

# Varendra Saith

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**Graduate Software Developer**, with a focus on machine learning and game development, drawing on six years as a geophysicist in seismic data analysis and regulatory projects. Experienced in cross-functional collaboration and complex problem-solving.

## SKILLS

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**Programming Languages:** C#, C++, CSS, HTML, Javascript, MySQL, Python, UML

**Technologies:** Bootstrap, Keras, Machine Learning, OpenGL, TensorFlow

**Tools:** Git, Visual Paradigm, Visual Studio, VSCode

## PROJECTS

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### 3D Game and Engine Design

University of Dundee

- Designed and built a custom 3D FPS game and game engine from scratch using C++ and OpenGL, integrating open-source low-level libraries for support. Developed expertise across the entire graphics pipeline, implemented rendering optimization techniques, such as object culling, and created innovative solutions for animation, hit registration, and collision detection.

### Image Classification using Machine Learning and Neural Networks

- Developed and tested multiple supervised and unsupervised neural network models using Keras to detect pneumonia in CT scans with the MedMNIST dataset. Achieved a detection accuracy of 92% by iteratively refining network architecture based on ROC curves, confusion matrices, and accuracy/loss metrics. Improved model performance by 23% through targeted adjustments in design and hyperparameter tuning.

### Web Application Development

- Integrated a weather API and an event API into a cohesive web application, providing users with real-time event recommendations based on local weather conditions. Implemented a responsive design using Bootstrap for cross-platform compatibility and ensured accessibility compliance with WCAG AA guidelines through rigorous testing.

### Database Design and Implementation

- Worked closely in a team of four to develop a full stack database implementation for a fictional business. Database backend was created using MySQL, frontend was created using HTML and CSS and connected using PHP.

## EDUCATION

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### MSc in Computer Science

University of Dundee • GPA: Distinction

Dundee • 09/2023 – 09/2024

#### Modules:

- Software Development, Software Engineering, Web Application Development, Database Systems, Machine Learning, Human Computer Interaction, Computer Graphics.

### BSc in Petroleum Geoscience

University of the West Indies • GPA: Hons

St Augustine, Trinidad and Tobago • 09/2015 – 06/2018

#### Modules:

- Statistics, Applied Mathematics, Applied Chemistry, Engineering Technology, Geophysics, Geology, GIS.

## WORK EXPERIENCE

### Ministry of Energy and Energy Industries

Trinidad and Tobago • 01/2019 – 08/2023

#### Geophysicist

- Digitized and consolidated 80+ years of seismic data into a comprehensive repository, improving data accessibility and streamlining analytical workflows for technical teams.
- Developed assessment metrics using QGIS and Python to evaluate the feasibility of onshore seismic acquisition programs, optimizing exploration planning while considering infrastructure, environmental, and population constraints.
- Utilized advanced seismic data interpretation techniques to assess resource potential in offshore environments, informing strategic exploration, development and policy decisions.
- Developed strategic partnerships with multinational companies, driving successful regulatory and exploration projects for future business opportunities.

### Touchstone Exploration Trinidad Ltd.

Trinidad and Tobago • 09/2017 – 04/2018

#### Technical Intern (Placement) • Part-time

- Determined geological and operational controls on the implementation of an Enhanced Oil Recovery (EOR) project in shallow onshore reservoirs.
- Utilized IHS Kingdom interpretation software to generate detailed reservoir maps, providing critical insights for strategic planning and identifying key geological controls impacting project feasibility.

## VOLUNTEERING & LEADERSHIP

### Department of Computing – University of Dundee

01/2024 – 09/2024

#### MSc Student Representative

Served as the student representative for the MSc Computing 2023/2024 cohort, responsible for addressing student concerns and communicating necessary changes to teaching staff to improve future experiences.

### Society of Exploration Geophysicists (SEG) – UWI Student Chapter

02/2017 – 04/2020

#### President

- Organized and led student events and workshops to promote the study of geophysics, enhancing student engagement and learning opportunities.
- Conducted outreach programs with high schools, promoting STEM education in local schools and encouraging interest in geophysics among younger students

## AWARDS & SCHOLARSHIPS

### Best Overall Student in Conversion Masters

11/2024

University of Dundee

### Global Excellence Scholarship

09/2023

University of Dundee

### Best Overall Performance – 2016, 2017, 2018

University of the West Indies

### Top Academic Performer – 2016, 2017

University of the West Indies

### National Scholarship Winner (Natural Sciences)

10/2015

Government of the Republic of Trinidad and Tobago