

## EXPERIENCE

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- **BrandMind GmbH** Zurich, CH  
*Head of AI* Feb'21 - Present
  - **Management:** Worked with the CEO, Head of IT, and Head of Sales for study conception, and led the DS team.
  - **Model Development:** Used active learning, and a hybrid approach of supervised and reinforcement learning for profiling the psychometric personality of a product and the user.*Data Scientist* Jan'21 - Feb'21
  - **Data:** Created, cleaned, explored, and analyzed the data from various sources including the organizational data.
  - **Analysis:** Responsible for creating data analysis models using ML and NLP for psychometric profile assessment, documented and displayed the results at weekly meetings.
- **Edvora AI** Bangalore, IN  
*AI Developer* Jan'21 - Present
  - **Study Conception:** Devised the project plan alongside the CEO and CTO along with weekly update meetings.
  - **Model Development:** Created a 94% accurate unsupervised model for super-resolution from 80 to 1080 pixels.
- **University of Cambridge** Cambridge, UK  
*Research Project Lead & ML Engineer* Jan'20 - Sep'20
  - **Study Conception:** Conceived the study and devised project plans alongside the Research Guide.
  - **Management:** Managed the Machine learning and Application development teams and helped them deploy the software for clinical trials in parallel collaboration.
  - **Natural Language Processing:** Devised the language pipeline, using recurrent neural networks (LSTM and GRU) and transformers (BERT).
  - **Deep Learning:** Used Deep Learning in NLP to process the patterns that depict coherence in speech, ideas, and written words which signify patients at greater risk who develop psychological disorders.
  - **Ensemble Learning:** Multimodally fused the language, audio, and visual modalities.*Student Researcher* Feb'19 - Sep'20
  - **Study Conception:** Depression severity prediction based on an internationally accepted Diagnostic and Statistical Manual of Mental Disorders (DSM)-V.
  - **Frontalization:** Used a real-time frontalization model for video inputs using Generative Adversarial Networks.
  - **Prediction System:** Programmed depression prediction system based on frontalized video inputs. Established correlations between the emotions and associated them with DSM-V score to predict depression severity.
  - **Evaluation Metrics:** The devised model was 96.42% accurate with a precision value of 0.91.
- **University of Arkansas at Little Rock** Arkansas, US  
*Summer Researcher* Jun'19 - Jul'19
  - **Disciplines:** Worked on several interdisciplinary projects in domains like Machine Learning, Information Science, Natural Language Processing, and Computer Vision.
  - **Management:** Managed two teams of 15 individuals including undergraduates, post-graduates, and doctoral students as a technical project lead, reviewed their work, and provided weekly assignments.
  - **Named Entity Resolution:** Devised intelligent word recognition (IWR) to target handwritten and print script or cursive text one word at a time with K-nearest neighbours and levenshtein distance optimization algorithms.
  - **Deep Learning & Computer Vision:** Implemented a real-time frontalization model using GAN for video inputs that was then provided to the sentiment prediction model which predicted the emotion variational graph.
  - **Teaching Assistance:** Taught undergraduate, post-graduate, and doctoral students, and Professors alongside Dr. Mariofanna Milanova at a Deep Learning Workshop from NVIDIA. Solved doubts and assisted in assignment completion.
- **University of Mumbai** Mumbai, IN  
*Teaching Assistant* Jan'19
  - **Mentoring:** Mentored over 100 engineering students from all disciplines for a Machine Learning coursework.
  - **Concepts Taught:** Explained the mathematical concepts behind Support vector machines with Linear and Gaussian kernels, Genetic Algorithms, Generative Adversarial Networks (GANs), Deep Neural Networks, Mask-RCNN, and Sequence Models.
  - **Tests and Assignments:** Created Programming assignments based on TensorFlow. Organized doubt-solving sessions further maintaining a healthy environment for discussions. Conducted hands-on code tests and review assignments to foster logic building and intuition.

## PUBLICATIONS

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2020 Multimodal Depression Severity Prediction from medical bio-markers using Machine Learning Tools and Technologies (*Cornell University Press*)

## SCHOLASTIC ACHIEVEMENTS

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2017 Secured an **All India Rank 1079** in **JEE Advanced** (previously IIT-JEE) among 0.15 million candidates

2018 Won the inter-collegiate research convention **Aavishkar'18** from more than 2000 projects from 700 colleges

## RELEVANT COURSES & CERTIFICATIONS

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End-to-End Machine Learning on GCP (*Google Cloud*) | Machine Learning (*Stanford University*) |

AVR Programming and Wireless Robotics (*Intel*) | Discrete Time Signal Processing (*MITx.org*) |

Natural Language Processing Specialization (*Deeplearning.ai*)

## PROJECTS

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- **Performance testing using server-side-rendering:** Developed and deployed a server-side rendered blog website using Next.js with Prisma and MySQL integration. Tested the website's server response and performance in contrast to static, universal, and client-side rendered websites based on the lighthouse metrics.
- **Multimodal Depression Severity Prediction:** Proposed a novel Custom CM Ensemble approach with a precision value of 0.88 and an accuracy of 91.56% to estimate depression severity based on a multi-class classification model using language, audio, and visual modalities. The approach attempts to detect, emphasize, and classify features of depression based on low-level descriptors for verbal and visual features, and the context of language features.
- **POS Tagging using HMM and Viterbi Algorithm:** The model was built on ambiguous and unambiguous words further forming the transmission and emission probability matrices using HMM. These transmission and emission matrices were then fed into the Viterbi Algorithm which achieved an accuracy of 95.31%.
- **Customer Segmentation:** Designed a 77.78% accurate predictive model with an F1-score of 0.77 using the baseline single-layered neural network, bayesian optimization gaussian process, and bayesian optimization search that divided the customers into groups based on common characteristics allowing companies to market to each group effectively.
- **Automated Security Imaging:** Implemented Mask-RCNN with attention mechanism to detect prohibited objects during security scanning by using the GDXray and OPIXray datasets. The study aimed to automate the security imaging. Our model was 92.34% accurate with a precision value of 0.87.
- **Way Finding Robot:** Programmed the Gale-Shapely algorithm in AVR micro-controller and simulated it using the Proteus ISIS simulator. Computed a self-locating matrix through MATLAB image processing, and executed algorithm for mobility and navigation of the robot.

## CONFERENCES

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- **SciPy conference at IIT Bombay, Mumbai, India** 2018  
*Reviewed and studied technical papers on Machine learning, Game theory, and Deep Learning*
- **Artificial Intelligence Summit at TechFest IIT Bombay, Mumbai, India** 2018  
*Discussed future of AI into NLP with technical heads of companies like Samsung and Amazon*
- **Industry 4.0 Conference at IIT Bombay, Mumbai, India** 2020  
*Held up several intriguing discussions about the future of Industry 4.0 and Big Data Analytics*

## EDUCATION

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- **University of Mumbai** IND  
*Bachelor of Engineering | Department of Computer Engineering* Aug'18 – May'22 (*Expected*)

## SKILLS AND INTERESTS

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Languages Python, Octave, Bash, TypeScript, JavaScript, Sass, CSS3, C/C++  
Frameworks TensorFlow, Keras, PyTorch, PyCaret, ReactNative, Next.js, React.js  
Softwares Adobe XD, Weka, Tableau, Visual Studio Code  
Domains Machine Learning, Deep Learning, NLP, Data Science, Web Development  
Tools Google Cloud Platform (Apache Beam, BigQuery, Cloud ML Engine), L<sup>A</sup>T<sub>E</sub>X, Wolfram Mathematica, MATLAB