Wrik Bhadra

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Specialisation

Machine Learning algorithms, Computer Vision, Information Retrieval

Work Experience

Rakuten India, Bangalore

- *Software Engineer II - Machine Learning* Jan 2022 – present
- *Software Engineer I - Machine Learning* Aug 2021 – Dec 2021
- *Software Engineer I* Aug 2020 – Jul 2021

Internships

- *Software Engineering intern*, Rakuten India Jun 2020 – Jul 2020
  Worked on full-stack development (Go backend, Vue.js frontend) of an Application Performance Monitoring system.
- *Research intern*, Rakuten Ready Jan 2020 – May 2020
  Worked on identifying location types by learning location embeddings with triplet-loss networks as a case of multi-label classification problem.

Education

IIIT Delhi, India
M.Tech. in Computer Science and Engineering 2018 – 2020

Techno India University, West Bengal
B.Tech. in Computer Science and Engineering 2014 – 2018

Publications

Method, Apparatus, and Computer Readable Medium (Patent)
US Patent and Trademark Office (app. number: 17/645,726) [filed Dec 2021]

Generalized Prediction of Hemodynamic Shock in Intensive Care Units
Intensive Care Medicine (Springer) [submitted Oct 2021 - pending review]
medRxiv 2021.01.07.21249121 link

Projects

5G Cellular Antenna Damage Detection
{*object detection, large-scale training, transfer learning*} Team size: 5
A computer vision-based fully automated system for detecting physical damage to 5G cellular antenna towers, which impact their operational effectiveness.

- Part of a two-member sub-team responsible for developing the core AI solution.
- Devised a method for semi-automated curation of a labelled dataset from video footages. This technique has been submitted as a utility patent at USPTO in Dec 2021.
- Developed system for fine-tuning Faster R-CNN ResNet-50 FPN on the curated labelled dataset of about 100k images of cellular antenna towers.
- The model achieved 95% validation accuracy within a 3° tolerance.
- Additionally, implemented solutions for crack detection, fire detection and intruder detection in the vicinity of towers.

Real-time Anomaly Detection
{*data pipeline, apache kafka*} Team size: 2
Anomaly detection in application log streams as part of the Rakuten India SixthSense product offering.

- Developed data pipelines using Apache Kafka for anomaly detection in application logs.

Distracted Driver Detection
{*visual recognition, feature engineering, classifier ensembles*} Team size: 3
Given dashboard images, our system classifies the driver on the basis of 10 predefined actions (texting, speaking on the phone, reaching backwards etc.)

- Project poster / GitHub repo / Kaggle link

Movie Recommendation System
{*collaborative filtering, feature selection, kNN*} Team size: 3
Revisiting movie recommendation systems by analysing item-based collaborative filtering, wrapper method for feature selection and other relevant techniques such as kNN similarity.

- Project poster / Project report / GitHub repo

Skills

Machine Learning PyTorch, TensorFlow, scikit-learn
Programming languages Python, MATLAB, Java
Application development Flask, MongoDB, SQL, Docker, Kafka
Tools Bash, LaTeX, Git, Jupyter Notebook/Lab

Honors, Awards & Recognition

Rakuten India annual awards Dec 2021
Part of the winning team under the Rakuten Eureka (Innovation) category.

Rakathon - Rakuten India's annual hackathon Apr 2021
Selected in the top 110 teams out of 7500+ submissions under the AI - Healthcare category.