Rohit Jain

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Research Interests

Computer Vision, Data Mining Techniques, Deep Learning, Image Processing

Education

Birla Institute of Technology and Science, Pilani — *Rajasthan, India*
Bachelor in Engineering (Hons.) Computer Sciences, GPA: 8.83/10 — *Expected: June 2021*

Veda Vyasa DAV Public School, Vikaspuri — *New Delhi, India*
Higher Secondary Education, CBSE Board: 96.8% — May 2017

Skills

Languages	C++, C, Python, R, Java, SQL, Scheme, MATLAB
Libraries/Frameworks	PyTorch, Tensorflow, OpenCV, Pandas, Scikit-learn, NumPy, Seaborn
Softwares	IBM SPSS, Git, Wireshark

Experience

COMPUTER SCIENCE DEPARTMENT, BITS PILANI — *Rajasthan, India*
TEACHING ASSISTANT, DATA-MINING — *Jan 2020 – Present*

Assisting over 80+ students in weekly laboratory sessions in learning IBM SPSS and Python for Data Mining techniques. Helping in preparing content for laboratory exercises, framing questions for evaluation components, and evaluating answer sheets for the course.

CSIR - INSTITUTE OF GENOMICS AND INTEGRATIVE BIOLOGY — *New Delhi, India*
SUMMER RESEARCH INTERN — *May 2019 – July 2019*

Ayurgenomics

Data Mining | Precision Medicine

Worked under Dr. Mitali Mukherjee, Chief Scientist, CSIR-IGIB on phenotypic data consisting of nominal and ordinal features and modeled them into numeric values using entropy function (information theory). Used these values to perform clustering and stratification of healthy individuals into different classes as defined in Ayurveda Sciences. Integrated above models into a web app for data visualization, which is being used by the organization for further research in the field of precision medicine.
Web: github.com/Rohit2706/AyurGenomics-Viz-ML

DeepBeats

Video Analysis | Image Processing

Worked under Rintu Kutum, PhD Student, CSIR-IGIB and used OpenCV for creating a bounding box for the heart of Zebrafish in grayscale videos captured in a controlled environment. Analyzed variations in the segmented regions across the frames to measure the heartbeat of the Zebrafish.

Publications

Entropy-Based Distance Metric (EBDM)

Data Modelling | Python Package

Implemented the research paper 'A Unified Entropy-Based Distance Metric for Ordinal-and-Nominal-Attribute Data Clustering' by Zhang et al. and built a python package for finding a common distance matrix for the ordinal and nominal data from any kind of questionnaire data, based on entropy measures. Tested the package on multiple datasets for robustness.
Web: github.com/Rohit2706/EBDM | pypi.org/project/EBDM

Projects

Concealed Weapon Detection

Image Processing | Object Detection

Working under Prof. J. Jennifer Ranjani, CSIS Department, BITS Pilani, on using a thermal imaging approach to develop novel algorithms for the detection of hidden weapons at the security checks. Implementing deep learning solutions using Faster R-CNNs on multiple images obtained from surveillance videos and advanced image fusion techniques to build better models, for instance segmentation of the potentially harmful objects.

Deep Photo Style Transfer

Style Transfer | Computer Vision

Built the PyTorch implementation of the academic paper 'Deep Photo Style Transfer' by F. Luan et al. for photorealistic style transfers between the images. Tested the model for different sets of hyperparameters and verified the results as obtained by the authors in the original paper.
Web: github.com/Rohit2706/Deep-Photo-Style-Transfer

Relevant Courses

BITS Pilani

Neural Networks and Fuzzy Logic, Data Mining, Image Processing, Operating Systems, Design and Analysis of Algorithms, Data Structure and Algorithms, Object-Oriented Programming, Database Systems

MOOCs and Online Certifications

Machine Learning (Stanford University), Deep Learning Specialization (Andrew Ng), Computer Vision (Stanford University)

Achievements and Scholarships

Merit Scholar, BITS Pilani

Received the 80% tuition fee waiver scholarship for all the semesters for being in top 3% students at BITS Pilani

Merit Scholar, Veda Vyasa DAV School

Received a scholarship amount of INR 33,000 for the academic performance in higher secondary school.

Positions of Responsibility

Head of Design, TEDx BITS Pilani

UI/ UX team lead responsible for graphic designing for on-campus and off-campus publicity of the TEDx event. Handled the production department, including on day technology and photography.