

# Gunjan Aggarwal

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## 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, Generative Models

## PUBLICATIONS

- ZSON: Zero-Shot Object-Goal Navigation using Multimodal Goal Embeddings (Paper)** 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) | (Project)** NeurIPS 2021 Workshop
  - 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)** ICLR 2020 Workshop
  - 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) | (Project)** ICCV 2020
  - 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)** NeurIPS 2019 Workshop
  - 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: Work 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 video temporal consistency to create paired video data using video outputs 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, designing in-house multilingual 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.

## ACHIEVEMENTS

- Code Quality Jam Champion Award 2022, Adobe:** Won this award across 20 intern teams, evaluated on the basis of our research, engineering and coding skills.
- Special Contribution Award 2020, Adobe:** Awarded this for my contribution to Adobe Conversational AI, and to the research value of Adobe by publishing 3 works in Computer Vision. Awarded to only 4 employees yearly.
- Code Jam to I/O for Women 2018, Google:** Global Rank 27, got invited to attend Google I/O 2018.

## PROGRAMMING SKILLS

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