

# Bharatdeep Singh

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## Education

### Guru Nanak Dev Engineering College

Bachelor of Technology in Computer Science and Engineering | **CGPA: 8.75** (Till Date)

Ludhiana, Punjab

Oct 2021 – June 2025

## Projects

### **Decoding Crosswords: Semantic Wordplay using NLP Techniques** | Flask, Python, HTML5, CSS, JavaScript, MongoDB

Feb 2024 - Present

Developed a crossword solving system using Hugging Face Transformers and DPR for efficient clue retrieval, and created an interactive frontend with HTML, CSS, and JavaScript for a seamless user experience.

### **RDF Visualizer** | EJS, CSS, JavaScript, Python

June 2024 – July 2024

Created an RDF Visualizer using EJS, CSS, and JavaScript for dynamic data visualization, with backend support from Python for handling RDF data processing.

## Conference Presentations

### **An ML – based Hybrid Model for IIOT Attack Classification in Industry 4.0 Ecosystem**

June 2023 – Dec 2023

- Developed a hybrid model utilizing XGBoost Classifier and Random Forest Classifier to effectively discern between normal traffic and cyber-attacks in the Industrial Internet of Things (IIoT) environment.
- Achieved outstanding performance with an accuracy of 99.996 percent, surpassing alternative models, through rigorous comparison and evaluation of different Machine Learning techniques.

## Publications

### **Book chapter: Cybersecurity in Metaverse:**

- Highlighted the need of robust security measures in the Metaverse, focusing on protecting personal information and digital assets amidst increasing user engagement.
- Discussed the role of technologies like blockchain and encryption in enhancing security, emphasizing secure transactions and data protection, alongside the importance of identity verification systems and monitoring tools to mitigate risks and foster a safer virtual environment.

### **Book chapter: ML for Internet of Medical Things (IoMT) Applications: Framework, Developments, and Challenges:**

- Discussed how ML and IoMT synergize to reshape healthcare delivery.
- Highlighted the role of ML algorithms within IoMT to analyze data for personalized medicine, diagnostics, monitoring, and emergency services and challenges like ethics, security, and compliance were addressed.
- Discussed collaboration, emerging applications, and ML advancements for a more efficient healthcare system.

## Certifications

### **The Complete 2024 Web Development Bootcamp**

Feb 2024 – July 2024

- Completed the Complete 2024 Web Development Bootcamp, mastering full-stack web development skills.

## Technical Skills

**Languages:** Python, C++, Cuda, HTML, CSS, Ejs, JavaScript

**Frameworks:** Express.js, JQuery

**Developer Tools:** Git, VS Code, Google Colab, Postman, Neovim.

**Libraries:** Python: PyTorch, pandas, NumPy, Matplotlib, statsmodels

Nodejs: bodyParser, pg, passport, axios

**Security Tools:** Wireshark, Snort