

# Amartya Dutta

Google Scholar  
Github

Email: amartya@vt.edu

Mobile: +15405585003

LinkedIn

## RESEARCH INTERESTS

Deep Learning, Computer Vision, Scene Graphs, Large Language Models and Large Multimodal Models, Augmented and Virtual Reality

## EDUCATION

- **Virginia Tech.** Blacksburg, Virginia  
*Master of Science in Computer Science; Grade: 3.9/4* Aug 2022 - Present
- **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

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

## WORK EXPERIENCE

- **Knowledge Guided Machine Learning Lab, Virginia Tech.**  
*Graduate Research Assistant* Dec 2023 - Aug 2024
  - **Mentor:** Dr. Anuj Karpatne
  - **Projects:** Leveraging Large Multimodal Models for Scene Graph Generation
- Graduate Research Assistant* May 2023 - Aug 2023
  - **Mentor:** Dr. Anuj Karpatne
  - **Projects:** Weakly Supervised Semantic Segmentation

## INTERNSHIPS

- **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, with a focus on UX in VR environments.

## TEACHING EXPERIENCE

- **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

- **Evaluating Model Reasoning and Hallucinations in Medical LLMs:** This study addresses the challenges of hallucinations in medical large language models (LLMs). It assesses the reasoning capabilities of prominent open-source medical LLMs using a novel benchmark and dataset, Med-HALT (Medical Domain Hallucination Test). The Med-HALT dataset is specifically designed to evaluate and understand hallucinations within the medical domain. [GitHub Repository](#)
- **Visualizing the Spotify Soundscape:** Developed an interactive dashboard to explore the top 50 tracks of 2023 on Spotify. The project leverages D3.js and Plotly.js for data visualization and HTML for webpage design, enabling users to interactively explore and analyze the most popular songs on Spotify. [GitHub Repository](#)
- **Endoscopy: A Deep Learning Approach (BTech Thesis):** This project focuses on enhancing endoscopic procedures, crucial for diagnosing gastrointestinal (GI) tract diseases. It implements the Tiny Darknet model for efficient classification tasks due to its compact size and speed. Additionally, the U-Net model is utilized for polyp segmentation. Experimental studies include the application of Semi-Supervised GANs (SGAN) to further refine the model's performance. [View Thesis](#)
- **Predicting Popularity of Flickr Images over 30 Days ( ICIP 2021 ) :** Predicting the popularity an image would gain 30 days from the time the image is posted on Flickr. [GitHub Repository](#)

## PUBLICATIONS

---

- **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. Lecture Notes in Electrical Engineering, vol 783. Springer, Singapore **Paper Link**
- **Dutta, A.**, Bhattacharjee, R.K., Barbhuiya, F.A. (2021). Efficient Detection of Lesions During Endoscopy. In: , et al. Pattern Recognition. ICPR International Workshops and Challenges. ICPR 2021. Lecture Notes in Computer Science(), vol 12668. Springer, Cham. **Paper Link**

## PREPRINTS

---

- Maruf, M., Daw, A., **Dutta, A.**, Bu, J. and Karpatne, A., 2023. Beyond Discriminative Regions: Saliency Maps as Alternatives to CAMs for Weakly Supervised Semantic Segmentation. arXiv preprint arXiv:2308.11052. **Paper Link**
- **Dutta, A.** and Barbhuiya, F.A., 2021. Predicting Popularity of Images Over 30 Days. arXiv preprint **Paper Link**

## ACADEMIC SERVICE

---

- Reviewer: AAAI 2024

## ACHIEVEMENTS

---

- 3rd Position in IEEE International Conference on Image Processing (ICIP) Image Popularity Prediction Challenge - October, 2020 **View Results**
- Unity India Online Round Finalist - 2019
- Winners of Alcheringa's (North-East India's largest cultural festival) Acoustic Band Competition - 2019
- North-East India Hackathon, Semifinalist (Pitched for an AR cum VR tourist guidance app) - 2019