SHREYAS KALVANKAR

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EXPERIENCE

Software Developer
Dalton Maag Ltd.

November 2021 - Present | London, United Kingdom

- Developed a Python-based Proof of Concept (POC) utilizing Genetic Algorithms to **automate the generation of thousands of CJK font glyphs**, with the projected potential to significantly reduce production time from **months** to **minutes**.
- Accelerated quote generation from **hours** to **seconds** by automating pricing with PriceBot, refining pricing models in Typescript and Ruby on Rails.
- Implemented an application-health-tracking feature in Ruby on Rails to monitor pricing model states, issuing warnings to end users when pricing diverged significantly from expected figures, thereby preventing revenue loss by saving **hundreds of thousands of GBP** in response to the challenge of potential inaccuracies in project quotes.
- Containerized the application-health-tracking feature and seamlessly integrated it with GitLab CI/CD for continuous monitoring, enhancing operational efficiency.
- Developed glyph data models for Arabic, Greek, Cyrillic, and Devanagari, ensuring precise pricing for non-Latin projects, contributing to an increased client base.
- Implemented a streamlined process in Typescript utilizing graphs theory to efficiently generate project plans, **reducing planning time from hours to a few minutes**, and delivering precise turnaround times to clients.
- Contributed to the development of DSedit, an ElectronJS application with a VueJS frontend, serving as a unified platform housing all internal tools and scripts, aimed at providing seamless accessibility and enhancing operational efficiency.

Machine Learning Research Scientist (Consultant)
Relfor Labs Pvt. Ltd.

September 2022 - Present | Pune, India

- Set up the ML training pipeline using PyTorch lightning on Nvidia DGX A100, with automatic hyperparameter tuning using Optuna, expediting experimentation, making it ∼**50%** faster.
- Revamped ETL pipeline to optimize CPU and storage usage, resulting in an **8x** speed improvement and a **30%** boost in storage efficiency while processing terabytes of data.

Machine Learning Engineer
Relfor Labs Pvt. Ltd.

August 2021 - November 2021 | Pune, India

- Designed multiple novel deep convolutional neural network architectures for audio data classification in PyTorch, which beat state-of-the-art models with **98.6%** accuracy and ∼**0.98** F1-score.
- Implemented various threshold optimization techniques in SKLearn and PyTorch, achieving a precision of ∼**98%** while maintaining high accuracy **>98%**.

Software Development Intern
FinIQ Consulting India Pvt. Ltd.

May 2020 - June 2020 | Nashik, India

- Set up an online platform for Forex trading using AngularJS as a new feature for the customers.
- Created an open-source Python module for stress testing CPU and memory with variable load which was later integrated into the company's cloud platforms' testing pipeline.

TECHNICAL SKILLS

- **Computer Languages** : C, C++, Python, Java (J2EE)
- **Web Development** : Javascript (Babel ES6, Typescript, Webpack, Mocha, Chai), HTML, CSS, Ruby on Rails, ReactJS, VueJS
- **ML Frameworks** : Keras, Tensorflow, PyTorch
- **Database & Big Data** : mongoDB, Postgres, Spark
- **Containerization** : Docker
- **Cloud**: Google Cloud Platform, Cloud Queue, GCP Buckets, Google Cloud Functions

EDUCATION

B.E (Computer Engineering)
K.K. Wagh Institute of Engineering Education and Research

2017-2021 | Nashik

- CGPA: 9.7/10 (Rank 1)

PERSONAL

THE GALAXY ZOO PROJECT

- Developed a CNN in Tensorflow for vote fraction predictions of 37 galaxy features from the Galaxy Zoo decision tree with an rmse score of **0.07765**, ranking us in the **top 3** on the public leaderboard
- Also developed a CNN for classification of galaxies into 7 classes based on their morphologies with an accuracy of **93.7%** and an F1 score of **0.8857**

THE EINSTEINPY PROJECT

- An open source community python package for general relativity
- **Contributions**:
  - Added Reissner–Nordström metric: a static solution to the Einstein-Maxwell field equations, into the code
  - Corrections in the Kerr-Newman and Kerr metrics classes
  - Added calculations of event horizon and ergosphere for a Kerr-Newman blackhole
  - DOI: 10.5281/zenodo.4445219

PUBLICATIONS

Journal Articles

- Kalvankar, Shreyas, Hrushikesh Pandit, Pranav Parwate, et al. (2022). *Astronomical Image Colorization and Up-scaling with Conditional Generative Adversarial Networks*.
- Bapat, Shreyas et al. (2020). *EinsteinPy: A Community Python Package for General Relativity*. arXiv: 2005.11288 [gr-qc].
- Kalvankar, Shreyas, Hrushikesh Pandit, and Pranav Parwate (2020). *Galaxy Morphology Classification using EfficientNet Architectures*. arXiv: 2008.13611 [cs.CV].