



# MEHAKPREET KAUR KHOSA

## ABOUT ME

**Computer Science and Engineering graduate** from Instituto Superior Técnico, now pursuing a **Master's in Cybersecurity and Artificial Intelligence** at the same institution. I have a strong foundation in programming, mathematics, and system design, with hands-on experience in AI, optimization, and software development. My academic background is complemented by open-source contributions, leadership in student organizations, and a passion for solving real-world problems through technology. I'm eager to work in innovative environments that value collaboration, continuous learning, and impact-driven engineering. I Have worked on various projects during my previous university year, the ones I enjoyed the most are mentioned in **Projects**.

## EDUCATION

**MSc in Cybersecurity and Artificial Intelligence (2025 – Present)**  
Instituto Superior Técnico, University of Lisbon

**BSc in Computer Science and Engineering (Completed July 2025)**  
Instituto Superior Técnico, University of Lisbon

## SKILLS

**Programming Languages:** Python, C, C++, SQL, Java  
**Machine Learning & AI:** TensorFlow, Scikit-learn, PuLP (Optimization), Model Training, Data Preprocessing  
**Software Development:** Git, Linux, Debugging, System Analysis  
**Database Management:** SQL, PostgreSQL, Query Optimization  
**Mathematical Optimization:** Linear Programming, Constraint Solving, Operations Research  
**Networking & Systems:** Computer Networks, Operating Systems, System Modeling

## PROJECTS

**Minesweeper Game in Python:** Implemented the backend functionalities and logic for minesweeper.  
**Infection Spreading Model** – Designed a predictive model using probabilistic methods to simulate the spread of infections over time.  
**Linear Programming for Max Profit:** Developed an optimization model using PuLP to maximize business profit based on constraints and resources.  
**AI-Based Pipemania Solver:** Built an AI-driven solver using Python to efficiently complete Pipemania puzzle levels.  
**Process Scheduler Simulation:** Implemented scheduling algorithms (FCFS, Round Robin, etc.) in C++ to analyze CPU process efficiency.

## CONTACTS

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**GITHUB:**  
[mehakkhosa \(Mehakpreet Kaur Khosa\)](https://github.com/mehakkhosa)

**PERSONAL WEBSITE:**  
<https://mehakkhosa.github.io/>

## RELEVANT COURSES

- **Core CS & AI:** Machine Learning, Artificial Intelligence, Distributed Systems, Computer Networks, Computer Organization, Operating Systems, Databases, System Analysis and Modeling, Theory of Computation, Software Engineering, Compilers, Computer Graphics
- **Mathematics & Statistics:** Probability and Statistics, Linear Algebra, Calculus I, II, III  
Other Topics: Introduction to Economics, Physics I & II
- **Additional Topics:** Introduction to Economics, Physics I & II

## LANGUAGES

- Hindi - Mother tongue
- Punjabi - Mother tongue
- English - proficient
- Portuguese – proficient

## SOFT SKILLS

- Team collaboration
- Analytical thinking
- Communication
- Problem Solving

**System Modeling & UML Diagrams:** Designed UML diagrams and system models to improve software architecture and design clarity.

**Clinic Database Management System :** Designed and implemented a relational database to store and manage clinic. Used SQL and PostgreSQL to write complex queries for efficient data retrieval, updating, and management

**Personal portfolio website:** Showcasing my work in my field.

**Open-Source Contributor :** Matplotlib (Python Library)

Contributed to the official Matplotlib repository, implementing features and fixing issues related to visualization and annotation tools.

Demonstrated proficiency in working with a large codebase, understanding CI workflows, and collaborating with a global developer community.

## VOLUNTEERING EXPERIENCE

### Student Mentor

📍 **High School & Instituto Superior Técnico | 2020 – Present**

- Mentored younger students, including international students from Pakistan and India, to ease their transition into academic life.
- Assisted students in learning Portuguese to improve communication and integration.
- Provided academic support, helping them understand the syllabus and coursework structure.
- Guided students in career planning and adapting to university expectations.

### Coordinator – Contact Team (Equipa de Contacto), NEIIST

📍 **Instituto Superior Técnico | 2022 – Present**

- Led external communications and student outreach at IST's informatics student group.
- Organized events and supported onboarding for new students.
- Strengthening institutional partnerships through professional contact management.

### Member, LAGE (IST Student Group)

📍 **Instituto Superior Técnico | 2022 – Present**

- Contributed to student-led initiatives, networking events, and workshops.
- Assisted in organizing industry-related projects and knowledge-sharing activities.
- Actively supported fellow students in academic and professional development.