Dhruv Kumar

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EDUCATION

University of Waterloo, School of Computer Science, Waterloo, Canada	**September 2018 - Present**

Master of Mathematics (Thesis), Computer Science **GPA: 3.88/4**

Indian Institute of Information Technology, Allahabad, India	**July 2012 - June 2016**

Bachelor of Technology (Hons.), Information Technology **CGPA – 8.68/10**

SKILLS

- **Relevant Coursework (Graduate and Undergraduate)**: Deep Learning, Trust Modeling and Online Social Networks, Privacy and Fairness in Data Science, Information Retrieval, Artificial Intelligence, Natural Language Processing, Cognitive Process Modelling, Optimization Techniques, Data Mining, Probability & Statistics, Mathematics(I, II, III).
- **Languages and Frameworks**: Python, Java, SQL, Pytorch, Tensorflow, Keras, Scikit-Learn, NLTK, Flask and d3.js
- **Interests**: Natural Language Processing, Machine Learning, Software Engineering

SELECTED PUBLICATIONS

- **D. Kumar**, L. Mou, L. Golab, O. Vechtomova, Iterative Edit-based Unsupervised Sentence Simplification, To appear In Proceedings of the 58th annual meeting of the Association for Computational Linguistics (ACL 2020) - Long Paper
- R. Cohen, R. Agarwal, **D. Kumar**, A. Parmentier, T. H. Leung, Sensitivity to risk profiles of users when developing AI systems, To appear in 33rd Canadian Conference on Artificial Intelligence (Canadian AI 2020) - Position Paper
- R. Agarwal*, **D. Kumar***, L. Golab, S. Keshav, Consentio: Managing Consent to Data Access using Permissioned Blockchains, IEEE International Conference on Blockchain and Cryptocurrency (ICBC) 2020 - Full Paper
- **D. Kumar**, R. Cohen, L. Golab, Online abuse detection: the value of preprocessing and neural attention models, In 10th workshop on Computational Approaches to Subjectivity, Sentiment & Social Media Analysis (WASSA) at NAACL-HLT 2019

PROFESSIONAL EXPERIENCE

Arcesium(DE Shaw Group), Hyderabad, India	
Software Engineer, Fund and Investor Accounting	**Jul 2016 - May 2018**

- Enhanced the post-trade automation platform for funds operated by J.P. Morgan and D.E. Shaw.

Citigroup, Pune, India	
Software Engineering Intern, Equities	**May 2015 - Jul 2015**

- Designed the first prototype of the Trading Controls application. Declined the full-time offer.

ACADEMIC PROJECTS

Iterative Edit-based Unsupervised Sentence Simplification	**Jul 2019 - Present**

- Designed an unsupervised algorithm building on edit-based text generation techniques for sentence simplification. The model is highly adaptable and can achieve SARI scores of 30.44 and 37.85 on the Newsela and Wikilarge datasets.

Music audio conditioned lyrics generation	**Sep 2019 - Present**

- Designed bimodal neural network models to generate lines of lyrics using music audio clips. The model can a) learn an artist's musical style from audio clips and generate lines in the style of an artist, and (b) generate lines conditioned on any given short audio clip. This work is under review at a conference.

Unsupervised neural models to anonymize personal attributes in text	**Oct 2019 - Dec 2019**

- The human written text contains implicit linguistic information that can be used to identify our attributes such as gender, age and political leanings. Worked with the PASTEL and Yelp datasets to build an unsupervised style transfer model.

Consentio: Managing Consent to Data Access using Permissioned Blockchains	**Jan 2019 - Aug 2019**

- Designed a blockchain-based consent management system that can handle up to 6000 transactions per second.

Detecting Incivility in online social networks	**Oct 2018 - Feb 2019**

- Proposed a co-attention based neural model for online abuse detection. The model achieves a F1 score of 82.41, 77.75 and 76.07 for the minority abuse class on the Wikipedia toxicity/attack/aggression datasets respectively.

Compressed Knowledge transfer via Factorization Models in Recommender Systems	**Jan 2016 - Jun 2016**

- Developed an algorithm to incorporate metadata in Factorization Machines, achieving a better RMSE value of 0.836 as compared to 0.853 when using a Joint Matrix Factorization method on the MovieLens 1M dataset.

ACHIEVEMENTS & SERVICES

- Received International Masters Student Award and University of Waterloo Entrance Scholarship for graduate studies.
- Received Graduate Studies Research Travel Assistantship to attend the NAACL-HLT Conference, 2019.
- Accepted in the Deep Learning and Reinforcement Learning Summer School, 2019 (less than 25% acceptance rate).
- Served as a Reviewer for NeurIPS2019 AI for social good (AISG) Workshop.
- Served as the Events Head of the annual cultural cum technical festival - Effervescence 2014.