

# Dhruv Kumar

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## EDUCATION

**University of Waterloo**, Ontario, Canada

Sep 2018- Present

M. Math.(Thesis) in Computer Science

GPA: 87 / 100

Coursework- Deep Learning, Trust Modeling and Online Social Networks, Blockchains: Foundations and Applications, Privacy and Fairness in Data Science (Ongoing)

**Indian Institute of Information Technology, Allahabad**, U.P., India

Jul 2012- Jun 2016

B. Tech.(Hons) in Information Technology

GPA: 8.68 / 10.00 (9.07 - Last 2 years)

Relevant Coursework- Information Retrieval, Artificial Intelligence, Natural Language Processing, Cognitive Process Modelling, Optimization Techniques, Data Mining, Probability & Statistics, Mathematics(I, II, III).

## PUBLICATIONS

- “D. Kumar, L. Golab, L. Mou, O. Vechtomova, Unsupervised edit-based text simplification”, link, 2019
- “R. Agarwal\* , D. Kumar\*, L. Golab, S. Keshav, Consentio: Managing Consent to Data Access using Permissioned Blockchains”, arXiv, 2019
- “D. Kumar, R. Cohen, L. Golab, Online abuse detection: the value of preprocessing and neural attention models”, in *NAACL workshop on Computational Approaches to Subjectivity, Sentiment & Social Media Analysis (WASSA)*, Jun 2019
- “N. Kushwaha, S. Mehrotra, R. Kalia, D. Kumar, O. P. Vyas, Inclusion of Semantic and Time-Variant Information Using Matrix Factorization Approach for Implicit Rating of Last.Fm Dataset,” in *Springer Berlin Heidelberg - Arabian Journal of Science and Engineering* May 2016.

## RESEARCH EXPERIENCE

**University of Waterloo**

Master’s Thesis

Jul 2019-Present

- “Text simplification”: Text simplification aims to make text easier to read while still preserving important information. I am working on controllable and interpretable unsupervised models.  
[Supervisors: Prof. Lukasz Golab, Prof. Olga Vechtomova]

Course Project

Oct 2019-Present

- Text written by humans contains implicit linguistic information that can be used to identify our attributes such as gender, age and political leanings. I am exploring unsupervised style transfer approaches to anonymize these personal attributes in text.  
[Supervisor: Prof. Xi He]

Research Assistant/Natural Language Processing Lab

Sep 2019-Present

- Working on controllable lyrics generation for songs using encoder-decoder frameworks.  
[Teammate: Gaurav Sahu; Supervisor: Prof. Olga Vechtomova]

Research Assistant/Sirius Blockchain Research Group

Jan 2019-Aug 2019

- Designed Consentio, a permissioned blockchain-based consent management system (CMS) that can handle up to 6000 transactions per second.  
[Teammate: Rishav Agarwal; Supervisors: Prof. Lukasz Golab, Prof. Srinivasan Keshav]

Research Assistant

Oct 2018-Feb 2019

- Proposed a co-attention based model to detect implicit aggressiveness and incivility in online social networks. Also, measured the effect of preprocessing techniques and contextual embeddings.  
[Supervisors: Prof. Robin Cohen, Prof. Lukasz Golab]

**Universität Paderborn**, Paderborn, Germany

Jan 2016-Jun 2016

Studentische Hilfskraft (Student RA) at Analytic Information Systems and Business Intelligence Lab (AIS-BI)

- Bachelor’s Thesis: “Compressed Knowledge transfer via Factorization Models in Recommender Systems”. Developed an algorithm to incorporate metadata in Factorization Machines, thus improving their accuracy.  
[Supervisors: Dr. Artus Krohn-Grimberghe, Prof. Ratna Sanyal]
- Face recognition in videos: Built a web application on top of Microsoft’s Project Oxford.  
[Supervisor: Dr. Artus Krohn-Grimberghe]

**Indian Institute of Information Technology**, Allahabad, India

Jul 2015-Dec 2016

Research Assistant

- “Analysis of Time-Aware and Semantic Feature Based Music Recommender System”. Proposed a Joint Matrix Factorization algorithm for Music Recommendation that utilizes geographical and time-based tagging information of artists, in addition to implicit user feedback (user clicks) to provide better recommendations. [Supervisor: Dr. O.P.Vyas]

**TEACHING  
ASSISTANT  
EXPERIENCE**

- CS 115: Introduction to Computer Science, Fall 18, University of Waterloo.
- CS 230: Introduction to Computers and Computer Systems, Winter 19, University of Waterloo.
- CS 231: Algorithmic Problem Solving, Spring 19, University of Waterloo.
- CS 241: Foundations of Sequential Programs, Fall 19, University of Waterloo.

**SERVICE**

- **Program Committee / Reviewer** for NeurIPS2019 AISG Workshop

**INDUSTRY  
EXPERIENCE**

**Arcesium(DE Shaw Group)**, Hyderabad, India

Jul 2016-May 2018

Software Engineer

- Worked as a software engineer, designing Fund and Investor Accounting solutions for Hedge Funds.
- Member of the team to onboard J.P.Morgan onto the platform.

**Citigroup**, Pune, India

Software Engineering Intern

May 2015-Jul 2015

- Trading Controls application for Equities Team using MEAN stack and d3. Received a full-time offer.

**SKILLS**

**Languages-** C, C++, Python, Java, Javascript, HTML, PHP and SQL.

**Libraries-** Pytorch, Tensorflow, Keras, Gym, Scikit-Learn, Pandas, and d3.js

**Frameworks-** AngularJS, Node.js, MongoDB, Flask, Spring, MyBatis and Struts

**ACHIEVEMENTS &  
EXTRA-CURRICULAR**

- Got 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).
- Received International Masters Student Award and University of Waterloo Entrance Scholarship for graduate studies.
- Stood in the top 0.5% in the All India Engineering Entrance Examination 2012.
- Worked as the Events Head of the annual cultural cum technical festival *Effervescence* 2014.
- Represented the college band as a drummer.