

# Gunjan Aggarwal

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[Google Scholar](#)

## EDUCATION

- **Georgia Institute of Technology** Atlanta, GA  
*M.S in Computer Science (Specialization: Machine Learning) | GPA - 4.0* Aug. 2021 – Present (Expected - 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, Deep Learning, Natural Language Processing

## EXPERIENCE

- **Adobe** San Jose, CA  
*ML Intern* June 2022 – Present
  - Working on real-time generation of temporally consistent videos for face makeup transfer.
- **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
  - **Chatbot:** 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 Google's Universal Sentence Encoder (USE) model. The chatbot is serving ~20,000 customers daily.
  - **User Intent Identification:** Applied HDBSCAN clustering algorithm on top of embeddings of low-confidence user utterances to identify new intents.
  - **Zero-shot Intent Classification:** Worked on a PoC for designing a zero-shot pipeline for user intent identification using pre-trained BART model which alleviated the need to re-train model over each new intent.

## PUBLICATIONS

- **ZSON: Zero-Shot Object-Goal Navigation using Multimodal Goal Embeddings** [Paper link](#)  
*Under Review*
  - Proposed a zero-shot approach for object-goal navigation by encoding goal images into a multi-modal, semantic embedding space.
  - Achieved 4-20% improvement for object-goal navigation task over state-of-the-art methods.
- **Dance2Music: Automatic Dance-driven Music Generation** [Paper link](#)  
*NeurIPS 2021 Workshop: Machine Learning for Creativity and Design*
  - Proposed an approach to generate 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.
- **Neuro-Symbolic Generative Art: A Preliminary Study** [Paper link](#)  
*ICCC Short Paper 2020*
  - Proposed a new genre of art: neuro-symbolic generative art (NSG). A progressive GAN was trained over a symbolically generated dataset.
- **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.
- **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. The work was showcased live on stage at Adobe MAX (Sneak Peek), 2019. [Video link](#)

## PROJECT

- **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, Numpy