

ROHIT K BHARADWAJ

Abu Dhabi, UAE

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KEY AREAS

Foundational Models, Generative Models (Diffusion, GANs), Multi-Modal Learning, Object Detection, Biometrics, Topic Modelling, Transformers, Research Solutions Tackling Real-World Issues.

EDUCATION

Mohamed bin Zayed University of Artificial Intelligence Abu Dhabi, UAE
MSc in Machine Learning, **CGPA:** 3.90/4.0 (till Sem-3) 2022 - 2024

- **Relevant courses:** Machine Learning, Artificial Intelligence, Optimization, Probabilistic and Statistical Inference, and Natural Language Processing.

Birla Institute of Technology and Science, Pilani Pilani, India
B.E in Computer Science, **CGPA:** 8.44/10.00 2018 - 2022

- **Relevant courses:** Foundations of Data Science, Object Oriented Programming, Information Retrieval, and Data Structures and Algorithms.
- **Minor Certification:** Data Science

Birla Institute of Technology and Science, Pilani Pilani, India
MSc in Mathematics, **CGPA:** 8.44/10.00 2017 - 2022

- **Relevant courses:** Optimization, Probability and Statistics, Discrete Mathematics, Measure & Integration, Graphs and Networks, Applied Statistical Methods, Cryptography, and Applied Stochastic Processes.
- **Awards:** INSPIRE-SHE Scholarship, is a scholarship awarded by the Govt of India to meritorious students pursuing bachelor's or master's courses in natural and basic sciences.

PREPRINTS

1) **Bharadwaj, R.**, Naseer, M., Khan, S., Khan, F. S. (2023). Enhancing Novel Object Detection via Cooperative Foundational Models. [[PROJECT](#)][[PDF](#)][[CODE](#)]

PUBLICATIONS

1) Keh, S. S., **Bharadwaj, R. K.**, Liu, E., Tedeschi, S., Gangal, V., Navigli, R. (2022). EUREKA: EUphemism Recognition Enhanced through Knn-based methods and Augmentation. *Accepted to EMNLP 2022 Figurative Language Workshop* [[PDF](#)][[CODE](#)]

2) Pandia, A., Arora, G., Jain, A., **Bharadwaj, R.**, Bhatia, A., & Tiwari, K. (2022). DTeeth: Teeth-photo Based Human Authentication for Mobile Devices. 2022 International Joint Conference On Biometrics (IJCB) [[PDF](#)] [[DATA](#)]

3) **Bharadwaj, R.**, Jaswal, G., Nigam, A., & Tiwari, K. (2022). Mobile based human identification using forehead creases: application and assessment under COVID-19 masked face scenarios. **2022 IEEE Winter Conference on Applications of Computer Vision (WACV)** [[PDF](#)] [[CODE](#)] [[DATA](#)] [[SLIDES](#)]

4) **Bharadwaj, R.**, Bhatia, A., Chhibbar, L. D., Tiwari, K., & Agrawal, A. (2022). Is this url safe: detection of malicious urls using global vector for word representation. 2022 International Conference on Information Networking (ICOIN) [[PDF](#)] [[SLIDES](#)]

5) Jaswal, G., **Bharadwaj, R.**, Tiwari, K., Thapar, D., Goyal, P., & Nigam, A. (2021). AI-biometric-driven smartphone app for strict Post-COVID Home Quarantine Management. *IEEE Consumer Electronics Magazine* [[PDF](#)]

PROJECTS

Analyzing the Robustness and the Reliability of Large Language Models MBZUAI

Group Project for the NLP701 course. We analyzed the robustness and reliability of Large Language Models (LLMs). I was responsible for the reliability experiments where the hallucinatory tendencies of various LLMs like GPT-3.5, and GPT-4 were evaluated. [\[PDF\]](#)[\[CODE\]](#)

TAIM-GAN: Fusing Image With Text For Advanced Face Filtering MBZUAI

Group Project for the ML701 course. Implemented a light-weight GAN architecture to edit images based on the given natural language text descriptions. [\[PDF\]](#)[\[CODE\]](#)

VOLUNTEER EXPERIENCE

- Reviewer at IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR 2024).
- Volunteer at Conference on Empirical Methods in Natural Language Processing (EMNLP 2022).

TEACHING EXPERIENCE

Teaching Assistant for MTH701: Mathematical Foundations of AI MBZUAI

- Teaching and conducting lab sessions for first-year grad students.
- Responsibilities include grading, quiz and exam supervision, and course content delivery.
- Modules covered: Probability and Basic Statistics, Linear Algebra.

WORK EXPERIENCE

Software Development Engineer, SDE - 1 Gurugram, India Urban Company *May 2022 - Jun 2022*

Supervisor: Mr. Manish Jain, Mr. Arihant Jain

- Developed **custom OpenAPI schema validation** rules. These custom rules allows much stricter schema validation to ensure better code quality and to prevent bugs.
- Developed an automated python script to monitor and extract pipeline data (Unit Tests, Lint, Type Errors, Circular Dependencies) from all the microservices to improve service reliability and reduce downtime.
- Integrated **In-Memory MongoDB with Jest**, which eliminates the need to mock database calls for unit tests.

SDE Intern Gurugram, India Urban Company *Jan 2022 - Apr 2022*

Supervisor: Mr. Manish Jain, Mr. Arihant Jain

- Collaborated on improving functionality of existing **NodeJS** based APIs, which were being used in the company's internal dashboard. I was also responsible for the front-end changes and writing of unit tests for the APIs.
- Responsible for fixing a major bug which was overlooked for many months.
- Gained sufficient exposure working with NodeJS, Typescript, OpenAPI, MongoDB, Jest, MySQL, Grafana, Kibana, Microservices and Distributed Systems.

Mitacs Globalink Research Intern Toronto, Canada York University *May 2021 - Aug 2021*

Supervisor: Dr. Marina Erechtkoukova

- Researched and implemented topic modelling algorithms like Word2Vec, LDA, and Lda2Vec using Gensim and PyTorch in the knowledge domain of water resources management to ease the extraction of information over large corpora. The experiments were conducted on 28k full-text documents and 88k abstracts over 7 academic journals.

- Generated word clouds and interactive HTML visualizations showing the inter-topic distance map using PyLDAVis to facilitate the visualization of the discovered topics in the underlying academic documents.
- Computed and compared topics generated by each model [LDA and Lda2Vec], dataset [abstract and full-text], and pre-processing methods [WordNet Lemmatizer, Noun + Verb, and Noun + Verb + Adjective] over each of the 7 journals using jaccard distance to plot and visualize the correlation heatmaps. [7 journals \times 2 datasets \times ${}^6C_2 = 210$ comparisons]

Research Intern

New Delhi, India

Council of Scientific and Industrial Research - Institute of Genomics and Integrative Biology *May 2019 - Jul 2019***Supervisor:** Dr. Srinivasan Ramachandran

- Project was on clustering and visualizing similar medical terms present in biomedical literature. Scrapped over 7074 abstracts on the topic of “Vitiligo” from PubMed. Handled entire end-to-end pipeline of data acquisition, data pre-processing, model training, and visualization of results.
- The data pre-processing was handled using regular expressions, stop-word removal, and lemmatisation. Bi-grams from the data were obtained using Gensim, and the common data pre-processing stages were implemented using NLTK.
- GloVe model was then trained on the dataset to obtain vector embeddings of the words and bi-grams. Visualization of the embeddings was done using Gephi. Thus, the vocabulary terms were visualised in the form of a weighted graph, where the weight of the edges between two terms was equal to the cosine similarity of their respective embeddings. Project on [Github](#).

LEADERSHIP

Team Lead

BITS Pilani

Students Union Technical Team (SUTT)

May 2019 - Jun 2020

- Nominated as the head of app-development team at SUTT, and was responsible for the development and launch of [Android](#) & [iOS](#) application which serves the needs of more than 5000 students in the campus.
- The app was developed using Flutter, and delivers all student resources and utilities in one place. Some of the features of the app include: merchandise ordering and delivery, expense tracking on food outlets, accessing course materials and previous year question papers, etc.

AWARDS AND RECOGNITION

Singapore-India Hackathon 2019

[Our Team](#) built software solution to track disease progression. We came in the top-8 teams and were awarded S\$2000 (Singapore Dollars).

Winners of Smart India Hackathon 2019 (SIH 2019) Software Edition

Our team “[CicadaCrackers](#)”, under my leadership, won the grand-finale round and were awarded Rs 1,00,000. We built an Android application and Web dashboard to alert users during Tsunami and to effectively assist authorities in rescue operations.

SCHOLARSHIPS

- [MBZUAI Scholarship \[2022-2024\]](#): Selected for fully funded masters scholarship, which covers tuition, accommodation, health insurance, travel and monthly stipend.
- [INSPIRE-SHE \[2017-2022\]](#): The purpose of the scholarship is to award meritorious students pursuing bachelor's or master's courses in natural and basic sciences. The scholarship is given by the Department of Science and Technology, Government of India. The scholarship is valued at Rs. 80,000/- per annum (Indian Rupees) for a period of five years.
- [Globalink Graduate Fellowship](#): This fellowship is provided to former **Mitacs Globalink Research Interns**. The fellowship is valued at \$15,000 (Canadian Dollars).

REFERENCES

Dr. Salman Khan

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Email: salman.khan@mbzuai.ac.ae

Prof. Kun Zhang

Acting Chair, Visiting Professor of Machine Learning
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