Hiba Ahsan

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Education

Northeastern University Jan 2023 - CURRENT
Khoury College of Computer Sciences
Ph.D. in Computer Science

University of Massachusetts, Amherst Sep 2019 - Feb 2023
College of Information and Computer Sciences
M.S. in Computer Science [1] GPA: 3.94/4
Relevant Coursework: Machine Learning (ML), Neural Networks, Numerical Optimization, Probabilistic Graphical Models, Data Visualization, Natural Language Processing (NLP), Algorithms for Data Science

National Institute of Technology Karnataka Jul 2011 - May 2015
B.Tech. in Information Technology GPA: 9.17/10
Relevant Coursework: Data Structures & Algorithms, Operating Systems, Objected Oriented Programming, Database Management Systems, Linear Algebra, Probability & Graph Theory

Experience

Netflix, *Research Intern* May 2021 - Aug 2021
- Designed and conducted experiments to improve Netflix's relevance ranking system using knowledge graph embeddings.

LinkedIn, *Machine Learning Intern* May 2020 - Aug 2020
- Created new user-engagement and notification-type based features for LinkedIn's notifications ranking system.
- Built pipelines for training models and computing features online on Apache Spark.

Microsoft, Bing Advertising, *Research Engineer* Oct 2016 - Jul 2019
- Improved relevance of text ads shown on Bing search engine for user queries using ML and NLP.
- Analyzed poor query-ad matches and proposed computing categorical similarity of the pairs to catch arbitrary matches.
- Developed a low cost embedding to determine categorical similarity of query-ad pairs online using convolutional latent semantic modeling. Addition of similarity score to the existing relevance model as a feature improved ad quality by 1.7% (A/B Testing).
- Created a model to determine whether a tail query has a commercial intent or not. Controlled ad trigger based on this model improved ad quality by 4.34% (A/B Testing).

International Institute of Information Technology Hyderabad, *Research Intern* May 2014 - Jul 2014
- Automated the process of multi-labeling music based on instruments played using multi-label classification with an accuracy of 92.57% in Matlab.
- Proposed a feature augmentation technique using Non-Negative Matrix Factorization to improve classification.

Indian Institute of Science Bengaluru, *Research Intern* May 2013 - Jul 2013
- Automated the process of classifying land cover into different classes (water, vegetation, barren land, built up areas) using machine learning techniques on images acquired by hyperspectral sensors with an accuracy of 87.23% in Matlab.
- Compared supervised approaches such as maximum likelihood estimation with unsupervised approaches such as k-means clustering and analyzed the impact of dimensionality reduction on classification accuracy.

Technical Skills

Programming Languages	Python, C, C#, Java
Libraries	PyTorch, TensorFlow
Big Data Frameworks	Apache Spark

[1] Enrolled in M.S. program in Fall 2019, transferred to M.S./Ph.D. program in Spring 2021

Honors & Awards

- Paul Utgoff Memorial Graduate Scholarship in Machine Learning, 2021.
- CICS Scholarship to attend Grace Hopper Celebration, 2020.
- Indian Academy of Sciences (IAS) Summer Research Fellowship, 2014.

Publications

- A. Mitra, **H. Ahsan**, W. Li, W. Liu, R. Kerns, J. Tsai, W. Becker, D. Smelson, H. Yu, Risk Factors Associated With Nonfatal Opioid Overdose Leading to Intensive Care Unit Admission: A Cross-sectional Study. In *JMIR medical informatics 9.11 (2021): e32851*.
- **H. Ahsan**, E. Ohnuki, A. Mitra, H. Yu, MIMIC-SBDH: A Dataset for Social and Behavioral Determinants of Health. In *Machine Learning for Healthcare (MLHC) 2021*.
- **H. Ahsan**, N. Bhalla, D. Bhatt, K. Shah, Multi-Modal Image Captioning for the Visually Impaired. In *NAACL Student Research Workshop (SRW) 2021*.
- **H. Ahsan** and R. Agrawal, Approximating Categorical Similarity in Sponsored Search Relevance. In *WSDM Workshop on Deep Matching in Practical Applications (DAPA) 2019*, Melbourne, Australia.
- **H. Ahsan**, V. Kumar and C. V. Jawahar, Multi-label Annotation of Music. In *8th International Conference on Advances in Pattern Recognition 2015*, Indian Statistical Institute, Kolkata, India.

Talks

- **H. Ahsan** and S. Lamkhede, Improving Search Results Ranking Using a Knowledge Graph. In *CIKM Workshop on Knowledge Injection in Neural Networks 2021*.
- **H. Ahsan** and R. Agrawal, Neural Network Based Semantic Feature Approximator: Application in Category Match. In *10th Machine Learning and Data Sciences Conference 2018*, Microsoft, Redmond, USA.

Achievements

- **Best Use of Google Cloud** and **Best User Experience Design**, Hack(H)er413 Feb 2020
  Created Snap-a-Book, a mobile application to automatically locate books of interest on bookshelves using the camera instead of browsing for them manually.

Leadership Experience

- **Treasurer**, Grad Women in Computer Science, UMass Amherst Sep, 2021 - PRESENT
  Responsible for handling the finances of the student group organization.
- **Communications Team Member**, Voices of Data Science (VoDS) Jun, 2020 - Feb, 2021
  Created publicity content and handled social media handles of VoDS, a platform to amplify the voices of data scientists, specifically those from underrepresented communities.
- **Mentor**, Microsoft Internship Program Jun, 2016 - Jul, 2016
  Guided two undergraduate students in developing a tool for extracting information from Microsoft's online customer forum using NLP techniques.