Natnael Taye Daba

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Skills

- **Programming Languages**: Python, C/C++/C#, MATLAB, JavaScript
- **Programming Frameworks**: PyTorch, OpenCV, Huggingface, Pandas, NumPy, Matplotlib, Seaborn
- **Technologies**: Deep Learning, Computer Vision, Weights and Biases, Docker, Git, GCP, Linux
- **Tools**: Unity, Oculus Go/Quest

Experience

- **Integrated Sensing and Processing Lab** — Tucson, AZ
  Graduate Research Assistant — *Aug 2022 – Present*
  - **Computational Imaging**: Working on computer vision algorithms for cross-view video geo-localization in GPS-denied environments. Also working on diffusion-based inverse problems for infrared image colorization to enable multimodal image and video geolocalization.
  - **Deep Learning**: Implemented multimodal diffusion models and attention-based view information aggregation architecture for novel view synthesis.
- **Center for Research in Computer Vision** — Orlando, FL
  Graduate Research Assistant — *Jan 2021 – Aug 2022*
  - **Small Target Detection**: Developed models for small target classification in satellite imagery using convolutional neural networks.
- **mDoc Healthcare** — Kigali, Rwanda
  Machine Learning Engineer — *Jun 2020 – Dec 2020*
  - **Conversational chatbot**: Designed a chatbot using Google Dialogflow to reduce response times for doctors and nurses by more than 20%.
  - **NLP Models**: Trained and optimized knowledge bases for FAQ systems using fine-tuning and data augmentation.

Projects

- **Multimodal Image/Video Localization**: Developed algorithms integrating infrared, point cloud, and RGB data for improved localization accuracy.
- **3D Pong VR Game**: Designed and deployed a VR game for Oculus Quest VR headset using Unity for immersive interactions.
- **Reinforcement Learning Strategies**: Implemented reinforcement learning techniques for team battle simulations.

Publications

- **Adapting Classifiers to Changing Class Priors**: N. Daba, B. McIntosh, A. Mahalanobis; ECML PKDD Workshop 2023. Runner-up Best Paper.
- **CrossModalityDiffusion: Multi-Modal Novel View Synthesis with Unified Intermediate Representation**: A. Berian, D. Brignac, J. Wu, N. Daba, A. Mahalanobis; WACV - GeoCV Workshop 2024.

Education

- **University of Arizona** — Tucson, AZ
  Ph.D. in Electrical and Computer Engineering; GPA: 4.0/4.0 — *Aug 2022 – May 2027*
- **Carnegie Mellon University** — Pittsburgh, PA
  M.S. in Electrical and Computer Engineering; GPA: 3.88/4.0 — *Aug 2018 – Dec 2019*
- **Addis Ababa University** — Addis Ababa, Ethiopia
  B.Sc. in Electrical and Computer Engineering; GPA: 3.83/4.0 — *Oct 2012 – Jul 2017*