

Anubhav Lamsal

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in Anubhav Lamsal 🌐 Oipipa

About Me

I'm a Computer Science Student with a Strong Foundation in Physics, Data Analysis and Applied Mathematics, skilled in Python, C++, and ROOT. Experienced in developing algorithms, simulations, and data-driven models, with hands-on projects ranging from particle physics analysis to machine learning applications managed by DevOps utilities. Seeking to leverage technical expertise in simulation, data interpretation, and algorithm development to contribute to cutting-edge research and development projects.

Basic Information

- *Date of birth:* 20/01/2005
- *Languages Spoken:* English (advanced), Nepali (advanced), Hindi (proficient), German (basic).
- *Country of Residence:* Vienna, Austria
- *Nationality:* Nepalese


Projects

Portfolio Website

[portfolio](#) 

- Developed a dynamic portfolio website using Javascript with various self-made custom elements.
- Technologies used: Javascript, HTML, CSS.

Precision Analysis of Rare Particle Decay Channels

- The analysis used the Open Data from the ATLAS Experiment at CERN. Specifically, the project made use of datasets from proton-proton collisions at a center-of-mass energy of 13 TeV, which were recorded during Run 2 of the Large Hadron Collider (LHC).
- Containerized the operation with the analysis time spanning to a mean of 05 : 00 minutes per data portion.
- Technologies used: Python, PyRoot, Tensorflow, Numpy, Dash.
- The dataset can be found [here](#) .

Smart Bicycle Navigation System

- Engineered a real-time Smart Bicycle Navigation System using NEO-6M GPS and Arduino, achieving precise location tracking with 95% accuracy.
- Integrated ESP8266 for seamless data handling and OLED display for intuitive feedback, reducing travel estimation errors by 20%.
- Designed to enhance commuter experience through accurate speed and ETA calculations.
- Technologies used: Arduino, C++, NEO-6M GPS Module, ESP8266 Wi-Fi Module, OLED display.

Plasma Wakefield Simulation

- Designed a 2D plasma wakefield acceleration simulation using a particle-in-cell (PIC) algorithm, successfully modeling interactions between high-energy particle beams and plasma that generated electric fields capable of accelerating particles to 99.9% of the speed of light.
- Visualized over 500 simulation runs with Python and Matplotlib, identifying key density perturbation patterns and improving model accuracy by 15% through iterative refinements.
- Technologies used: mpi4py, PIL, PyTables, Numba, SciPy, flask, Docker.

Maze-Solving Snake

- Developed a maze-solving AI using a randomized DFS algorithm and a specialized A* algorithm, resulting in a 30% faster pathfinding solution compared to traditional methods.
- Technologies Used: Python, numpy, Pygame.

Mood Reader

- Developed a facial expression recognition model using TensorFlow and OpenCV, trained on FER-2013 data. Achieved an 85% accuracy rate in real-time expression detection, optimizing model performance through iterative testing.
- Technologies used: Python, Tensorflow, Matplotlib, numpy, OpenCV.

Technological Stack

- **General Purpose Programming Languages:** Python, C/C++.
- **Domain Specific Programming Languages:** SQL, R, Javascript/Typescript, Shells scripting.
- **DevOps Tools:** Containerization (Docker), CI/CD Pipelines (Gitlab), Collaboration (SCRUM, Agile, Slack Integration, Incident Management), Testing (Unit/Integration tests), System Administration.
- **Databases:** MongoDB, Neo4j, MySQL.
- **Networking:** Sockets, Protocol-Agnostic Communication.
- **Web-Development:** Express, Angular, React, Django, Flask.
- **Data Analysis:** Tableau, D3.js, Numpy, Tensorflow, Plotly, Pytorch, SciPy, ROOT, Scikit-learn, Keras.
- **Distributed Computing:** PySpark, Ray, Dask, Threading, Multiprocessing.
- **Embedded Systems:** Arduino, Raspberry Pi.
- **Web Development & Server-side coding:** React, Express, Django, Flask.
- **Graphics & Game Development:** OpenGL, Pygame, Unreal Engine, Three.js

Education

IMC FH Krems,

SEPT 2023 – JUN 2026

BSc. in Computer Science

- **Key Courses:** Programming in Python, Algorithms and Data Structures, Network Technologies, Statistics for Computer Science, Database Systems, Theoretical Computer Science/Logic, Software Engineering, Human-Computer Interaction.
- **GPA:** 1.87 scaled on 5 (5 being the lowest, 1 being the highest)

Rato Bangala School, A-levels

SEPT 2021 – JUN 2023

- **A levels:** Physics (9702), Chemistry (9701), Biology (9700), Mathematics (9709)
- **AS levels:** English General Paper (8021), Further Mathematics (9231)

Self

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- **MITOpenCourseware:** Calculus (Single/Multivariable), Analysis, Linear Partial Differential Equations, Thermodynamics, Classical Mechanics (I-III), Electricity and Magnetism, Quantum Physics I, Statistical Physics.
- **Codecademy:** Data Science Professional Certification, Analyze Data with Python, Feature Engineering, Backend Applications with JavaScript.

Codecademy Certifications can be found at <https://www.codecademy.com/profiles/anubhavipa0217> 