




# Amartya Dutta

-  Google Scholar
-  Github
-  Personal Website

 amartya@vt.edu  
 +15405585003  
 LinkedIn

## RESEARCH INTERESTS

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Deep Learning, Computer Vision, Natural Language Processing, Large Language Models, Vision Language Models

## EDUCATION

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- Virginia Tech.** Blacksburg, Virginia  
• *Master of Science in Computer Science; Grade: 3.9/4* Aug 2022 - Present  
*Courses: Data Analytics, Advanced Machine Learning, Computational Systems Biology, Optimization in Machine Learning, Information Visualization, Advanced Topics in Intelligent Systems*
- Indian Institute of Information Technology (IIIT) Guwahati** Guwahati, Assam  
• *Bachelor of Technology in Computer Science and Engineering; Grade: 8.6/10* July 2017 - May 2021  
*Courses: Artificial Intelligence, Machine Learning, Deep Learning, Data Analytics, Image and Video Processing, HCI*

## SKILLS SUMMARY

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- **Languages:** Python, SQL,  $\text{\LaTeX}$
- **Frameworks/Tools:** Scikit, TensorFlow, PyTorch, Keras, OpenCV, GIT, MySQL, Unity3D, Numpy, Pandas

## WORK EXPERIENCE

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- **Knowledge Guided Machine Learning Lab, Virginia Tech.**  
*Graduate Research Assistant* Dec 2023 - Aug 2024
  - **Mentor:** Dr. Anuj Karpatne
  - **Projects:** Evaluating Vision Language Models on Zero Shot Scene Graph Relation Prediction
  - **Highlight:** This project is underway and will form the core of my MS thesis, where I am working on zero-shot scene graph generation using pre-trained Vision Language Models (VLMs).
- **Knowledge Guided Machine Learning Lab, Virginia Tech.**  
*Graduate Research Assistant* May 2023 - Aug 2023
  - **Mentor:** Dr. Anuj Karpatne
  - **Projects:** Weakly Supervised Semantic Segmentation
  - **Highlight:** Worked on the paper "Beyond Discriminative Regions: Saliency Maps as Alternatives to CAMs for Weakly Supervised Semantic Segmentation", which was submitted to ICCV 2023 and AAAI 2023. This research focused on improving the performance of weakly supervised segmentation models using alternative saliency map techniques.

## INTERNSHIPS

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- **Amplify**  
*Augmented Reality Developer* Dec 2019 - March 2020
  - **Task:** Developed interactive Augmented Reality portals using ARCore, including features for secure interactions with virtual objects.
- **User Centric Computing & Networking Lab, IIT Guwahati**  
*Virtual Reality Developer* May 2019 - July 2019
  - **Mentor:** Dr. Samit Bhattacharya
  - **Task:** Developed an interactive Virtual Reality tour using photogrammetry and photospheres, focusing on UX in VR environments.

## TEACHING EXPERIENCE

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- **Dept. of Computer Science, Virginia Tech.**  
*Graduate Teaching Assistant*
  - **CS5805:** Machine Learning (Dec 2023 - May 2024)
  - **CS5644:** Machine Learning with Big Data (Aug 2023 - Dec 2023)
  - **CS2064:** Intermediate Python (Dec 2022 - May 2023)

## PROJECTS

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- **Evaluating Model Reasoning and Hallucinations in Medical LLMs:** This study addresses hallucinations in medical LLMs. It evaluates reasoning capabilities using the Med-HALT benchmark and dataset. [GitHub Repository](#)
- **Visualizing the Spotify Soundscape:** Developed an interactive dashboard to explore the top 50 tracks of 2023 on Spotify. [GitHub Repository](#)
- **Endoscopy: A Deep Learning Approach (BTech Thesis):** Enhanced endoscopic procedures using Tiny Darknet and U-Net models. [View Thesis](#)
- **Predicting Popularity of Flickr Images over 30 Days (ICIP 2021):** Predicting image popularity using machine learning. [GitHub Repository](#)

## PUBLICATIONS

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- **Dutta, A.**, Nath, K. (2022). Learning via Long Short-Term Memory (LSTM) Network for Predicting Strains in Railway Bridge Members Under Train Induced Vibration. In: Kumar, A., Senatore, S., Gunjan, V.K. (eds) ICDSMLA 2020. Springer, Singapore. **Paper Link**
- **Dutta, A.**, Bhattacharjee, R.K., Barbhuiya, F.A. (2021). Efficient Detection of Lesions During Endoscopy. ICPR 2021. Springer, Cham. **Paper Link**

## PREPRINTS

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- Maruf, M., Daw, A., **Dutta, A.**, Bu, J., Karpatne, A., 2023. Beyond Discriminative Regions: Saliency Maps as Alternatives to CAMs for Weakly Supervised Semantic Segmentation. arXiv preprint. **Paper Link**
- **Dutta, A.** and Barbhuiya, F.A., 2021. Predicting Popularity of Images Over 30 Days. arXiv preprint. **Paper Link**

## ACADEMIC SERVICE

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- Reviewer: AAAI 2024

## ACHIEVEMENTS

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- 3rd Position in IEEE ICIP Image Popularity Prediction Challenge (October 2020). **View Results**
- Unity India Online Round Finalist - 2019
- Winners of Alcheringa's Acoustic Band Competition - 2019
- North-East India Hackathon, Semifinalist - 2019