Mahima Agarwal

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Education

Cluster Innovation Centre, University of Delhi   Expected May 2026
Bachelor of Technology in Information Technology and Mathematical Innovations   *New Delhi*
- **IT Coursework:** Data Structures and Design, Operating Systems, Computer Systems Architecture, Database Management Systems, Design and Analysis of Algorithms
- **MI Coursework:** Single and Multivariable Calculus, Discrete Mathematics, Linear Algebra, Ordinary Differential Equations, Probability and Statistics

Open Source Experience

[Wikimedia Foundation](#)   May 2024 – Present
Outreachy Intern   *Remote*
- Currently developing a **data visualization tool** for tracking the quality evolution of Wikipedia articles maintained by different WikiProjects.
- Utilizing **Python**, **Pandas**, and **Matplotlib** to create interactive charts and graphs, providing visual insights into article quality over time.
- Collecting data using **Wikimedia APIs** and **Wiki Quarry**, ensuring comprehensive and up-to-date information for analysis.
- Integrating **language-agnostic model predictions** into the tool to provide more accurate and universal quality assessments.
- Collaborating with **WikiProject members** to gather requirements and ensure the tool meets user needs, leading to a user-centric design approach.

Research Experience

[CyPSi Laboratory](#)   Feb 2024 - April 2024
Research Intern   *Delhi*
- Developed a retinal image segmentation project using various deep learning techniques to enhance medical imaging analysis.
- Implemented **U-Net** and **Convolutional Neural Networks** (CNNs) for accurate segmentation of retinal images from fundus photography.
- Utilized **Generative Adversarial Networks (GANs)** to improve the quality and diversity of retinal image datasets.

[IoTIoT.in](#)   Oct 2023 – Jan 2024
Artificial Intelligence Intern   *Remote*
- Led the development and training of an **Indian Food Recognition Model**, leveraging machine learning techniques to improve model accuracy and inference speed.
- Implemented **scalable AI** for diverse applications, using Node.js and Express, enhancing API efficiency.

Projects

PPML using Paillier Cryptosystem | *NumPy, Python, Matplotlib, pandas, Scikit-Learn*
- Showcased the effectiveness of the **PPML** approach in balancing accurate predictions and privacy preservation.
- Integrated the **Paillier cryptosystem** and **linear regression** to derive meaningful insights without compromising individuals' privacy.
- **GitHub**: mahi01agarwal/PPML-using-Paillier-Cryptosystem

Cryptography using Discrete Mathematics | *Python*
- Developed a **text encryption model** using Python and **Discrete Mathematics** concepts.
- Applied techniques like rearranging messages, using matrices for security, and employing number tricks to create a strong encryption method.
- Utilized **modular arithmetic** to make our encryption resistant to decoding attempts.
- **GitHub**: mahi01agarwal/EncryptionDecryption

Chaos-Lock | *MATLAB, Python*

- Developed an **encryption model** in MATLAB based on the application of the Logistic map equation and its chaotic properties.
- Implemented a PRNG based on chaotic dynamics of **Logistic Map Equation**.
- **GitHub**: mahi01agarwal/ChaosLock

Skills

Programming Languages: Python, C, C++, Java, JavaScript, MATLAB, NumPy, Pandas, Scikit-Learn, HTML5, Tkinter
Development Frameworks: Node.js, MongoDB, Deep Learning, Machine Learning, OpenCV, Generative Adversarial Networks (GANs), Docker

Volunteering, Leadership, and Awards

- Selected as one of the 34 interns worldwide for the **Outreachy Internship** (May 2024 Cohort).

- Co-managed and organized **Convoke**, Delhi University's largest tech fest, at the Cluster Innovation Centre, attracting over 1000 participants.

- Volunteered at **PyDelhi**, actively contributing to the Python community in Delhi, and organized a successful PyDelhi meetup at the Cluster Innovation Centre.