings in Winnipeg using interactive visualizations created with **Microsoft Power BI**. The dashboard allows users to explore the data and gain insights into different trends and patterns. The Power BI dashboard includes the following features:

- **Geographical Analysis:** Visualize the distribution of Airbnb listings across different neighborhoods in Winnipeg.
- **Pricing Insights:** Analyze the pricing trends of listings based on room type, property type, and location.
- **Availability Trends:** Explore the availability of listings throughout the year.
- **Review Analysis:** Gain insights into the number of reviews and review scores for different listings.
- **Interactive Filters:** Use interactive filters to drill down into specific data points and customize the visualizations according to your needs.

Link: [GitHub - gdsai4903/airbnb-dashboard](#)