Mautushi Das

Redmond,WA. | +1-516-728-0513 | mautushid@vt.edu | orcid | google scholar | Linkedin | GitHub

PROFILE SUMMARY

Research-focused data scientist with 3+ years of academic and applied research experience in multimodal sensing, computer vision, and machine learning. Proven expertise in designing reproducible experiments, building data pipelines, and deploying deep learning models for real-world impact—particularly in agricultural and human-centered applications. Experienced in collaborating on interdisciplinary research teams, leading data-driven investigations, and publishing peer-reviewed scientific work. Passionate about solving complex research problems through rigorous methodology, ethical experimentation, and scalable, interpretable AI solutions.

- **Research Experience:** Over two years of research experience as a Graduate Research Assistant in NICHE LAB, Data Science, and Computer Vision. Practical experience with applying Machine Learning and Deep Learning model for various data types such as **numerical data, image/video, audio signal etc**.
- **Data Science Expertise:** Proficient in **Python, R, SQL**, and various data science tools, including TensorFlow, PyTorch, and scikit-learn, with practical experience in deep learning, data preprocessing, and model development.
- **Technical Proficiency:** Skilled in creating data pipelines, managing data quality, and utilizing data visualization tools such as **Tableau, Power BI, and Excel** to present research findings effectively.
- **Collaboration & Communication:** Demonstrated ability to work collaboratively with cross-functional teams, communicate complex data insights, and contribute to academic publications and presentations. Experienced in both **team collaboration** and **independent work**. Currently authoring two **journal papers** as the lead writer and have previously published **two research posters**, demonstrating proficiency in individual and collaborative research.
- **Commitment to Research:** Passionate about advancing research in data science, with multiple publications and presentations that highlight my contributions to the field. Proficient in creating efficient data pipelines and **technical project management**, **version control** using **GitHub** and **project documentation**.
- **Certifications:** Earned **multiple certifications** in Data Science, Data Analytics, and Machine Learning from various online courses (***click here***) to check the list.

EDUCATION

Virginia Tech   Blacksburg, Virginia
Masters in Animal and Poultry Sciences.   *August 2022- June 2024*
- Advisor: Dr. James Chen
- CGPA: 3.90/4.00

Virginia Tech   Blacksburg, Virginia
Graduate Certificate in Data Analytics.   *August 2022- December 2023*
- Awarded the certificate for completing required graduate coursework and maintaining a CGPA above 3.00.
- Courses Taken: **Data Analytics**, **Advanced Machine Learning**, **Computer Vision**, **Introduction to Artificial Intelligence**, **Computation for Data Sciences**.

Virginia Tech   Blacksburg, Virginia
Graduate Certificate in Future Professoriate.   *Spring 2023- Spring 2024*
- Awarded the certificate for completing required graduate courseworks
- Courses Taken: **Preparing Future Professoriate**, **Diversity for Global Society**, **Contemporary Pedagogy**, **GTA Training Workshop**.

Maulana Abul Kalam Azad University of Technology (MAKUT)   West Bengal, India
Bachelor of Technology in Computer Science and Engineering   *August 2014 – June 2018*
- CGPA: 3.46/4.00

Research and Work Experience

Graduate Engineer   Kirkland, WA
Meta via Qualitest   *February 2025 – Present*

- **Human Motion Data Collection:** Collected and analyzed human motion data using a variety of sensors including IMUs, headsets, and glasses to support machine learning and HCI research.
- **Multimodal Data Processing:** Processed and synchronized multimodal sensor data (accelerometer, gyroscope, IMU) ensuring accurate alignment for downstream ML and behavioral analysis.
- **Prototype Handling and Tool Feedback:** Worked with prototype assets, identified workflow issues, and provided actionable suggestions to improve collection tools and protocols.
- **Data Privacy and Ethical Compliance:** Ensured compliance with privacy, confidentiality, and ethical guidelines during human subject data handling; obtained informed consent under IRB standards.
- **Cross-functional Collaboration:** Collaborated with ML and research teams to refine data workflows and resolve tool/data discrepancies using JIRA and Confluence.
- **Documentation and QA:** Maintained detailed documentation of collection procedures and performed QA to ensure data integrity, enabling reproducibility in analysis.

Graduate Research Assistant   Blacksburg, VA
Lab of Animal Data Science   *August 2022 - June 2024*

- Conducted detailed data analysis and reporting for complex datasets, including creating dashboards and visualizations using Excel, Python and Tableau.
- Developed and implemented data collection pipelines, ensuring high data quality and consistency across projects.
- Collect image and video data, custom image dataset preparation for model training and fine-tuning, including annotation, data formatting, analysing data etc.
- Evaluated different deep learning models for instance segmentation, object detection. Such as different varients YOLO, DETR, CNN, ResNET etc
- Developed an SSH and VNC based data collection pipeline with raspberry-pi and OAKD depth camera.
- Collaborated with team members to identify key insights and trends in data, supporting informed decision-making processes.
- **Technologies and Tools Used:** Python, OpenCV, Tableau, Excel, Deep Learning Models for object detection, VS Code, Notion, Github, Jupiter Notebook, Data science and linear algebra libraries such as NumPy, Scipy, scikit-learn, MS Office, pandas etc.

Graduate Teaching Assistant   Blacksburg, VA
Agriculture Data Science   *Jan 2023 - May 2023*

- Developed and validated homework solutions in collaboration with the instructor, ensuring accuracy before distribution.
- Guided students in establishing technical workflows, including GitHub setup, project management, basic Git commands in the terminal, and bash scripting.
- Conducted weekly lab sessions, maintained regular office hours, and contributed to grading and proctoring duties..

Volunteer Work (Data collection from Human Subject)   Blacksburg, VA
Virginia Tech   *September 2022 – Dec 2022*

I volunteered in the Assistive Robotics Lab where I assisted in data collection from human subjects using IMU sensors. This experience equipped me with practical skills in setting up and managing experiments, as well as handling data from human subjects and processing. My responsibilities included:

- Assisting doctoral students in designing experiment protocols for human activity-based experiments, setting up sensors on the human body, sensor calibration, data collection (Xsens IMU) and processing ensuring high data quality.
- Organizing and documenting data for subsequent analysis and machine learning applications.
  visual summary

Data Analyst   Naogaon, Bangladesh
Angaraj Jewelers   *September 2018 – November 2020*

- Analyzed, classified price point data and sales trends. Developed regression models to inform decisions on new product.
- Conducted competitive market research on a regular basis. Also, researched product offerings and to aid with the initiation of new product development to ensure the product strategy remains robust and competitive.
- Aided Manager in fielding branch inquiries and offering appropriate suggestions in a timely manner.
- **Technologies and Tools Used**: SQL, Microsoft Excel, Python (scikit learn, numpy, pandas, matplotlib), Google apps,Ad Hoc Reports,MS office, PPT.

Software Development Intern(Android App)   Kolkata, India
Hewlett Packard Enterprise (HPE) | *Certificate*   *May. 2017 – July 2017*

- Designed, developed and tested an Android Application "Android Music Player App".
- The proposed system was designed to produce a smooth user experience. User can easily change the songs with gestures while listen to songs.

TECHNICAL AND COMPUTER SKILLS

Programming Languages: Python, R, SQL, Matlab
Statistics and Data: Python, R, Excel, Tableau, Jupyter Notebook
Libraries and Framework: OpenCV, NumPy, Pandas, Matplotlib, Scikit-learn, Pytorch, Tensorflow (Kerals), etc.
Version control and Operating Systems: Git, Github, Windows, Mac
Documentation, Presentation and Productivity: LaTeX, R Markdown etc.

PUBLICATIONS

- **Mautushi Das**,Gonzalo Ferreira, and Chun-Peng James Chen,'Evaluating model generalization for cow detection in free-stall barn settings: Insights from the COw LOcalization (COLO) dataset'*Download*

- **Mautushi Das**,Fang-Ling Chloe Liu, Charly Hartle, Chin-Cheng Scotty Yang, and C. P. James Chen,"Ant Detective: An Automated Approach for Counting Ants in Densely Populated Images and Gaining Insight into Ant Foraging Behavior " *Pre-Print*

- **Mautushi Das**, Gonzalo Ferreira, and Chun-Peng James Chen, "Preventing Mastitis and Saving Water Usage with Artificial Intelligence: A Computer Vision Solution to Improve Cow Health and Farm Sustainability" CAIA Exhibition 2023, poster. *download*

- P. Paul, N.Dutta, B. Biswas, **M.Das**, S.Biswas, Z. Khalid, H.N. Saha. "An Internet of Things (IoT) Based System to Analyze Real-time Collapsing Probability of Structures." 2018, IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON) *download*

- P. Paul, **M.Das**, N.Dutta, B. Biswas, S.Biswas, Z. Khalid, H.N. Saha. "Using Browser Cookies for Event Monitoring and User Verification of an Account." 2018, IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON) *download*