

# 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

Arjun Majumdar\*, [Gunjan Aggarwal\\*](#), Bhavika Devnani, Judy Hoffman, Dhruv Batra

- 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

[Gunjan Aggarwal](#), [Devi Parikh](#)

- Used beam search to generate a paired dance and music dataset which was then used to train a deep neural network.

### On the Benefits of Models with Perceptually-Aligned Gradients (Paper)

ICLR 2020 Workshop

[Gunjan Aggarwal\\*](#), [Abhishek Sinha\\*](#), [Nupur Kumari\\*](#), [Mayank Singh\\*](#)

- Showed the benefit of adversarially trained models for weakly supervised localization and zero-shot transfer learning.

### Neuro-Symbolic Generative Art: A Preliminary Study (Paper) | (Project)

ICCC 2020

[Gunjan Aggarwal](#), [Devi Parikh](#)

- Trained Progressive Generative Adversarial Network (GAN) over a symbolically generated dataset.

### cFineGAN: Unsupervised multi-conditional fine-grained image generation (Paper)

NeurIPS 2019 Workshop

[Gunjan Aggarwal\\*](#), [Abhishek Sinha\\*](#)

- Developed an unsupervised multi-conditional image generation pipeline on top of a hierarchical GAN. The work was showcased live on stage at Adobe MAX Sneaks, 2019 in front of an audience of 15,000 people. [Video link](#)

## EXPERIENCE

### 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

San Jose, CA

ML Intern: Work under patent submission

May 2022 – Aug 2022

- Researched on adapting image based models to video domain for makeup transfer using unlabeled video data.
- 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).

### Adobe

Noida, India

Machine Learning 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 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