

# Daksha Mothukuri

*B.Tech in Data Science & Artificial Intelligence*

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## Profile

Motivated undergraduate in Data Science and Artificial Intelligence at IIT Madras (BS Program), with hands-on research and analytics experience. Eager to strengthen skills in data analysis, machine learning, and statistical modeling to solve real-world problems..

## Education

- Expected 2028 **BS in Data Science and Artificial Intelligence**, *Indian Institute of Technology Madras*, Zanzibar, Tanzania  
Relevant coursework: Machine Learning, Statistics, Optimization, Data Visualization
- 2022–2024 **Higher Secondary (Science)**, *Narayana Junior College*, Madhapur, Hyderabad
- 2012–2022 **Secondary School**, *Bhavan's Atmakuri Rama Rao School*, Jubilee Hills, Hyderabad

## Research & Technical Experience

- May 2025 – Jul 2025 **Research Intern, CySTAR Lab, IIT Madras**
- Implemented and analyzed Bit-Flip Attack (BFA) and Targeted Layerwise Bit-Flip (TA-LBF) techniques for CNN robustness.
  - Extended PyTorch models (ResNet18, VGG11\_BN) to support quantized and floating-point layers under fault injection.
  - Evaluated defense strategies to improve resilience to multi-bit faults.
- 2025 **Independent Research Project: Bit-Flip on Neural Networks**, *Self-directed*
- Adapted an existing BFA framework to floating-point architectures; ran experiments on CIFAR-10 and SVHN.
  - Studied bit-level perturbations, Hamming distances, and accuracy degradation under controlled flips.

## Data Analytics Projects

- 2024 **Water Loss in Urban Distribution Networks**, *Case Study – Dar es Salaam*  
Applied statistical modeling and predictive analysis to quantify and forecast losses in water distribution systems; delivered actionable recommendations.
- 2024 **Men vs Women: Life Expectancy Study**, *Collaborative Project*  
Exploratory data analysis and visualization comparing global life expectancy patterns; identified regional trends and potential biases.

## Technical Skills

- Languages Python, SQL, R (basic)
- Tools Jupyter, Google Colab, Power BI (offline), Tableau, Microsoft Excel
- Other Skills Project Planning, Research, Problem-Solving, Critical Thinking

## Achievements

2017–2019 – 3rd place the GeoMap Quiz conducted by GeoMap Society (GEMS)  
Nov 2018 – 1st Place in Mahabharata Quiz  
Aug 2019 – Participated in Mock Parliament Session  
Dec 2021 – Participated in Model United Nations (BVBPSJH)  
Jan 2022 – Received Special Mention at MUN (BVBARRS)

## ■ Interests

AI in Healthcare, Bias/Fairness Detection, Model Security, Data Storytelling