

Gunjan Aggarwal

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[Google Scholar](#)

EDUCATION

- **Georgia Institute of Technology** Atlanta, GA
Master of Science in Computer Science (Specialization: Machine Learning) | GPA - 4.0 Aug. 2021 - May, 2023
- **Birla Institute of Technology and Science Pilani** Pilani, India
Bachelor of Engineering (Hons.) in Computer Science Aug. 2014 – July. 2018

RESEARCH INTERESTS

Computer Vision, Self-Supervised Learning, Multi-Modal AI, Embodied AI, Natural Language Processing

PUBLICATIONS

- **ZSON: Zero-Shot Object-Goal Navigation using Multimodal Goal Embeddings** [Paper link](#)
NeurIPS 2022
 - Proposed a zero-shot approach for object-goal navigation by encoding goal images into a multi-modal, semantic embedding space via CLIP.
 - Achieved 4-20% improvement for object-goal navigation task over state-of-the-art methods.
 - Showed the importance of using a self-supervised pre-trained visual encoder for zero-shot transfer.
- **Dance2Music: Automatic Dance-driven Music Generation** [Paper link](#)
NeurIPS 2021 Workshop: Machine Learning for Creativity and Design
 - Worked on generating music conditioned on dance in real-time.
 - Used beam search to generate a paired dance and music dataset which was then used to train a deep neural network. Dance frames were represented by poses obtained from OpenPose.
- **On the Benefits of Models with Perceptually-Aligned Gradients** [Paper link](#)
ICLR 2020 Workshop: Towards Trustworthy ML
 - Showed the benefit of using low-perturbation bound adversarially trained models for different tasks, such as weakly supervised object localization and zero-shot transfer learning.
- **Neuro-Symbolic Generative Art: A Preliminary Study** [Paper link](#)
ICCC 2020: Short Paper
 - Proposed a new genre of art: neuro-symbolic generative art.
 - A progressive GAN was trained over a symbolically generated dataset.
- **cFineGAN: Unsupervised multi-conditional fine-grained image generation** [Paper link](#)
NeurIPS 2019 Workshop: Machine Learning for Creativity and Design
 - Developed an unsupervised multi-conditional image generation pipeline on top of a hierarchical GAN. The work was showcased live on stage at Adobe MAX (Sneak Peek), 2019 in front of an audience of 15,000 people. [Video link](#)

EXPERIENCE

- **Adobe** San Jose, CA
ML Intern: Project under patent submission May 2022 – Aug 2022
 - Researched on adapting image based models to video domain via the use case of makeup transfer for video editing.
 - Integrated blind video temporal consistency to create paired video data using videos from image based models.
 - Incorporated Face Mesh to improve lip segmentation and trained Pix2Pix generative model and ConvGRU based recurrent model to achieve superior qualitative and quantitative performance (2.5% increase in color consistency).
- **Georgia Institute of Technology** Atlanta, GA
Graduate Researcher under [Prof. Devi Parikh](#) and [Prof. Dhruv Batra](#) Aug 2021 – Present
 - Working on problems related to multi-modal AI.
- **Adobe** Noida, India
Software Development Engineer-2 July 2018 – Aug 2021
 - Worked on Adobe Conversational AI from scratch, starting with Microsoft LUIS and Rasa, and moving on to designing in-house multi-lingual intent classifier by utilizing embedding from the Universal Sentence Encoder model. The chatbot is serving ~20,000 customers daily.
 - Applied HDBSCAN clustering on top of embeddings of low-confidence user utterances to identify new user intents.

PROJECTS

- **Unsupervised Domain Adaptation:** Used FixMatch consistency to achieve 4% improvement over the state-of-the-art approach for Unsupervised Domain Adaptation from SVHN to MNIST.

PROGRAMMING SKILLS

- **Languages:** Python, C++, Java
- **Libraries:** Pytorch, TensorFlow, OpenCV