

Shikhar Bharadwaj

<https://shikhar-s.github.io/>

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EDUCATION

- **Indian Institute of Science** Bengaluru, India
M.Tech (Research) in Intelligent Systems; GPA: 8.7/10.0 Aug. 2019 – Present
- **Birla Institute of Technology and Science** Hyderabad, India
B.E. (Hons.) in Computer Science Engineering; GPA 9.74/10.0 Aug. 2014 – July. 2018
- **City Montessori School** Lucknow, India
ISC; Percentage: 98% 2014
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ICSE; Percentage: 97% 2012

SKILLS

- **Programming Languages:** Python, C++, Java, Bash, SQL
- **Technologies:** NumPy, Pandas, Scikit-learn, Pytorch, Pytorch-Lightning, OpenNMT, Keras, Mlpack, Seaborn, Elasticsearch, Redis, Hive, MySQL, LevelDB, C++ STL, Matplotlib, Transformers
- **Relevant Courses:** Deep Learning for Natural Language Processing, Machine Learning, Data Analytics, Linear Algebra, Probability, Optimization, Data Structure and Algorithms

EXPERIENCE

- **Myntra Designs Pvt Ltd.** Remote, India
Machine Learning Intern May 2020 - July 2020
 - **Size Recommendation:**
 - * Implemented an iterative optimization algorithm to correct product and user size measurements based on user purchase history.
 - * Improved recommendation coverage by 10-23% and recommendation accuracy by 5-12% across article types.
 - * Devised an algorithm to keep the user measurement values interpretable, with no loss in accuracy.
 - Technologies:** Python, NumPy, Pandas, Scikit-learn, Seaborn
- **Media Net** Mumbai, India
Platform Engineer Aug 2018 - July 2019
 - **Advertisement Retrieval:**
 - * Implemented a modified Okapi BM25F algorithm to retrieve textual ads based on user search keywords.
 - * Designed an end to end system around it and shipped the system to production.
 - * Improved keyword coverage over the previous regex-based algorithm, saving company person-hours while keeping the retrieval latency less than 80 ms.
 - Technologies:** Java, ElasticSearch, Hive, SQL, Word2Vec, TF-IDF
 - **Text Clustering:**
 - * Implemented K-Means and Hierarchical clustering on search keywords for grouping user intent.
 - * Created a UI (with CRUD operations) for reviewing clusters.
 - Technologies:** Python, Pandas, Scikit-learn
- **Microsoft Research India** Bengaluru, India
Research Intern Summer 2018
 - **ActorDB:** The project involves a contribution to Microsoft's P family of programming languages. These are domain-specific languages for designing safe and robust asynchronous as well as distributed systems. Used P3 (C++ based) to develop a robust key-value store.
 - Technologies:** C++, C++ STL, LevelDB

PROJECTS

- **Multi-Aspect Sentiment Classification for Online Reviews of Medical Experts:**

- Reproduced results from Shi et al. on a publically available dataset.
- Visualised the attention distribution over reviews across aspects to obtain important words for the predicted sentiment.
- Method results include an F-score of 0.35-0.41 across aspects.

[[GitHub](#)]

Technologies: Python, Matplotlib, Pytorch, Pytorch-Lightning

MANUSCRIPTS

- **Explainable Natural Language to Bash Translation using Abstract Syntax Tree:** Developed an algorithm for translating Natural Language to Bash commands by utilizing command Abstract Syntax Tree and Manpage data, resulting in interpretable predictions beating baselines like T5 and Seq2Seq with attention. **Accepted at CoNLL 2021.** [[GitHub](#)]
- **Analysis of C++ Abstract Syntax Tree Embeddings:** Analyzed programs from the competitive programming website Codeforces to predict programmer proficiency, achieving an F-score of 0.62 with logistic regression and Doc2Vec embeddings of linearized Abstract Syntax Tree. Gained insights into embedding relationships across programmers and problems. **Under Review at NLPaSE 2021.** [[GitHub](#)]
- **An extraction based approach to keyword generation and precedence retrieval:** Precedence retrieval involves ranking documents according to their importance for a given query. Devised an algorithm to perform keyword-based summarization of documents and then used these summaries to rank documents. **Published in Working Notes of Forum for Information Retrieval Evaluation (FIRE) 2017.** [[Link](#)]

ACHIEVEMENTS

- **NTSE Scholarship:** Awarded by Govt of India for qualifying National Talent Search Examination
- **INSPIRE Scholarship:** Awarded by Govt of India to students with top 1% percentile marks in ISC
- **National Standard Examination in Physics:** Qualified NSEP (top 2.5% of all the students in India)
- **Merit Scholarship:** Top 2% of the batch for 7 semesters and top 1% for 1 semester at BITS Hyderabad
- **Competitive Programming:**
 - [[Codechef](#)] 5 star
 - Google Kickstart Round E 2021 - Ranked 387