LALIT BHAGAT

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EDUCATION

University of California - Los Angeles (UCLA)   **Dec 2023**
Master of Science in Computer Science   GPA: 4.0/4.0
- Awarded Graduate Council Diversity Fellowship

Jaypee Institute of Information Technology (JIIT)   **May 2021**
B. Tech in Computer Science and Engineering with Honours   GPA: 8.7/10

RESEARCH INTERESTS

Generative models, Computer Vision, Human-AI interaction, Adversarial Robustness, AI for Climate Change

INDUSTRY EXPERIENCE

Amazon Science   **Jan 2024 – Present**
Applied Scientist   *Seattle, WA*
- Developed a transformer based ML model for personalising User Experience
- Developed a language model for classifying payment related customer contacts

Amazon Science   **Jun 2022 – Sep 2022**
Applied Scientist Intern   *Seattle, WA*
- Developed Payment Intelligent Embedding Representation (PIER) for Amazon customer data
- Implemented VAE, leading to an 83% reduction in storage costs and reducing training time by 75%

RESEARCH EXPERIENCE

Zhou Lab at UCLA   **July 2023 – Dec 2023**
Graduate Researcher | Advisor: Bolei Zhou   *Los Angeles, CA*
- Improved spatial steerability of GANs without searching for steerable directions in the latent space or requiring extra annotation
- Developed a user interface enabling user to edit the output image by adjusting the scene layout, moving, or removing objects
- Integrated DragGAN to enable fine-grained manipulation efficiently, supporting a step-by-step coarse-to-fine editing approach

UCLA Computational Machine Learning Lab   **Oct 2022 – June 2023**
Masters Thesis | Advisor: Cho-Jui Hsieh   *Los Angeles, CA*
- Developed a Parameter-free Adversarial Attack via Learned Optimizer using meta learning
- Achieved better l-inf norm 8/255 attack accuracy than PGD when tested on robust models trained on MNIST dataset

NeWS Lab, Indian Institute of Technology Hyderabad   **Jun 2020 – Aug 2021**
Research Intern | Advisor: Antony Franklin   *Hyderabad, India*
- Designed a Multi-neural network based tiled 360°video caching solution with Mobile Edge Computing
- Implemented asynchronous actor-critic (A3C), CNN, LSTM, LFU and LRU algorithms for caching of tiles in 360° video
- Improved cache hit rate by 10% and reduced end-to-end latency along with back-haul usage by at least 35%

Jaypee Institute of Information Technology   **Sep 2019 - May 2020**
Research Assistant | Advisor: Dinesh C. S. Bisht   *Noida, India*
- Developed a Hybrid Adaptive Time Variant Fuzzy Time Series model with Genetic Algorithm
- Evaluated model on real-time Air Quality Index data of 2 cities, improved the RMSE by at least 2 units

PUBLICATIONS

Wang, J.*, **Bhagat, L.***, Yang, C., Xu, Y., Shen, Y., Li, H., & Zhou, B. (2024). **Spatial Steerability of GANs via Self-Supervision from Discriminator**, in IEEE Transactions on Pattern Analysis and Machine Intelligence, doi: 10.1109/**TPAMI**.2024.3422820. **[IF: 20.8]**. Poster presented at the AI for Content Creation (AI4CC) Workshop, Conference on Computer Vision and Pattern Recognition **(CVPR)** 2024

Bhagat, L. et al. (2024). A Clickstream-Aware Transformer-based Approach for Predicting Customer Abandonment, Submitted to Amazon Machine Learning Conference **(AMLC)**.

Kumar, S., **Bhagat, L.**, Franklin A, A., and Jin, J., **Multi-neural network based tiled 360°video caching with Mobile Edge Computing**, Journal of Network and Computer Applications **(JNCA)**, 2022, 103342, ISSN 1084-8045 **[IF: 7.57]**

Bhagat, L. (2023). Parameter-free Adversarial Attack via Learned Optimizer (Masters thesis, University of California, Los Angeles).

Bansal H., **Bhagat L.**, Mittal S., Tiwari A. (2021) **Image Correction and Identification of Ishihara Test Images for Color Blind Individual.** IC4S. Lecture Notes in Networks and Systems, vol 203. Springer, Singapore.

Bhagat, L. et al. (2021), **Air quality management using genetic algorithm based heuristic fuzzy time series model**, The TQM Journal, Vol. 35 No. 1, pp. 320-333. https://doi.org/10.1108/TQM-10-2020-0243

PATENTS

Lalit Bhagat, Nancy Sharma, Himani Bansal, Kanchan Hans. **Obscene Image Excluder**, Indian Patent App. No: 202011041018, published October 23, 2020

REVIEWER EXPERIENCE

Reviewer for European Conference on Computer Vision (ECCV 2024), Amazon Machine Learning Conference (AMLC 2024), Amazon Computer Vision Conference (ACVC 2024)

TEACHING

Machine Learning, Teaching Associate, UCLA **Fall 2023**

MATLAB Programming, Teaching Associate, UCLA **Summer 2023**

Advanced MATLAB Programming, Teaching Associate, UCLA **Winter 2023**

SQL and Basic Data Management, Teaching Assistant, UCLA **Fall 2022**

MATLAB Programming, Teaching Assistant, UCLA **Spring 2022**

Cognitive Psychology, Teaching Assistant, UCLA **Winter 2022**

PROJECTS

High-resolution weather forecasting via downscaling | *AI for Climate Change* **Fall 2022**
- Proposed a novel joint training framework for weather forecasting and downscaling, which improves the accuracy and resolution of climate predictions.
- Showed that the joint framework outperforms isolated high-resolution forecasting models

SketcHTML - An interactive sketch to HTML converter | *CS 269 UCLA* **Spring 2022**
- Developed an innovative "no-code" tool for creating HTML web pages from hand-drawn sketches
- Extended software to generate Web-UI images to create an enhanced dataset and achieved better performance
- Improved upon existing applications by allowing more variations in the layouts and an interactive tool for styling

Daltonism | *Image Processing* | *OpenCV* **Jan 2020 – May 2020**
- Developed a mobile application for color the deficient patients, to help them perceive colors they normally can't see.
- Implemented image processing techniques for mapping of images to different color spectrum that falls in visible spectrum

TECHNICAL SKILLS

C, C++, Python(Pytorch, Tensorflow) , MATLAB, SQL, Linux