ARPAN POUDEL

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OBJECTIVE

Aspiring Computer Science professional, specializing in machine learning, and computer vision. Equipped with a robust foundation in applied aspects of computing, I am adept at devising innovative solutions to complex problems.

EDUCATION

M.S. - Computer Science May 2024 (Expected)
University of Arkansas, Fayetteville, AR 4.0 GPA

Bachelor of Engineering (B.E.) - Computer Engineering Dec 2018
Tribhuvan University, Kathmandu, Nepal 74 %

SKILLS

Language: Python, MATLAB, Java, C++
Libraries: PyTorch, TensorFlow, NumPy, Scikit-learn, Pandas, Open-CV, Flask, Seaborn
Machine learning: Feature Engineering, Optimization, Data Analysis, Modeling, EDA, advanced analytics, analytics, image processing, generative artificial intelligence (Gen AI), Deep Learning
Databases: SQL, MongoDB, PySpark
Tools: Git, Excel, VS Code, Jupyter Notebook, Docker, Microsoft Office
Soft Skills: Innovative, Problem-Solving, Communication, Team Collaboration, Willingness to learn, Creativity

EXPERIENCE

University of Arkansas, Fayetteville, AR: Research and Teaching Assistant Jan 2022 - Present

- Led research project in lensless imaging to solve complex inverse problems; achieved a 1.35 times increase in image reconstruction accuracy.
- Engineered a diffuser camera prototype, pioneering the development of lensless imaging technology.
- Executed comprehensive data cleaning and preprocessing on a dataset comprising over 500 patient records.
- Achieved an 85% accuracy rate in classifying patient mortality risk from Type 2 Myocardial Infarction.
- Assisted in teaching 3 undergraduate computer science courses such as algorithms, and data structures.

Government of Nepal, Jhapa, Nepal: IT Engineer Nov 2019 - Dec 2021

- Led the IT team in implementing digital initiatives for local government and establishing a foundation for e-governance with a budget of $400,00 cutting down paperwork by 50%.

ACADEMIC PROJECTS

Solving inverse problems in lensless image reconstruction with generative models Aug 2023 - Jan 2024
Created a novel sampling algorithm for controllable image generation for lensless cameras.

- Trained score-based generative model to learn the distribution of natural images as a prior achieved 1.2 times increase in image reconstruction accuracy.
- Implemented an unrolling of the Alternating Direction Method of Multipliers (ADMM) for image reconstruction.

Unsupervised Magnetic Resonance Imaging Super-resolution Jan 2024 - Present
Proposed and developed a novel unsupervised deep learning network for Magnetic Resonance Imaging (MRI) capable of generating 25-micron images from 50-micron images.

- Trained generative model to learn the distribution of medical images.
- Implemented a novel sampling algorithm to generate high-resolution MRI images.

Semantic Question Matching for Q&A Forums Jan 2018 - Jan 2019
Addressed the problem of question duplication in Q&A forums like Quora

- Preprocessed a dataset of over 400,000 question pairs using tokenization, lemmatization, and removal of stop words for feature extraction.
- Designed an artificial neural network to fit the extracted features, achieving an accuracy of 86.09% in detecting duplicate questions.

PUBLICATIONS

- A. Poudel, U. Nakarmi, “DeepLIR: Attention-based approach for Mask-Based Lensless Image Reconstruction,” in Proc. of IEEE/CVF WACV Workshop, 2024.
- E. Kabir, A. Poudel, Z. Aklah, M. Huang, D. Andrews, “A Runtime Programmable Accelerator for Convolutional and Multilayer Perceptron Neural Networks on FPGA,” in Applied Reconfigurable Computing 2022.
- A. Dhakal, A. Poudel, S. Pandey, S. Gaire, H. P. Baral, “Exploring Deep Learning in Semantic Question Matching,” in ICCCS, IEEE, 2018.

VOLUNTEER

- Review of submitted papers in the field of machine learning for conference Southwest Symposium on Image Analysis and Interpretation (SSIAI), 2024.
- Led and managed the Nepalese Student Organization at the University of Arkansas.

AWARDS

- Reginald R. “Barney” Jameson A. Baxter Graduate Fellowship.
- Second Runner-Up in Genese CodeCamp 2018 Coding Competition.