Pranjal Aggarwal
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Education

University of Colorado Boulder, CO Aug 2023 – May 2025 (Expected)
Master of Science in Computer Science *GPA: 4.0/4.0*
Courses: *Design and Analysis of Algorithms, Natural Language Processing, Computer Vision, Linux System Administration*

Indian Institute of Information Technology Dharwad, India Aug 2018 – May 2022
Bachelor of Technology in Computer Science and Engineering

Technical Skills

Languages: *(proficient):* Python, C++, SQL *(familiar):* Node.js, HTML/CSS, MATLAB, R, Java
Frameworks/Tools: Scikit-learn, TensorFlow, Keras, OpenCV, PyTorch, Git, Salesforce
Other: NumPy, Pandas, Machine Learning, Feature Engineering, Open Source Contribution

Work Experience

International Business Machines (IBM) Jan 2022 – Jul 2023
Internship and Full Time (Application Developer)

- Collaborated with a cross-functional team of 10 to develop clean and efficient code
- Utilized Salesforce development skills to deliver timely solutions, substantially reducing backlogs
- Deployed components through change sets and integrated with GitHub
- Wrote apex test cases and increased the code coverage to more than 95%
- Featured in the IBM newsletter **iX Interns** as one of the 4 best interns hired

Indian Institute of Technology (IIT BHU - Internship) Jan 2022 – Jul 2023
Project Title: Design and Fabrication of Brachytherapy Applicator

- Designed and modelled a brachytherapy applicator for the treatment of cervical cancer
- Implemented complex 3D designs using CADD technology
- Produced 3D prototypes while development, which aided in improving safety and precision in treatment
- The design resulted in a patent, filed jointly with others, Ref.No.-P.178.IN, Application No.- 201911044724

Research Projects

Text Detection in Distorted Natural Scenic Images Using Genetic Programming Jan 2022 – Jul 2022

- Detects text in natural scene images distorted by continuous sharing on social media
- Enhanced MSER to fetch connected components and developed a 3x3 filter using genetic programming
- Classified the components as text and non-text by genetic filters and used the text components with iterative dilation to come up with bounding boxes around text

An ML Approach to detect Hope Speech for Equality, Diversity and Inclusion Jan 2021 – May 2021

- Classified sentences as hope speech and non-hope speech from a dataset of 20k+ YouTube comments
- Implemented Bag of Words, TF-IDF and Word2Vec for text vectorization
- Used data balancing techniques (SMOTE, ADASYN, etc) to decrease imbalance by 95.73%
- Addressed ambiguity in statement by introducing a third label and using BERT achieved an accuracy of 87%

Random Decision Forest Approach for Mitigating SQL Injection Attacks May 2020 – Aug 2020

- Prepared and scored a list of SQL keywords on a scale of 1 to 3 examining their risk factors
- Scored the SQL queries in the dataset according to keyword scores and other features
- Achieved an accuracy of 95% using random forest classifier
- Received **Best Paper Award** for presenting the work at the IEEE 7th International CONECCT

Publications

- **Best Paper Award:** For "Random Decision Forest Approach for Mitigating SQL Injection Attacks" at International Conference on Electronics, Computing and Communication Technologies, IEEE CONECCT 2021 - Bangalore, India
- **Book Chapter:** Aggarwal, Pranjal, et al. “Hope Speech Detection on Social Media Platforms” Cyber Crime in Social Media: Theory and Solutions. CRC Press, 2022

Leadership

- Led a team of 4 to **secure a top 10 position** out of around 200+ teams at the annual hackathon at IIT Dharwad
- Organized **seminars and mock Shark Tank** sessions with the Entrepreneurship Cell (E-Cell) at IIIT Dharwad