LALIT BHAGAT

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EDUCATION

University of California - Los Angeles (UCLA) Mar 2023 (expected)
Master of Science in Computer Science; **GPA: 4.0/4.0** *LA, CA*

Jaypee Institute of Information Technology (JIIT) Jul 2017 – May 2021
B. Tech in Computer Science Engineering (with Honours); **Cumulative GPA: 8.7/10** *Noida, India*

PUBLICATIONS

Obscene Image Excluder | *App. No:* 202011041018 | https://ipindiaservices.gov.in/publicsearch 10/23/2020
- Indian **Patent** (published) | Name of Inventors: **Lalit Bhagat**, Nancy Sharma, Himani Bansal, Kanchan Hans

Kumar, S., **Bhagat, L.**, Franklin A, A., and Jin, J., **Multi-Neural Network based Tiled 360° Video Caching with Mobile Edge Computing.** Accepted in Journal of Network and Computer Applications **(JNCA)**. **[SCI]** **[IF: 8.5]**

Bansal H., **Bhagat L.**, Mittal S., Tiwari A. (2021) **Image Correction and Identification of Ishihara Test Images for Color Blind Individual.** Proceedings of Second International Conference on Computing, Communications, and Cyber-Security. Lecture Notes in Networks and Systems, vol 203. Springer, Singapore. **[SCOPUS]** **[DBLP]**

Bhagat, L. et al. (2021), **Air quality management using genetic algorithm based heuristic fuzzy time series model**, The TQM Journal, Vol. ahead-of-print No. ahead-of-print. **[SCOPUS]** **[IF: 3.25]**

RESEARCH EXPERIENCE

NeWS Lab - Indian Institute of Technology Hyderabad Jun 2020 – Aug 2021
Research Intern | Mentor: Dr. Antony Franklin *Hyderabad, India*
- Collaborated in Mobile Edge Computing based tiled 360° caching solution that uses Long-Short-Term-Memory (LSTM) and Convolutional Neural Network (CNN) in conjunction to address challenges associated with 360°video caching
- Implemented asynchronous actor-critic (A3C) algorithm of Deep Reinforcement Learning, LFU and LRU for comparison
- Evaluated proposed framework through simulations with real-world head-movement traces, enhanced user experience
- Improved cache hit rate by 10% and reduced end-to-end latency along with back-haul usage by at least 35%

Indian Institute of Technology Varanasi (BHU) Jun 2020 – Jul 2020
Summer Intern *Remote, India*
- Implemented SVM, Logistic Regression and LSTM for classification and prediction of Water Quality Index respectively
- Collected real time data from the river Ganga using IoT sensors

Gurugram Police Cyber Security Summer Internship Jun 2020 – Jul 2020
Summer Intern *Remote, India*
- Created a process to prevent saving and sharing of inappropriate images captured from an image capturing device

Jaypee Institute of Information Technology Sep 2019 - May 2020
Research Assistant *Noida, India*
- Researched and developed a Hybrid Adaptive Time Variant Fuzzy Time Series model with Genetic Algorithm
- Integrated and implemented Genetic Algorithms for selection and optimization of fuzzy intervals in FTS
- Evaluated and tested model on real-time Air Quality Index data of 2 cities, improved the RMSE by at least 2 units

TECHNICAL SKILLS AND RESEARCH INTERESTS

Research Interests: Computer Vision, Reinforcement Learning, Deep Learning, Nature-Inspired Optimization, Time-series
Languages: C, C++, Python ● **Machine Learning** ● **Deep Learning**: CNN, LSTM
Reinforcement Learning: Deep Q- learning, A3C ● **Nature Inspired Algorithms**
Libraries/Frameworks: Tensorflow, Keras, Pandas, OpenCV, Numpy, Sckit-learn

RELEVANT COURSEWORK

Graduate: Machine Learning in Bioinformatics, Deformable Models in Computer Vision, Cognitive AI, Deep Learning
Undergraduate: Introduction to Deep Learning, Machine Learning, Artificial Intelligence, Computational Intelligence, Big Data, Data Mining, Operation Research, Numerical Methods, Data Structures, Algorithm and Problem Solving

TEACHING EXPERIENCE

Cognitive Psychology - PSYCH 120A   Jan 2022 − Mar 2022
Teaching Assistant   *University of California, Los Angeles*
- Responsible for taking 4 discussion sections of 25 students each.

RESEARCH PROJECTS

Detection and Exclusion of Obscene Images | *Major Project | Computer Vision*   Jul 2020 − May 2021
- Created a process to prevent saving and sharing of inappropriate images captured from an image capturing device
- Trained MobileNet Architecture on data-set of over 9000 images for classification, and achieved an accuracy of 95%
- Integrated ML model on client side to prevent security breach; no external API called using internet

Daltonism | *Minor Project - 2 | 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

Clustering of Air Objects and Trajectory Prediction | *Team Lead, Smart India Hackathon*   Jan 2020 − May 2020
- Extracted features like max velocity, max altitude, drop in altitude, etc. from 4D trajectory of air objects
- Applied K-means algorithm on extracted features for clustering of air objects - Airplane, Missile and Drop Bomb
- Achieved a R2 score of 99.5 by training separate LSTM models on each air object cluster. Airplane data set: NASA

Chest Radiology | *Minor Project - 1 | Transfer Learning | DenseNet-121*   July 2019 − Dec 2019
- Predicted 5 type of chest diseases using DenseNet-121 architecture and achieved an accuracy of 87%.
- Trained model on "CheXpert" data-set, developed by Stanford ML Group which contains 244,316 chest radio graphs.
- Further deployed the project, created a web application by integrating the ML model using Flask framework.

Smart and Efficient Car Parking System | *Data Structures Project | C++ | STL library*   Nov 2018
- Developed a program to guide the drivers to the nearest parking space with respect to lift, to save time and energy.
- Implemented Heaps data structure using priority queue, and reduced the complexity from $O(k*n)$ to $O(k*\log(n))$.

AWARDS AND RECOGNITION

- Secured **8th** rank in CoDecode, team coding event at Asia's Biggest **Techfest, IIT Bombay**, 2018.
- Team listed in **top 10** out of 1000+ projects for National Convention of AICTE Vishwakarma Award 2020.
- Project listed in **top 10** out of 450+ projects during Gurugram Police Cyber Security Summer Internship 2020.
- Awarded title **"TECH GURU"** of 2016 batch at Delhi Public School, Barra, Kanpur.
- Best Delegation at Model United Nation, 2017 - JSS, Noida.

POSITION OF RESPONSIBILITY

IEEE Student Branch   Aug 2018 − May 2019
Technical Team Member   *Jaypee Institute of Information Technology*
- Taught C programming language to 1st year students | Hosted the CSE event at the IEEE annual fest, XENITH 2019.

National Service Scheme (NSS)   Aug 2018 − Mar 2019
Part of NGO   *Jaypee Institute of Information Technology*
- Keen participant in knowledge drives for underprivileged children | Helped me in developing my emotional intelligence.

Eloquence: Literary society   Aug 2018 − May 2019
Team Member   *Jaypee Institute of Information Technology*
- Participated in MUNs- 2018, 2019, 2020 | Helped me in developing articulation and communication skills.

Computer club   May 2015 − Mar 2016
Computer Squad President   *Delhi Public School*
- Lead, managed and organized all the technical events at my school.