LAKSHAY SHARMA

Computer Science, Undergraduate

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EDUCATION

Aug 2018 – present Pilani, India	**B.E. (Hons) Computer Science and M.Sc. (Hons) Economics,** *Birla Institute of Technology and Science, Pilani Campus* *CGPA: 8.40*
May 2017 – Jun 2018 New Delhi, India	**Higher Secondary School (XII standard),** *Mount Abu Public School* Percentage- 92.3%
Apr 2015 – Mar 2016 New Delhi, India	**Secondary School (X Standard),** *Mount Abu Public School* CGPA: 10

RESEARCH INTEREST

My research interests primarily lie in the field of machine learning and artificial intelligence, as well as their applications. I am inclined towards researching vision as a tool for human-computer interaction and that sparks my interest in object detection and image restoration models. I have also developed an interest in multimodal learning, researching at the intersection of natural language processing and computer vision.

SKILLS

Programming Languages	*Proficient:* Python, Java, Octave, C	*Familiar:* C++, MySQL, HTML
Frameworks	*Proficient:* TensorFLow	*Familiar:* PyTorch
Libraries	*Proficient:* Keras, NumPy, Pandas, SciPy, Matplotlib, SciKit-learn	*Familiar:* OpenCV

WORK EXPERIENCE

Jun 2022 – present Bangalore, India	**Wells Fargo,** *Machine Learning Intern* • Developing an **automated traffic management system** to monitor the vehicles in order to reduce the time spend in traffic signals. • Experimenting with different **adaptive reinforcement learning frameworks** to detect and monitor traffic congestion across different lanes.
Jan 2022 – Apr 2022 Rajasthan, India	**Central Electronics Engineering Research Institute (CSIR-CEERI), Pilani,** *Research Assistant,* *Advisor - Dr. Dhiraj Sangwan* • Developed **instance segmentation framework** to recognize highly cluttered instances of contraband items during baggage security checks. • Constructed an **unsupervised** anomaly detection framework using **encoder-decoder architecture**.
Jul 2021 – May 2022 Rajasthan, India	**Advanced Data Analytics and Parallel Technologies (ADAPT) Lab,** *Research Assistant* • Conducted a **multivariate time series analysis** on the multi-spectral Landsat data to **predict the crop yield in different areas**. • Experimented with different deep learning architectures (**CNN**s and **LSTM**s), and further incorporated a **Gaussian Process** layer to model the spatio-temporal structure of the data. • Built a sim-siamese based encoder-decoder architecture to fuse the multispectral data obtained from different remote satellites.
Jan 2021 – May 2021 Rajasthan, India	**Economics Department, BITS Pilani,** *Independent researcher* *Advisor - Prof. NVM Rao* • Designed and implemented an efficient framework for **sentiment analysis of consumer's behavior** using twitter data. • Used NLP methods and concepts such as **stemming**, **tf-idf** scores, **lemmatization** and **nltk** for text processing. • Experimented with different Machine Learning models (ex- **Naive Bayes**, **XG Boost**) and neural networks (**CNN**s) to obtain highest accuracy.

May 2020 – Jul 2020 Bangalore, India	**Wipro India Ltd.,** *Data Analyst Intern* *Mentor - Prof. Venkiteswaran Gopalakrishnan* • Designed and developed an independent project which aims to assist in decision making process involving analysis of employee data on different dimensions using **machine learning** algorithms. • The **supervised classifier** machine learning model used algorithms like **SVM**, and **Decision Trees** to analyze and filter the employee data based on given criteria. • Applied **principal component analysis** on the data and integrated the results with a **Tableau** dashboard.

RELEVANT COURSES

Machine Learning | Deep Learning Specialization (online certification) | Information Retrieval

Data Structures and Algorithms | Linear Algebra | Discrete Mathematics in CS | Probability and Statistics

Object Oriented Programming | Database Systems | Computer Programming in C | Econometrics

Computer networks | Operating Systems

PROJECTS

Jul 2021	**Trigger Word Detection,** *Independent project* • Constructed a synthesized speech dataset and implemented an **Attention based Sequence Network** to build a trigger word / keyword detection model • Further improved the accuracy to **92.39%** using **GRU (Gated Recurrent Units) Network**.
Jun 2021	**Car Detection using YOLO,** *Independent project* • Convolutional implementation of object detection on a car dataset using **YOLO model**, further modified using a **U-net architecture**. • Used the pretrained YOLO model for image classification and stacked **Non-max suppression** using **IOU grid** analysis to obtain most accurate boundary box.
Jan 2021	**Art Generation using Neural Style Transfer,** *Independent project* • Using transfer learning to generate novel artistic images by building **deep ConvNets** implementing **Neural Style Transfer**. • Used pretrained **VGG-19** model for image feature extraction and optimized the content image using cost analysis to obtain desired style.
Sep 2020 – Oct 2020	**Stonkmaster - Stock price simulator,** *NIT Durgapur* • Developed a real time stock price prediction tool implementing machine learning algorithms like **Linear regressor, KNN, CART** and **Support Vector Regressors.** • Implemented **REST API** to extract real time stock price data and analyzed the interdependency of different stock prices using **LSTM networks**.

POSITION OF RESPONSIBILITY

Aug 2020 – May 2021 BITS Pilani	**Design Head,** *Department of Publications and Correspondence* • Managing the design team and the logistics of off-campus outreach events for BITS Pilani's student-run festivals BITS Open Sports Meet (BOSM) and cultural festival Oasis.
Aug 2020 – Dec 2020 BITS Pilani	**Student Representative,** *Student-Faculty Council* • Part of a 5 student body, responsible for all forms of communication between the Professors of the Computer Science Department and the third year BE. Computer Science students and to provide proper feedback for different courses.

ACHIEVEMENTS

University MCN Scholarship
Awarded 80% Scholarship offered by BITS Pilani to Top 3% Students of Campus in all semesters

Pendyala Vamsikrishna Memorial Scholarship
Awarded 60% Scholarship offered by Mr. Vamsi Krishna, Alumni of BITS Pilani, in past 2 semesters.