MANUJ MALIK

manuj.malik@iiitb.org | manuj-malik | ra-MANUJ-an | +91 9465266428

Introduction And Interest

I am a fourth year engineering student who is currently pursuing an Integrated Masters Degree in Computer Science. I love solving difficult, technological challenges and puzzles. I am excited in making machines assist humans in processing massive amounts of data. I am interested in building intelligent systems which organize, analyze and summarize massive amounts of data, and also automatically learn from this, with particular interest in language processing. I want to turn my passion for machine learning and deep learning into a career. I am actively looking for research experience.

Education

International Institute of Information Technology Bangalore India
Integrated Masters Computer Science *Aug. 2019 – July 2024*

- 3.54/4.0 at the end of 5 semesters

Coding Projects

Visual Sudoku Solver | *Python, Jupyter Notebooks, Keras* Nov – Dec 2020

- My first ML project aimed at using Computer Vision to detect and solve sudokus from images
- Trained a convolutional neural network on the MNIST dataset. Done using keras.
- Segmented the sudoku in images.
- Solved the recognized sudoku.

Feigenbaum Constant | *Python, Matplotlib, NumPy, Jupyter Notebooks*

- Mathematically-focused project
- Applied the logistic mapping to the problem of calculating the Feigenbaum constant
- Wrote the code for logistic maps and plotted bifurcation diagrams.

Experience

3D Volumetric Shape Reconstruction from 2D Image Slices : Coding project under Prof. Amit Chattopadhyay in the summer of 2021, International Institute of Information Technology, Bangalore, India.
Analysis and explainability of black box models : In the summer of 2022, I interned under Prof. Richard Johannson, from the Chalmers University of Technology, and we've been looking at various multimodal models which have masked language modelling aspect, for example, VisualBERT, LXMERT, and newly devised model by facebook, FLAVA model, which rather than taking frcnn bounding boxes and it's features, take image pixels alongside text. We're in the process of writing the experiments in the manuscript.
Irony Detection using Transformers on the large datasets : This project in the summer of 2022, under Prof. David Tomás Díaz from University of Alicante, Spain, and Prof. Paolo Rosso from Polytechnic University of Valencia, Spain was regarding using various huggingface models, such as BERT, RoBERTa, DeBERTa, VisualBert (for multimodal task) and comparing their performance on two data datasets. Several experiments were done using the textual information. First dataset was from Cai et al. and second dataset was based on twitter tweets. We're in the process of writing experiments in the manuscript.

Skills

Languages: Python, C/C++, Java, Matlab, MySQL
Human Languages: English, Hindi, Punjabi
Developer Tools: Jupyter Notebooks, Git, PyTorch, NumPy, LaTeX, Matplotlib

Achievements

JUL 2019: Secured 99.5 percentile in JEE Mains competitive examination
JUL 2019: Scored 94.8 percentage in 12th board examination
APRIL 2017: Scored 10 CGPA in 10th board examination(CBSE)

Courses

Computer Science: Machine Learning, Natural Language Processing, Discrete Mathematics, Data Structures, Graph Theory, Analysis of Algorithms, Computer Architecture, Computer Networking
Math and Sciences: Linear Algebra, Calculus, Probability, Statistics, Complex Analysis, Physics(Mechanics and Thermodynamics), Chemistry(Inorganic, Organic, Quantum-I)
MOOCs: Machine Learning by Andrew Ng, Stanford CS229, Deep Learning by Coursera