Aayush Singha Roy

Mail: aayush.singharoy@insight-centre.org Supervisor : Neil Hurley, neil.hurley@ucd.ie

EDUCATION

UNIVERSITY COLLEGE OF DUBLIN (UCD)
PhD | Recommender Systems
Jan. 2022 - Now | Dublin, IR
Session-based recommender systems.
Expected Graduation - 12/25

INDIAN INSTITUTE OF TECH. DELHI
MS Research | Information Technology
Jun. 2019 - Oct. 2021 | New Delhi, IN
Followed the Artificial Intelligence track.
GPA: 8.64 / 10

NATIONAL INSTITUTE OF TECH. AGARTALA
BS | Mathematics
Aug. 2015 - May. 2019 | Agartala, IN
Focused on Mathematics and Computing.
GPA: 8.17 / 10

LINKS

Github: **aayushroy**
LinkedIn: **aayushroy**
Scholar: **aayushroy**
Twitter: **aayushroy**

COURSEWORK

BACHELOR AND MASTERS
Advanced Machine Learning (M)
Machine Learning (M)
Data Mining (M)
Game Theory (M)
Fuzzy Logic (M)
Linear Algebra (B)
Data Structures and Algorithms (B)
Probability and Statistics (B)
Introduction to Artificial Intelligence (B)

SKILLS

PROGRAMMING
• Python
• Java
Familiar:
• C • C++

RESEARCH WORK

1. Aayush Singha Roy, Edoardo D'Amico, Elias Tragos, Aonghus Lawlor, Neil Hurley.
   Don't Get Bored: Enhancing Scalability and Diversity in Session-Based Slate Recommendation
   Journal Transactions on Recommender Systems (TORS)(Under Minor Revision)

2. Aayush Singha Roy, Elias Tragos, Aonghus Lawlor, Neil Hurley
   Simulating Real-World News Consumption: Deep Q-Learning for Diverse User-Centric Slate Recommendations
   In INRA Workshop of *18th ACM Conference on Recommender Systems* (**RecSys'24**)

3. Aayush Singha Roy, Edoardo D'Amico, Elias Tragos, Aonghus Lawlor, Neil Hurley.
   Scalable Deep-Q Learning for Session-based Slate Recommendation
   In Proceedings of *17th ACM Conference on Recommender Systems* (**RecSys'23**)

4. Aayush Singha Roy, Aonghus Lawlor, Neil Hurley
   Modelling User Preferences using a Partially Observed Markov Decision Problem for a Reinforcement Learning Sequence- Aware Recommender
   In Reveal Workshop of *16th ACM Conference on Recommender Systems* (**RecSys'22**)

5. Aayush Singha Roy, Edoardo D'Amico, Aonghus Lawlor, Neil Hurley.
   Addressing Fast Changing Fashion Trends in Multi-Stage Recommender Systems
   In Proceedings of *International Flairs Conference* (**FLAIRS'23**).

6. **Masters Thesis : Application of Rough sets for Rule Generation and Keyword Extractiom**
   Pub 1: Soft Rough Set based span for unsupervised keyword extraction
   Pub 2: Forecasting of Indian stock market using rough set and fuzzy-rough set based models

PROJECTS & INTERNSHIPS (DURING PHD

MDSR LAB PHD INTERN | Adobe - Noida | Jun-Aug 2024
Planning with LLMs
During my internship, I explored LLMs in Planning tasks, implementing prompting methods like CoT and ReAct, along with advanced tree-based techniques (LATS, ToT, Reflexion). I also developed an MCTS-based algorithm using a smaller fine-tuned LLM, surpassing state-of-the-art results in the ScienceWorld Environment.

H&M FASHION RECOMMENDATION | Kaggle | Feb-May 2022
Recommender Systems, LightGBM, Tensorflow
Kaggle challenge sponsored from H&M (Link).

- **Final Position:** 43 over 2954 teams **(top 2%)**
- Implemented end to end recommender systems pipeline for real-world fashion recommendations (GitHub link).

WORK EXPERIENCE

GRADUATE ENGINEER
ANZ Operations & Tech. Bangalore, IN | June - Dec 2021
I was the first starting members in the ideation squad. Helped bulid payments playstream application to recommend training videos to employees and gamification workflow for higher employee engagement.