Swayam Chaulagain

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Education

- **Trinity International College** — Kathmandu, Nepal
  GCE A Levels — *2020 - 2022*
  Courses: *Mathematics, Further-Mathematics, Physics, Chemistry, Computer, English General Paper*
- **St. Joseph's School** — Gorkha, Nepal
  SEE - Secondary Education Examination (equivalent to grade 10) — *2010 - 2020*

Skills Summary

- **Languages**: Python, JavaScript, Latex
- **Tools**: GIT, PostgreSQL, MySQL, SQLite
- **Platforms**: Linux, Web, Windows, Arduino, Raspberry
- **Soft Skills**: Leadership, Problem-Solving, Editorial Skills, Event Management, Debating, Volunteering

Experience

- **Bloom Nepal School**
  Instructor — *January 2023 - Present*
  - Delivering Mathematics and Science lessons to the students residing in the school
  - Coordinating students' participation in Extra-Curricular Activities
- **Incubate Nepal**
  Student Researcher — *August 2023 - September 2023*
  - Researched and coauthored a paper on solving scheduling issues in 8 hospitals using "Grover's Algorithm" under mentorship of CERN physicist Dr. Mukesh Ghimire
  - Researched on fundamentals of Quantum Computing, Algorithm Design, and Linear Algebra
- **Youth Research Initiative**
  Nepal Chapter Manager — *August 2023 - Present*
  - An initiative started from young researchers from 11 countries
  - Inspiring students globally towards research through advocacy and outreach
- **Math and Physics (Accessible at mathandphysics.tech)**
  Founder — *March 2023 - Present*
  - Created a platform for visualization of topics in Math and Physics
  - Working on building a community of math and physics enthusiasts
- **Program in Mathematics for Young Scientists(PROMYS India), IISC Bangalore, India**
  Research Scholar — *May 2023 - June 2023*
  - Conducted research on Artin-Hasse Exponential Function
  - Coauthored paper on Artin-Hasse Exponential Function together with 3 global teammates mentored by Nischay Reddy of UToronto
  - Completed rigorous Number theory course taught by Prof. Illa Verma from UToronto
  - Completed Advance course on Projective Geometry taught by Prof. Phil Engel from University of Bonn
  - Mentored first-year students on different mathematical topics including "Pisano Periods"
- **Mathematics Initiatives in Nepal, Kathmandu, Nepal**
  Instructor and Content Writer — *December 2020 - Present*
  - Working as a number theory instructor in different camps
  - Preparing blogs and conducting online sessions regarding topics in mathematics
- **Program in Mathematics for Young Scientists (PROMYS), Boston, MA**
  Participant from Nepal — *July 2022 - August 2022*
  - Completed rigorous Number Theory course under the guidance of Prof. Glenn Stevens and Henry Cohn
  - Conducted research with Prof. David Fried on "Pisano Periods"

- **New York Academy of Sciences, New York, NY** Remote
  Junior Member *July 2020 - June 2022*
  - Collaborated with young geniuses from all around the world to propose research solutions for different challenges like improving telemedicine, tackling eutrophication, and effective vaccine distribution
- **NORHED Rupantaran Project - Funded by Norwegian Government**
  Trainer and Research Assistant *November 2021–January 2022*
  - Introduced robotics to a syllabus of a community school in Dapcha
  - Created AI-based plant disease detection system to assist Prof. Sanjay in his agro-based research
  - Assisted PhD scholars of Kathmandu Uni in statistical analysis of N2-treatment in potato
- **Sci-Tech Guild - Trinity International College**
  Project Designer and Coder *August 2020– May 2022*
  - Worked on different projects and represented college in different exhibitions
  - Conducted national level sci-tech expo in the college
- **St. Joseph's School, Gorkha, Nepal**
  Student Editorial Head *April 2019– April 2020*
  - Leaded the school's Editorial board
  - Published school magazine Josephites on school's silver jubilee
- **STEM Foundation Nepal**
  STEM Student Ambassador *January 2021– Present*
  - Working to aware high school students about STEM opportunities available for high school students of Nepal
- **Nepal Scout**
  Member *April 2018– April 2020*
  - Volunteered in different district-level events
  - Represented Gorkha in National Scout Jamboree
- **Livingston Research**
  Freelancer *January 2022– September 2022*
  - Worked as a freelancer during my weekends doing different tasks of mathematics and statistics

Projects

- **Heart Disease Detection Machine**: A machine learning project involving the analysis of signals from the heart using Raspberry-Pi, ESP-32, and Arduino to predict potential abnormality in heart
- **Plant Disease Detection Robot**: A rover to analyze leaves and parts of a plant using Raspberry-Pi, Pi-cam, and Arduino and predict potential disease in specific plants
- **Floor Cleaning Machine**: A robot that cleans the floor, created using Arduino and dc motors
- **Laser Security System**: A house security system made using photosensors and alarms
- **Automatic Candy Vending Machine**: A project based on simple machine in physics that vends specific candy on specific coin insertion

Trainings

- **Introduction to Quantum Computing Course 2022**: Successfully completed quantum computing course by the coding school with the support of IBM (6 months)
- **MA001: College Algebra, Saylor Academy**: Successfully completed a college algebra course from Saylor Academy
- **Canopy Nepal, Beyond Borders**: Successfully completed a program on social issues
- **Intel Institute Bridge Course 2020**: Successfully completed a 3 months bridge course in advance science

Honors and Awards

- Spirit of Ramanujan Fellow 2023
- Selected for the World Science Scholars Program
- Mehta Fellowship Award 2022 - Full Sponsorship to PROMYS at Boston University
- Selected for USEF Nepal's Opportunity Funds program 2023 (16 selected students out of 800 applicants)
- International Mathematical Modelling Challenge 2023 - Honorable Mention
- American Mathematics Olympiad 2022 by SIMCC - Silver Medal
- One of the winners of National Mathematical Modelling Challenge by Mathematical Association of Nepal
- Finalist for IMO 2022 selection from Nepal(Top 11 of 2000)
- All Nepal District Mathematics Olympiad 2022 - Second Position
- Academic Excellence Award (Full Scholarship) 2020-2022, Trinity International College
- National Level Trinity Sci-Tech Expo 2022 - Second Prize Winner
- International Youth Math Challenge 2020 - Bronze Honor
- Valedictorian - St. Joseph's School (Top 1 of 80)
- Gorkha District Inter-School Quiz Competition 2020 - Second Prize Winner
- Inter-School Science Exhibition, Little Flower School, Chitwan 2019 - Winner