Hrishabh Ayush

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Education

Cornell University, Ithaca, NY **Aug 2023 - May 2027**

B.A. in Computer Science and Mathematics, TATA Scholar in the College of Arts and Sciences *GPA: 3.85*

Relevant Coursework: Data Structures, Discrete Structures, Linear Algebra, Probability & Statistics, Analysis of Algorithms, Functional Programming, Real Analysis, Networks

Campus Involvements: Engineering analyst and Trading team member at Cornell Blockchain Club, Teaching Assistant (TA) at Learning Strategies Center (LSC) for Calculus and Linear Algebra, TA at Cornell Bowers Computing and Information Science for Intro to Python

Relevant Experience

YouTube Middleware Project **Aug 2024 - Present**

Cornell Blockchain Club *Ithaca, NY*

- Selected to pitch the project at CUBE Summit, NYC among top 10 US schools in the AI and crypto innovation track.
- Designed a secure, decentralized verification layer model using blockchain technology to facilitate bespoke verification for gig-based tasks, improving transparency and trust in video collaboration processes.
- Developing an AI-powered matching system using large language models (LLMs) to compare video image renders with transcribed text, ensuring content accuracy of upto 90% and enhancing video editing workflows.

Excelerate Data Visualization Internship **Jun 2023 – Jul 2023**

Project Lead, Illinois Institute of Technolog, Globalshala *Remote*

- Analyzed data of 12 Facebook campaigns using Excel and PowerBI with metrics like reach, unique link clicks, etc., and reported to Project Head twice a week with $8-12$ page report emphasizing data-driven plans for future campaigns.
- Outlined plans to improve return on investment (ROI) by 5% for Globalshala's campaign by recommending discontinuation of two underperforming campaigns.

Research in Astrophysics at Summer Science Program **Jun 2022 – Jul 2022**

Astrophysics Researcher at the University of Colorado Boulder *Boulder, CO*

- Attended a six-week residential summer program on a full scholarship, which enhanced astrophysics research skills.
- Completed 400 hours of work in numerical analysis and simulation in Python and image processing with AstroImageJ.
- Computed the orbit of near-Earth asteroid using Celestial Mechanics and published astrometry-photometry data along with Monte Carlo simulation in Harvard Minor Planet Center.

Projects

Web3 SaaS for Social Media Optimization | *TypeScript, Web3.js, Solana, AWS* GitHub **May 2024 – Present**

- Implemented frontend components with REST APIs and developed payment processing using Solana, potentially reducing transaction processing time by 5 seconds and enhancing platform responsiveness for user interactions.
- Integrated a secure file upload system using AWS S3 presigned URLs and CloudFront, which improved content delivery speed by 40% and reduced backend infrastructure exposure, ensuring data security and optimizing user experience.

Mean Reversion Trading Strategy for Yahoo Stocks | *Pandas, Numpy, Scikit, Matplotlib* **Sep 2023 – Oct 2023**

- Implemented a comprehensive Reversion trading algorithm on Yahoo Finance, resulting in the tactical execution of over 100 trades monthly, ultimately increasing overall trading strategy effectiveness and reliability in volatile markets.
- Computed and analyzed performance metrics, generated visualization charts on returns, drawdowns, and equity curves; refined actionable insights to optimize trading strategies, improving probability and risk-adjusted returns by 15%.

N **Planet Simulation in Space** | *Numpy, Matplotlib, Astropy, Astroquery* **Jul 2022 – Aug 2022**

- Leveraged 3-body gravitational computational problem to make a 100-body simulation using Object Oriented Programming (OOP) in Python.
- Enhanced vectorized operations and reduced gravity interactions to optimize algorithmic reduction, resulting in an improvement by 50% in memory usage.

Technical Skills and Awards

Languages: Python, Java, C/C++, OCaml, Rust, Latex, Scientific Computing
Libraries & Tools: Numpy, Matplotlib, Pandas, Git, TensorFlow, PyTorch, Scikit-Learn, Keras
Fullstack: HTML, CSS, Tailwind, JavaScript, TypeScript, Node.js, React.js, AWS, Prisma, Express, PostgreSQL
Awards: USAMO Qualification, AMC 12 Distinguished Honor Roll – Top 1% in the world, 2 times AIME Qualified, NTSE Scholar, KVPY Fellowship, Online Physics Olympiad High Honors, National Astronomy Olympiad, National Math Olympiad