

# RISHABH NANAWATI

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## EDUCATION

**Johns Hopkins University** | Master of Science in Computer Science Jan 2023 – Dec 2024

- Relevant Coursework: Computer Vision, Information Retrieval, Web Agents, Parallel Computing for Data Science

**NMIMS University** | Bachelor of Technology (Honors) in Computer Engineering Jul 2017 - Aug 2021

- Relevant Coursework: Data Mining, Business Analytics, Sequence Models for Time Series, Machine Learning (ML), Deep Learning, Databases, Object-Oriented Programming
- Honors: Fellowship by Resolution Project, Student Ambassador Award, Runner up in coding competition Runtime Terror

## SKILLS

**Programming Languages:** Python, R, SQL, MATLAB, C++, C, Java, HTML/CSS, Javascript

**Developer Tools and Platforms:** Docker Containers, Git, JupyterLab, MLflow, Apache Spark, AWS, Microsoft Azure

**Libraries:** Pandas, Scikit-Learn, PyTorch, TensorFlow, HuggingFace, LangChain, OpenCV, spaCy, Flask, RASA

## EXPERIENCE

**Computer Vision Engineer** | Xtractor Lab at Johns Hopkins University Jun 2023 – Present

- Designed table processing module for scanning app of historical documents, to be used by academic institutions
- Created end-to-end model experimentation pipeline, on historical in-house dataset, for benchmarking of table extraction models like table transformers and services like Amazon Web Services and Weights and Biases (wandb)
- Reduced experimentation time overhead by 70% with easy-to-use command-line UI and online metrics dashboard

**Curriculum Developer for Generative AI** | Johns Hopkins University May 2023 – Present

- Curated syllabus, created lecture presentations, and, crafted hands-on assignments for course on Generative AI
- Researched fine-tuning techniques for large language models (LLM) such as LLaMa and GPT, including prompt engineering, parameter-efficient fine-tuning (PEFT) and reinforcement learning from human feedback (RLHF)
- Course expected to be taken by 50 students who want to apply artificial intelligence systems creatively and efficiently

**NLP Engineering Associate** | Dimensionless Technologies Ltd Feb 2022 – Sep 2022

- Created Natural Language Processing module for real-time call analysis app to detect telephonic scams in India
- Generated embeddings of Hindi speech dataset using Google BERT model, after extraction, transformation, and loading (ETL) of public and in-house datasets
- Implemented intent classification and named entity recognition (NER) to identify patterns in common scams
- Improved overall use-case performance by 32% through enhancements in speech-to-text and predictive modelling

**Chief Engineer** | Curabit LLC Jan 2020 – Dec 2021

- Founded a venture to aid in treatment of moderate psychological disorders using virtual reality exposure therapy
- Produced 7 virtual reality simulations and created a web-based application to control the simulations in a VR headset
- Published technical chapter on our product's foundational research in book "Multimedia Computing Systems and Virtual Reality" by Taylor and Francis Group ([link](#))

## PROJECTS

**TREC Spotify Podcast Search Engine** | [Project Repository](#) Apr 2023 – May 2023

- Retrieved podcast episodes based on user's given search query using information retrieval and NLP techniques
- Achieved a relevancy score of 0.42 after training a model on Johns Hopkins's High Performance Computing system

**SageRef: Single Image Reflection Removal** | [Project Repository](#) Apr 2023 – May 2023

- Removed aberrations including glares, flashes and reflections from shiny surfaces, with input of only one image
- Achieved 79% structural similarity index (SSIM) through image processing techniques and a variational autoencoder

**Deep Compression Autoencoder** | [Project Repository](#) Mar 2022 – Jun 2022

- Compressed jet particle data from CERN's ATLAS experiments, as part of Google's Summer of Code Challenge
- Achieved 98% lossless compression after reducing size of data by 25% using autoencoder networks