Kritik Agarwal

M.Tech Computer Science & Engineering | Fresher

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Professional Summary

M.Tech graduate in Computer Science and Engineering from IIT Hyderabad with good programming skills in Python and a sound understanding of software development principles, data-driven modeling, and cybersecurity fundamentals. Possesses basic knowledge of C, C++, and Java. Keen on designing efficient and reliable software systems that combine research insight with practical implementation. Quick to adapt to new technologies and committed to continuous learning and professional growth.

Education

M.Tech Computer Science & Engineering, Indian Institute of Technology Hyderabad   Jul 2023 – Jul 2025
CGPA: 7.69

B.Tech Computer Science & Engineering, CMR University, Bengaluru   Aug 2019 – Jun 2023
CGPA: 8.02

Skills

Tools & Technologies   Jupyter Notebook, MobaXterm, SSH, Git, GitHub, VS Code, Microsoft Word, Excel, LaTeX, Overleaf, Linux
Programming Languages Python, SQL (basic), HTML (basic), C/C++ (basic), Java (basic)

Work Experience

Teaching Assistant | *Dept. of Computer Science & Engineering, IIT Hyderabad*   Aug 2023 – May 2025

- Supported course instruction and evaluation for UG/PG programming and systems courses.
- Assisted in assignment design, grading, and lab coordination for eight courses, including *Introduction to Programming, Software Development Fundamentals, DBMS-I/II, Advanced Data Structures and Algorithms, Network Security, Linear Optimization, and Fraud Analytics.*

Projects / Research Work

Synthetic Electronic Health Records Generation: *A Transformer-Based Approach* — 🔗 *RAIITH Repository*   Jan 2024 – Jun 2025
Master's Thesis Project, IIT Hyderabad — Prof. Sobhan Babu Chintapalli

- Generated synthetic EHR data using CTGAN and a custom Transformer-Decoder model, unifying 150+ features from MIMIC-IV v3.1 to enhance research accessibility while preserving patient privacy.
- Evaluated generation quality using SDV Score (CTGAN: 0.85, Transformer: 0.50) and KS-test pass rates (89% vs. 60%).
- Assessed correlation retention (CTGAN: 78%, Transformer: 45%) and used privacy checks like membership inference tests ($<52\%$ success).
- Found CTGAN better at structural fidelity, while the Transformer model captured rare classes with higher entropy and diversity.

Hand Cricket Game – Client-Server Model (C++) — ⎇ GitHub   Aug 2023 – Nov 2023
Advanced Computer Networks, IIT Hyderabad — Prof. Bheemarjuna Reddy Tamma

- Developed a real-time multiplayer hand-cricket game using TCP socket programming in C++.
- Designed a client-server architecture where clients play interactively and the server maintains score state, wickets, and session control.
- Implemented error handling, multi-client synchronization, and reliable bidirectional communication using TCP/IP.

Code Crusade – Capture the Flag (CTF) Challenge — ⎇ GitHub   Mar 2024 – Apr 2024
Network Security, IIT Hyderabad — Prof. Bheemarjuna Reddy Tamma

- Participated in a competitive team-based CTF simulating real-world network attacks and system vulnerabilities.
- Automated flag retrieval from misconfigured services using custom Python scripts integrated with Nmap, DIRB, and Metasploit.
- Performed manual exploitation techniques including cryptographic cracking, buffer overflow, SQL injection, and Heartbleed attacks.

Achievements & Leadership

- **2ⁿᵈ Winner**, NPCI AI Hackathon on Synthetic AEPS Data Fraud Detection Model Building Challenge   Jun 2024 – Jul 2024
  — *NPCI, Hyderabad*
- **Award of Excellence** for best project in C Programming "Quiz Game" — *CMR University, Bengaluru*   Aug 2019 – Jan 2020
- **Lead Organizer**, *prAkshepan 2.0*, Dept. of Computer Science & Engineering, IIT Hyderabad   Jul 2024 – Aug 2024
  - Led the ideation and execution of **"prAkshepan 2.0"**, a flagship orientation initiative for M.Tech CSE freshers featuring interactive sessions, motivational talks by Ph.D. scholars and an Indian Army Major, and department-focused quizzes.
  - Facilitated discussions that improved awareness of TA/RA roles and academic workflows, receiving highly positive feedback from 85+ participants.
  - Continued the legacy of "prAkshepan 1.0", fostering an inclusive and engaging departmental culture.

Additional Information

PwBD Details: Certified Person with Benchmark Disability — Permanent Hearing Impairment (60%), uses hearing aids for communication with no restriction in academic or professional performance.
Certificate Authority: Joint Director of Health Services, Tinsukia, Assam
Issued Under: Rights of Persons with Disabilities (RPwD) Act, 2016
Issued By: Department of Empowerment of Persons with Disabilities, Government of India