Priyanshu Sinha

Data Science and Machine Learning Professional with 3+ Years' Experience | GSoC Mentor
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Education

Indiana University-Purdue University Indianapolis — **Indianapolis, Indiana**
Master of Science in Health Informatics — *May 2023*

Jaypee Institute of Information Technology — **Noida, India**
Bachelor of Technology in Computer Science and Engineering — *May 2018*

Experience

Labcorp Drug Development — **Durham, North Carolina**
Student Intern - Data Science — *September 2022 - Present*

- Creating a tool to assess the deep neural network black box models explanability in order to comprehend the aspects influencing prediction and to meet stakeholder needs.
- Making a survival analysis forecasting model to forecast kits in time for clinical kits sent out.

Labcorp Drug Development — **Princeton, New Jersey**
Data Science Intern — *May 2022 - August 2022*

- Performed time-series data analysis, created a deep LSTM network for weekly clinical screening rate forecasting, and examined the effect of COVID-19 on screening rate using TensorFlow and AWS Sagemaker.
- Developed a prototype for augmented annotation to categorize patient emails with a few samples using the BERT model and Hugging Face framework, which resulted in a 10x reduction in manual labeling work without noticeably affecting the model's performance.

Indiana University-Purdue University — **Indianapolis, Indiana**
Graduate Research Assistant — *August 2021 - Present*

- Developing a simulation tool to calculate departmental costs, faculty requirements, and student intake to reduce manual efforts by 40%.
- Made a Virtual Reality teaching tool prototype in collaboration with Emory University researchers and surgeons to scale immersive learning during surgical procedures. By enabling VR annotations of surgical process scenes via a voice and hand controller, the prototype supports live interaction with students and doctors during procedures.
- Optimized deep learning imaging models using INT-8 quantization, achieving a 75% reduction in size, resulting in reduced memory consumption and 4x gain in inference speed for edge devices such as edge devices using TensorFlow Model Optimization Toolkit.

Mentor Graphics India Pvt. Ltd. (Siemens DISW) — **Noida, India**
Senior Member Technical Staff — *June 2018 - August 2021*

- Created a semi-automated annotation tool to label data for autonomous cars, including classification, detection, and segmentation tasks of scenes leveraging deep learning models to generate pseudo-labels, reducing manual labeling efforts by 75%.
- Made web-based tool to scan for security vulnerabilities (CVEs) in packages, used in Linux based operating systems for automobiles, and checked if security patch is applied or not, reducing manual efforts by 75%.

Skills

Technologies : Machine Learning, Deep Learning, Data Structures and Algorithms, Computer Vision, Natural Language Processing, Time Series Analysis, Database Management System, REST APIs, Object Oriented Programming
Languages & Databses: Python, C++, C, SQL, R, MySQL, PostgreSQL, MongoDB
Frameworks & Libraries: Tensorflow, PyTorch, Keras, Numpy, Pandas, Scikit-Learn, Scipy, OpenCV, Matplotlib, Fastai, NLTK, Plotly, Dask, Flask, Django, Apache Spark, Simpy, Pytest
OS & Developer Tools: Linux, VS Code, Git, Docker, Kubernetes, Jupyter Notebook, MATLAB(Basic), RStudio

Publications

1. Energy efficiency of quantized neural networks in medical imaging in Medical Imaging with Deep Learning, 2022.
2. Leapfrogging medical ai in low-resource contexts using edge tensor processing unit in 2022 IEEE Healthcare Innovations and Point of Care Technologies, 2022.
3. Multireader evaluation of radiologist performance for COVID-19 detection on emergency department chest radiographs in Clinical Imaging, 2021.
4. Optimizing Medical Image Classification Models for Edge Devices in Distributed Computing and Artificial Intelligence, 2021.
5. A DICOM Framework for Machine Learning and Processing Pipelines Against Real-time Radiology Images in Journal of Digital Imaging, 2021.