Gunjan Aggarwal

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Education

- **Georgia Institute of Technology** — Atlanta, GA
  Master of Science in Computer Science — (Specialization: Machine Learning) — *Aug. 2021 – Present*
  Thesis Advisor: Prof. Devi Parikh
- **Birla Institute of Technology and Science Pilani** — Pilani, India
  Bachelor of Engineering (Hons.) in Computer Science; GPA: 8.35/10.0 — *Aug. 2014 – July. 2018*

Research Interests

Computer Vision, Deep Learning, Creative AI, Natural Language Processing

Experience

- **Georgia Institute of Technology** — Atlanta, GA
  Graduate Researcher under Prof. Devi Parikh — *Aug 2021 – Present*
  - Working on problems related to creative AI.
- **Adobe** — Noida, India
  Software Development Engineer-2 — *July 2018 – Aug 2021*
  - **Chatbot**: Worked on the chatbot framework for Adobe Messaging platform 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 $\sim$ 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

- **Dance2Music: Automatic Dance-driven Music Generation** — Paper link
  Under Submission
  - Proposed an approach to generate music conditioned on dance in a real-time fashion.
  - Used beam search based offline approach 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.
  - Evaluated the creativity of NSG vs. the creativity of the original symbolic data through human studies.
- **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 zero shot 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 3.0
  - Developed an unsupervised multi-conditional image generation pipeline.
  - Given two images, the pipeline generates an image that has the shape of first and texture of second image.
  - The proposed approach qualitatively outperformed the prior approaches over several benchmark datasets like CUB-200-2011 and Stanford Dogs.

Project

- **Sentiment Analysis**: Used sentiment analysis to study the impact of social cause marketing advertisements on users by analyzing their comments extracted from YouTube.

Programming Skills

- **Languages**: Python, C++, Java — **Libraries**: Pytorch, OpenCV, Scikit-learn, Numpy