Ankita Sinha

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EDUCATION

Degree/Certifications	Institution	Percentage/CGPA	Year
B.Tech in CSE	National Institute of Technology, Dgp	8.46	2013-17
Online Masters in Computer Science	University of Texas, Austin	4.0	2020 - current

RELEVANT COURSEWORK

- **UT, Austin** - Deep Learning (focus on applications in Computer Vision and Object Detection), Reinforcement Learning.
- **NIT Dgp** - Artificial Intelligence & Expert Systems, Data Structures, Computer Architecture, Linear Algebra, Calculus.

WORK EXPERIENCE

INTUIT FUTURES (R&D team) (Feb 2019 - current)

- **Federated Learning Platform**: Create a Federated Learning platform to run all our machine learning models to secure each user's personal accounting and bank details.
- **Cerebro**: a tool which provides real time insights about Intuit's competitor products using public and social data.
  - Built a server-less infrastructure which scrapes and processes nearly **3.5 GB** of data from LinkedIn, GlassDoor and 3rd party api's like AppAnnie every month.
  - Built a service to get summary of customer reviews using **KeyPhrase extraction model** (using Parsing, Sent2Vec, Cosine Distance and MMR) and **Sentiment Analysis** (using VADER).
  - Built a customized Android application that **detect trends and news** about apps subscribed to by users.
  - Designed and built a rules-engine that **detects anomalies** in an app's metrics (example: number of downloads).
  - Cerebro was pivotal in the **$7.1 billion acquisition of Credit Karma by Intuit** and multiple aquihires. It is used extensively by the Board members and Product Managers at Intuit to track market statistics.
- **Quickbooks Self-Help**: It answers user queries based on our self-help articles and highlights the most relevant portion within the document.
  - Built **BERT Embeddings** for **Information Retrieval** and a **Bag-of-Words model** for **Information Extraction**.
  - This **increased** the usage of **self-help by 35%** and **decreased care calls by 66%**.
  - Working on extending Quickbooks self-help skill for Alexa using speech recognition.

QUICKBOOKS (Product team) (Aug 2017 - Jan 2019)

- **Digital Tax Experience for UK**: Developed the Digital Tax experience for Quickbooks UK that was used by **165k customers** to file their taxes.
- **MCS**: Infrastructure for storing application configuration to make it variable across different dimensions of the product.
  - Built a **Recommender System** to suggest products to consumers based on the products sold by similar retailers using a Graph database (Neo4j). This reduced the time taken to enter new products to seconds.

RESEARCH PROJECTS & PUBLICATIONS

- **Sinha, P., & Sinha, A. (2020). Entropy Based k Nearest Neighbor Pattern Classification(EbkNN): En-route to Achieving a High Accuracy in Breast Cancer Diagnosis . Asian Journal of Applied Sciences, 8(6).**
  - Designed a variation of K Nearest Neighbours which optimizes value of K neighbours based on entropy.
  - The algorithm combined with feature processing achieved an **accuracy of 98.83**, beating the previous high score on UCI Wisconsin breast cancer data which was **98.61**.
- **Sinha, Ankita & Subrahmaniam, Vignesh. (2020). Cerebro: Novelty Detection in Product Reviews. 140-143. 10.1145/3380688.33** - **ICMLSC 2020**.
  - Built a Novelty Detection service for user reviews using an ensemble of Isolation Forest and Local Outlier Factor trained on previous months data to filter new product updates and bugs from user reactions.

INTERNSHIP (@C-DAC - the R&D cell of Ministry of Electronics India, from May 2016 to Jun 2016)

Tool to predict most popular tourist place for boosting tourism in India:

- Mined data from social media, removed noise and anomalies and built a supervised clustering model using DBScan to predict the popularity of a place according to the number of tags.

- The model had a **precision** of **0.78**.

ACADEMIC PROJECTS

- **SuperTuxKart Ice Hockey Player (UT Austin)**
  - Build 2 agents **a striker and a defender** using Reinforcement Learning **(branching DQN)** to drive (accelerate, brake and steer) and **Computer Vision** to detect the Puck.
  - Our Agents ranked **4th** in the final tournament against all the other teams in class and scored a total of **60 goals** across 12 games against the AI.

- **Invariance Tests for Clustering Metrics (NIT Durgapur)**
  - Contributed to **Scikit-learn** open-source library by writing Invariance Tests for Clustering Metrics.

- **Movie Recommendation Website (NIT Durgapur)**
  - Scraped a list of all English and Hindi movies released in recent 2 years to recommend movies to the user which belonged to the same genres and similar ratings as the ones user previously selected as "Liked".

- **Simulated and Optimisation of LIRS (cache replacement policy) (NIT Durgapur)**
  - Optimised the execution of **LIRS** (Low Inter-Reference Recency Set) on milti2sim by using dynamic queue sizes for both high and low inter-reference sets.
  - Evaluated the performance of LIRS and Optimised LIRS on several benchmark algorithms like Barnes, Radix, Raytrace.

TECHNICAL SKILLS

- 1. Python 2. NLP 3. Machine Learning. 4. Deep Learning. 5. AWS. 6. Java.

AWARDS/ACHIEVEMENTS

- Presented at Tech-Con about Key-Phrase extraction where I was **selected** from all over Intuit with more than **500 proposals**.

- **1st place** in Intuit Global Engineering days (2018) a 5 day hackathon with over 300 participating teams.

- Won recognition at Intuit in the **BE BOLD, Learn fast and Win together** category.

- Represented Intuit at a Money Control's machine learning hackathon with 50 teams from India.

- Won **silver medal** in the **Kaggle** competition Mercedes-Benz Greener Manufacturing with a score in **Top 5%**. Kaggle profile.

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- Motor Control using Raspberry Pi 4.

- KeyPhrase extraction using sentence embeddings(Unsupervised Learning).

SOCIETY MEMBERSHIPS

- Part of **woman's development team** in Intuit and help coach girls in final year of college chart out their goal after college.

- Actively worked with "We Care and Give Back" initiative at Intuit by helping in old age homes, painting schools, cleaning lakes etc.

- Was **Head of Publicity** in CCA (Co- Cognitive Activities) at NIT which organises east India's second biggest technology fest.

- Member of **Tarumitra** which promotes ecological sensitivity in India.

- I actively contribute to 'the Dolphin Project', taking action against dolphin captivity.

EXTRA-CURRICULAR ACTIVITIES

- Conducted hands on tech sessions at Intuit on blockchain and spring boot with over 150 participants.

- Represented NIT Durgapur and High School in **Inter-NIT Badminton** Tournament and Inter-City badminton tournament respectively.

- Acted in short movies at college.