**- Samrajya Thapa** –

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**SKILLS:**

**• Languages:** Python, R, C/C++, Java • **ML Frameworks:** Pytorch, Keras, Tensorflow, Hugging Face, SciKit-Learn • **Data Visualization:** Pandas, Seaborn, Plotly, R • **Computer Vision**: OpenCV, FFMPEG • **LLM Fine-Tuning** • **Big Data**: Spark, Hadoop • **ETL**: Amazon Glue, Azure • **Cloud**: AWS, Docker, GCP • **DBMS**: SQL, Postgre, MongoDB • **Unit Testing** • **Embedded Systems**: NVIDIA Jetson • **DevOps**: Git, CI/CD • **Web Development**: Django, Flask, React, Node, Go • **Agile** • **Scrum**

**WORK EXPERIENCE**

**Musco Sports Lighting**, Urbandale, IA • R&D Intern AI/ML 02/2023 – 12/2023

* Applied problem solving, statistical analysis, and research in Computer Vision applications in Sport
* Contributed independently and collaboratively in development of Automated Umpire Assist Product
* Calibrated stereoscopic setup of high FPS cameras to triangulate 3D objects
* Utilized OpenCV and FFMPEG for high fps streaming and manipulating intrinsic camera settings
* Executed Unit Testing and Integration Testing of features for CI/CD Pipeline
* Integrated application endpoints with AWS services (DynamoDB, S3, and Lambda)
* Developed a sports classification model for various sports under Musco Lighting
* Created a camera-switching framework for baseball and softball in Pytorch with Yolo Model
* Implemented heuristical algorithm with Kalman Tracker to track/identify movement of players
* Deployed the product in NVIDIA Jetsons (Xavier, Orin)
* Participated in code review and proper CI/CD guidelines before merging code in Git

**Iowa State University**, Ames, IA • Graduate Research Assistant 05/2022 - Present

* Conducted research in Multimodality and Explainable AI in Medical Imaging
* Developed novel approach in Contrastive Multimodal Pre-training in Medical Domain
* Implemented SOTA Vision Transformer (ViT) and LLM (Bert, Llama) for Xray, Ecg, and Diagnostic Reports
* Fine-tuned LLM in multimodal setting for Diagnostic Report
* Demonstrated a notable 20 - 25% increase in performance for multimodal tasks, compared to standard ImageNet pretrained weights, and 5-10% improvement in AUROC to baselines

**Iowa State University**, Ames, IA • Graduate Teaching Assistant 08/2021 – 12/2023

* Assisted in teaching Algorithms and Design course, covering sorting, searching, graph algorithms, dynamic programming, divide and conquer, and greedy methods.
* Supervised and guided students in programming assignments

**EDUCATION**

**Bachelor’s in Computer Science (BS)** • The University of Mississippi – Ole Miss, Oxford MS  
Graduation Year (2017 - 2021) GPA: 3.79

**Master’s in Computer Science (MS)** • Iowa State University, Ames IA  
Graduation Year (2021 - 2024) GPA: 3.7