

# Soham Khisa

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## RESEARCH INTEREST

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Machine Learning, Computer Vision; Natural Language Processing; Human-Computer Interaction

## PUBLICATION AND PREPRINT

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- Avijoy Chakma, Adity Khisa, **Soham Khisa**, Jannatun Noor, Sharifa Sultana, “Re-educating Educated Ones: A Case Study on Chakma Language Revitalization in Chittagong Hill Tracts” **Conference on Human Factors in Computing Systems (CHI) 2026** [[Preprint](#)]
- Aunabil Chakma, Aditya Chakma, Masum Hasan, **Soham Khisa**, Chumui Tripura, and Rifat Shahriyar, “ChakmaNMT: Machine Translation for a Low-Resource and Endangered Language via Transliteration” [**Under review**]. [[Preprint](#)]
- **Soham Khisa**, Avijoy Chakma, “VaCDA: Variational Contrastive Alignment-based Scalable Human Activity Recognition” **International Conference on Machine Learning and Applications (ICMLA) 2025** [[Preprint](#)]

## EXPERIENCE

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- Graduate Teaching Assistant** Aug 2025 – Present  
Department of Computer Science and Electrical Engineering, UMBC  
**Course:** CMSC421 - Principles of Operating Systems  
**Responsibilities:**
  - Designing and creating assignments
  - Grading assignments
  - Holding office hours for student consultation
- Research Assistant (Remote)** Sept 2023 – May 2025  
Bowie State University, MD  
**Advisor:** [Dr. Avijoy Chakma](#)  
**Research:** Machine learning in IoT  
**Responsibilities:**
  - Literature review
  - Data processing and analysis
  - Implementing research ideas
  - Conducting experiments
  - Attending research meetings
  - Contributing to publications

## EDUCATION

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**University of Maryland, Baltimore County** Fall 2025 - Present  
Doctor of Philosophy in Computer Science

**Bangladesh University of Engineering and Technology (BUET)** 2018–2023  
Bachelor of Science in Computer Science and Engineering  
Thesis: Knowledge Graph-Based Categorization of Newspaper Articles in a Newspaper Corpus [[Preprint](#)]  
Advisor: Dr. Muhammad Masroor Ali

## SERVICES

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Emergency Reviewer, International Joint Conference on Artificial Intelligence (IJCAI) [\[PDF\]](#)

2025

## PROJECTS

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- **CNN From Scratch**

Deep Learning Project

- **Libraries:** numpy, opencv, matplotlib, tqdm, pandas, pickle, scipy
- **Architecture:** Convolutional Neural Network (LeNet)
- Developed a CNN-LeNet architecture from scratch without using any machine learning frameworks like Tensorflow or PyTorch. The model was trained and evaluated on the MNIST dataset. [\[Code\]](#)

- **Retinal Disease Classification**

Deep Learning Project

- **Frameworks & Libraries:** numpy, matplotlib, pandas, PyTorch
- **Architecture:** Restricted Boltzmann Machine, Convolutional Neural Network (AlexNet)
- The project's objective is to use retinal images to recognize and classify various retinal illnesses, including age-related macular degeneration and diabetic retinopathy. [\[Code\]](#)

- **Auc-dais**

Software Development Project

- **Frameworks & DBMS:** Spring Boot, React, Bootstrap, PostgreSQL
- This is a web application for an online auction platform system that allows users to list items for auction, and bidders can browse and select the items they wish to bid on. [\[Frontend-Code\]](#) [\[Backend-Code\]](#) [\[Video\]](#)

## ACHIEVEMENTS AND AWARDS

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- Technical **Scholarship** by Bangladesh Government (2018-2023) for **outstanding results** in Higher Secondary School.
- Chittagong Hill Tracts Development Board Scholarship in 2021
- Rangamati Hill District Council Scholarship in 2020
- Finalist - MIST Inter-university ICT Innovation Fest, 2021
- Finalist - HackNSU season 3, 2021

## SKILLS

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- **Programming Languages:** Python, Java, C, C++, C#, Assembly
- **Machine Learning Frameworks/Libraries:** PyTorch, TensorFlow, NumPy, scikit-learn, Pandas, Keras
- **Database Management:** SQL (Oracle, Postgres, MySQL, SQLite)
- **Software Development:** Django, Spring Boot, React, JavaFX, Bootstrap
- **Version Control:** Git, GitHub
- **Operating Systems:** Linux, Windows, Mac
- **Scripting:**  $\text{\LaTeX}$ , HTML, Shell Script(Linux)

## CERTIFICATION

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- **Workshop on AI in Public Health** at [CHRF](#), organized by [Dr. Yogesh Hooda](#) and [Dr. Senjuti Saha](#), supported by the [Gates Foundation](#). [\[Certificate\]](#)

June 1, 2024

- **Deep Learning Specialization** by [DeepLearning.AI](#) on [Coursera](#) [[Certificate](#)]
- **Machine Learning Foundations: A Case Study Approach** by the University of Washington on [Coursera](#) [[Certificate](#)]

Oct 30, 2020

May 29, 2020

## REFERENCE

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- [Dr. Avijoy Chakma](#) (Research Advisor)
- [Dr. Muhammad Masroor Ali](#) (Undergrad Thesis Advisor)