

Gunjan Aggarwal

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EDUCATION

Georgia Institute of Technology

Master of Science in Computer Science (Specialization: Machine Learning) | GPA - 4.0

Atlanta, GA

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

Graduate Researcher under [Prof. Devi Parikh](#) and [Prof. Dhruv Batra](#)

Atlanta, GA

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

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 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