HIMANSHU RAWLANI

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PROFESSIONAL EXPERIENCE

Digitate, A Tata Consultancy Services venture, Pune, India

Machine Learning Engineer, Analytics Platform ***Jul 2020 - Present***

- Developed a legal assistant to aid legal teams in real-time analysis of documented knowledge in legal instruments like license agreements, non-disclosure agreements, statement of work using NLP and CV algorithms.
- Implemented document parsing and clause extraction algorithms for input documents and designed training and inference pipelines for NLP tasks such as text classification, text similarity, and entity extraction. Achieved a combined accuracy of 94% on clause identification task with a 70% improvement in turnaround time for document analysis.
- Accelerated data labelling process by implementing techniques such as text clustering and active learning algorithms.
- Demonstrated explainability and interpretability of language models using Language Interpretability Tool (LIT). Derived useful insights on clause negation and debugged errors in labelled data.
- Optimized model latency and throughput on Intel platforms using OpenVINO model optimization toolkit. Performed lossless model quantization and achieved a 20x improvement in inference speed.

Systems Engineer, Auto AI ***Sep 2019 – Jun 2020***

- Engineered an AutoML pipeline for object detection task to generate custom fine-tuned models for a given dataset.
- Implemented Bayesian optimization for choosing the best training and model hyperparameters (anchor boxes, number of layers, activation functions, learning rate and batch size).
- Employed iterative stratification method for splitting datasets and used techniques such as class weights, oversampling and data augmentation to handle imbalanced datasets.
- Outperformed the accuracy of Google cloud AutoML object detection by achieving mAP of 67% as compared to Google AutoML's mAP of 51% on AI Assurance dataset.
- Awarded with "Star Performer of the year 2019-2020" award, by the management, for active community participation, strong online presence, and outstanding project performance.

Assistant Systems Engineer, AI Assurance ***Oct 2018 – Aug 2019***

- Developed a custom image-based pipeline to detect user interface input elements given a screenshot of website or desktop application. Integrated with Digitate's AI assurance testing platform to perform code agnostic software testing.
- Implemented a combination of image processing (line, contour and shape detection using OpenCV), image classification, object detection, and OCR algorithms resulting in a 72% test coverage of web and desktop applications.
- Boosted the inference time by designing a parallel processing logic wherein all the algorithms run in parallel on the input image and the output is aggregated to produce detections having the highest overlap.
- Designed training and inference pipelines using MLflow framework. Created unit test cases using PyTest and improved code quality using PyLint libraries. Resolved code security issues reported by Veracode and Bandit tools.

PUBLICATION

Deep learning-based approach to suggest recipes **Jan 2018**

- Developed an application to suggest recipes by detecting raw ingredients in an image clicked using a mobile camera.
- Authored and published a paper on the same in International Conference on Smart City and Emerging Technology (ICSCET) journal and presented at IEEE conference, Mumbai in January 2018 (ISBN: 978-1-5386-1186-9).

EDUCATION

Vivekanand Education Society's Institute of Technology, Mumbai, India **May 2018**

Secured Bachelor of Engineering in Computer Engineering from University of Mumbai **(CGPA 8.89/10)**

Ranked 8th out of 224 students in the department during 2nd year with a CGPI of **9.57/10**.

TECHNICAL SKILLS

Web Technologies: HTML, CSS, and JavaScript | **Frameworks:** TensorFlow, PyTorch, Django, MLflow

Tools/ Software: Docker, Kubernetes, Git, Jenkins, PyCharm, VScode, GitHub, Jupyter | **Languages:** Python, Java, SQL

EXTRA CURRICULAR ACTIVITIES

- Made open-source contributions to FARM, an enterprise ready NLP software, actively developed by deepset.ai. Provided fixes for BERT language modeling training and corresponding model conversion tasks in September 2020.
- Published articles on machine learning model training, deployment, interpretability, and hyperparameter optimization using Tensorflow and Keras with a reputed publication – towardsdatascience.com as a technical blogger since 2018.
- Conducted workshops on machine learning and deep learning topics like exploratory data analysis, neural network visualizations, at community events conducted by Google Developer Groups and PyData throughout 2019.
- Volunteered for Code.org's (non-profit organization) annual social campaign - "Hour of Code" in December 2018 by conducting workshops on computer technologies and programming for underprovided school children.
- Won AngelHack's Mumbai Hackathon in June 2018 by presenting PoC of a system to help supermarkets automatically predict shelf life of their fresh produce, using computer vision algorithms, and reduce food wastage.