Shubham Krishna

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Education

University of Tubingen Oct 2019 - Present
Master of Science in Machine Learning Tubingen, Germany
Indian Institute of Technology(IIT) Jul 2013 - May 2018
Integrated Master of Technology in Mathematics & Computing Dhanbad, India

Technical Skills

Languages & Frameworks: Python, C++, C, R, Java, Shell, SQL, PyTorch, PyTorch Lightning, TensorFlow
Dev(ML)Ops Tools: Git, Github, JIRA, Docker, Slurm, DVC, Weights & Biases

Experience

Bosch Center for Artificial Intelligence May 2021 - Present
Master Thesis, Robust Deep Learning for Self Driving Cars Team Renningen, Germany

- Working on a new Semi-Supervised learning approach for Image Segmentation with noisy labels.
- Technologies Used: Python, PyTorch, NumPy, Pandas, Matplotlib, Seaborn, Git, Slurm

Bethge Lab, Max Planck Institute for Intelligent Systems April 2020 - Present
Research Assistant, Deep Learning for Computer Vision Tubingen, Germany

- Working on Invariant Representation Learning [Paper Link], Self-Supervised Learning [Paper Under Review] and Pruning Techniques in Deep Neural Networks. Developing Codebase and Running ML experiments.
- Technologies Used: Python, PyTorch, PyTorch Lightning, Matplotlib, Pandas, NumPy, Docker, Slurm

Samsung Research June 2018 - Sep 2019
Research Engineer, On-Device Artificial Intelligence Team Bangalore, India

- Developed and Commercialized Word Embeddings for Application Search, recall increased by 25%
- Deployed Name Entity Recognition Model and Time Parser for Natural Language Query Search in Gallery
- Assisted in development of On-Device Search Engine for Smartphones, handling 5M search queries daily
- Technologies Used: Python, TensorFlow, TensorFlow Lite, Keras, Elastic Search, Java, Android Studio

Samsung Research May 2017 - July 2017
ML Research Intern, Voice Intelligence Team Bangalore, India

- Developed a text classification model for Hate-Speech Detection for the Voice Assistant Bixby
- Used LSTM and Word2Vec to improve the F-Score by 15%. Deployed the model on Samsung Cloud Server
- Technologies Used: TensorFlow, Python, NLTK, Gensim, Matplotlib, Pandas, Numpy

Selected Projects

Autonomous Driving Agent | Python, PyTorch, OpenAI Gym [Code Link]

- Using CNNs and Imitation Learning developed an agent that learns to drive from visual inputs.
- Used OpenAI Gym for recording expert's behaviour and CNNs for predicting steering angle and acceleration.

Reproducible Deep Learning | PyTorch, Git, DVC [Code Link]

- Implementation of exercises for the course Reproducible Deep Learning that taught usage of ML Deployment tools like Github Actions, Weights & Biases, DVC, Hydra for reproducibility and hyperparameter sweeps.

Image Denoising | Python, PyTorch [Code Link]

- Used CNNs and Autoencoders for obtaining a cleaner(original) image by removing noise from a noisy image.

Publications

- Schneider S*, **Krishna S***, et al. "Generalized Invariant Risk Minimization: relating adaptation and invariant representation learning." NeurIPS pre-registration workshop, 2020 [Paper Link]
- **Krishna S**, Bajaj A, et al. "Learning Mobile App Embeddings using Multi-task Neural Network." International Conference on Applications of Natural Language to Information Systems, 2019 [Paper Link]
- **Krishna S**, Bajaj A, et al. "RelEmb: A relevance-based application embedding for Mobile App retrieval and categorization." Computacion y Sistemas 23.3, 2019 [Paper Link]