Gunjan Aggarwal

LinkedIn | Website

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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