Vedasri Nakka

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Education

Joint Masters in Computer Science — GPA: 5.0/6.0
University of Neuchatel — Feb 2021 - Sep 2024

Bachelor's in Electronics Engineering — 73.0/100.0
BVRIT, Hyderabad, Jawaharlal Nehru Technological University — July 2013 - July 2016

Professional Experience

Cyient Private Limited — Aug 2016 - Aug 2019
Role: Software Engineer — Under: Shailesh Deshpande

- Engineered solutions to customize ServiceNow modules and expertly managed data loading through import sets. Demonstrated proficiency in seamlessly integrating ServiceNow with a range of external and internal tools, including JIRA and Netcool.

Technical projects

Thesis: Contrastive Learning for Character Detection in Ancient Greek Papyri — Feb 2024 - Sep 2024

- Evaluate the effectiveness of SimCLR for Greek letter recognition and compare its performance with traditional supervised models using cross-entropy and triplet loss functions, incorporating pretraining on a large dataset and fine-tuning on a smaller dataset. (You can find Paper and Code in the given link)
- Investigate the impact of various data augmentation strategies on SimCLR's performance and explore why traditional supervised models may outperform SimCLR in this specific letter recognition task.

Explainable AI - Human-Computer Interaction meets Artificial Intelligence — Feb 2021 - Jun 2021

- Conducted a comprehensive study to interpret the decisions of CNNs for fine-grained CUB200 dataset against gradient-based adversarial attacks such as FGSM and PGD.
- Implemented adversarial attack experiments on three representative networks: Standard VGG16, Attention Pooling framework, and Prototypical Networks. Leveraged visualization techniques like CAM and its variants to interpret the reasons for the success of adversarial attacks.

Pattern Recognition — Feb 2021 - May 2021

- Developed a k-NN algorithm from scratch to classify MNIST images. Utilized various distance metrics, including Euclidean and Manhattan, and compared their performance.
- Created a K-Means clustering algorithm from scratch for unsupervised grouping of MNIST images. Evaluated clustering effectiveness using metrics such as C-Index and Dunn-Index.
- Trained a Multilayer Perceptron (MLP) with one hidden layer in PyTorch for image classification on the MNIST dataset. Performed hyperparameter tuning, including grid search for hidden layer neurons, learning rate, and training iterations.

Machine Learning & Data Mining — Sep 2022 - Dec 2022

- Implemented a variety of machine learning algorithms—including Naive Bayes, k-NN, Decision Tree, and Simple Rules—on the Titanic dataset for comprehensive analysis and modeling.

Digital Humanities — Sep 2022 - Dec 2022

- Utilized Python for extracting, modifying, and manipulating text data, conducted statistical tests, and implemented the Naive Bayes algorithm to enhance data analysis capabilities.

Fuzzy sets — Sep 2023 - Dec 2023

- Developed a user-friendly technology solution code that assists travelers in choosing their ideal destinations based on their personal preferences and requirements, enhancing their overall travel experience. Implemented a travel recommendation prototype.

Publications

A life engineering perspective on algorithms, AI, social media, and quantitative metrics — 2nd may 2024
Informatik Spektrum Journal — University of Fribourg

- As a team, we explored the intersection of life engineering, algorithms, AI, social media, and their impact on human life, through reviews of three influential books: Cathy O'Neil's *Weapons of Math Destruction*, Kate Crawford's *Atlas of AI*, Shoshana Zuboff's *The Age of Surveillance Capitalism*.

Skills

Languages: Python (NumPy, Pandas, Matplotlib, Scikit-learn, matplotlib) java, javascript, C programming, R programming
Softwares: Visual Studio, Eclipse, LATEX, Git, Anaconda(Jupyter Notebook), Microsoft Office
Soft Skills Academic writing, Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation, Logical thinking.