Shanu Vashishtha

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EDUCATION

UMASS, AMHERST
MS in COMPUTER SCIENCE
Sep'18-May'20

IIT KANPUR
BTech in Chemical Engineering
with minor in Computer Science
Jul'12-Jun'17

AWARDS

• Won the 2018 MIT Media Labs City robotics Design-a-Hackathon

• Recipient of the 2012 Government of India INSPIRE scholarship

• Awarded Bronze medal in 2010 Regional Mathematics Olympiad

COURSEWORK

•Machine Learning
• Neural Networks
•Computer Vision
•Human Computer Interaction
•Reinforcement Learning
•Natural Language Processing
•Graphical Models

TECHNICAL SKILLS

• Python - Pytorch, Numpy, Pandas, Scikit-learn • C/C++ • AWS • Linux

LEADERSHIP ROLES

Coordinator | Counselling Service, IIT Kanpur

• Led a team of 135 students during the 2014 Orientation Programme for the induction of 827 freshmen
• Worked in close liaison with the Institute counsellors to alleviate the mental health problems of students
• Tackled sensitive issues like Suicide Prevention, Addiction and Time management through regular sessions and discussion forums

VOLUNTEER WORK

Center for Data Science | UMass Amherst

• Delivered a web based animal classifier for wildlife camera images

WORK EXPERIENCE

DEEP LEARNING ENGINEER | Rain Neuromorphics, CA | Jun'20 –

- Created SparseLinear - a sparse neural network library in Pytorch to help users create wide and statically sparse linear layers efficiently with built-in dynamic growth and pruning feature incorporated
- Trained sparse transformer models (NLP) to a BLEU score comparable to its dense counterpart for English German Neural Machine Translation task
- Performed extensive simulations for training neural networks with low precision weights and gradients for analog hardware
- Developed and tested novel techniques for performing batch updates and Stochastic gradient updates with momentum on analog hardware

DATA SCIENCE INTERN | Rain Neuromorphics, CA | May'19 – Dec'19

- Implemented a sparse Transformer model on the Neuromorphic hardware simulations and established the baseline results for Translation task
- Performed experiments to transfer weights from a trained network with random neuron-synapse connectivity to an untrained one with different connectivity
- Deduced the most efficient convolution implementation for the novel chip, implemented and tested it on MNIST dataset

SENIOR ENGINEER | Honeywell, Bengaluru | Aug'17 – Aug'18

- Built an obstacle detection framework using OpenCV and integrated it into the existing camera based Visual Docking Guidance System
- Performed extensive tests, addressed failures and prepared the functionality for site deployment ahead of time

INTERN | Computer Vision Center, Barcelona | May'17 – Aug'17

- Established an image processing pipeline with NVIDIA's Jetson TX2, ZED Camera and Raspberry Pi for a small self-driving car
- Implemented real-time Stixel computing algorithm preceded by the depth estimating SGM algorithm
- Designed a simple control algorithm in the car for start, stop and sideway motions which resulted in successful navigation of the test circuit

PROJECTS

MICROSOFT AZURE ML | UMass, Amherst | Jan'19 - May' 19

- Created Jupyter notebooks detailing hyperparameter optimization, metric logging, model deployment and autoML functionality using Azure Machine Learning
- Using the platform's built in hyperdrive run functionality, achieved ~16% improvement in classification accuracy