Ashutosh Adhikari

adadhika@uwaterloo.ca | +1 (226) 978-5259 | Google Scholar
github.com/Ashutosh-Adhikari | linkedin.com/in/adadhika

EDUCATION

David R. Cheriton School of Computer Science, University of Waterloo, Waterloo　　　　Sep 2018 - Present
Major: Computer Science, MMath Co-op (Thesis) (GPA: 4.0)
Areas of Expertise: Natural Language Processing, Machine Learning, Reinforcement Learning, Deep Learning

Dhirubhai Ambani Institute of Information and Communication Technology, India　　　　Aug 2014 - May 2018
Major: Information and Communication Technology, BTech (Grade: 8.82/10)
Key Courses: Algorithms, Software Engineering, Data Analysis and Visualization, Databases, Computational Optimization

RELEVANT EXPERIENCE

Data Systems Group at University of Waterloo, Waterloo, ON　　　　Sep 2018 - Present
Graduate Research Assistant with Prof. Jimmy Lin and Prof. Pascal Poupart
- Developed and released state-of-the-art models for document classification[2,3] and solving text games[1].
- Achieved 24.6% score improvement over previous text reinforcement learning agents by constructing and maintaining dynamic knowledge graphs from raw text.

Montreal Institute for Learning Algorithms (Mila), Montreal, QC　　　　Sep 2019 - May 2020
Research Intern with Prof. William L. Hamilton
- Built graph-based transformer agents in collaboration with Mila and Microsoft Research Montreal for solving games in the TextWorld framework aka.ms/textworld.
- Achieved state-of-the-art scores on over 500 text games.

Indian Institute of Science, Bangalore, India　　　　May 2017 - Jul 2017
Research Intern at Video Analytics Lab with Prof. RV Babu
- Implemented 5 different Convolutional Neural Network baselines using PyTorch, Caffe and Theano to generate minimalist yet discriminative visual representations for sketch images.

RELEVANT PROJECTS AND PUBLICATIONS

1. Graph-aided Transformer Agents: Proposed 2 unsupervised approaches to extract structured knowledge (graphs) from raw text to build generalizable policies for solving text games. Poster at **NeurIPS 2020.** pdf code

2. DocBERT : BERT for Document Classification: Achieved 40 times faster and 30 times more efficient models than BERT using knowledge distillation for document classification. Oral at the **REPL4NLP Workshop** at ACL 2020. pdf code video

3. Rethinking complex neural network models: Achieved better accuracy than complex models on 4 document classification tasks with a single-layered LSTM using effective optimization methods. Oral at **NAACL-HLT 2019.** pdf code video

4. Hedwig.ca: Contributed to a widely-used PyTorch software (over 70 forks, 350 stars on GitHub) featuring 8 models for document classification. The models vary from less complex tf-idf based models to heavy pre-trained transformers. code

5. Context Aware Trust Modeling: Extended a state-of-the-art POMDP based trust modeling framework to update beliefs in a context-aware fashion. Oral at the **TRUST Workshop** at AAMAS 2019. pdf

SERVICE AND AWARDS

Teaching Assistantship : CS 480 (Intro to Machine Learning); CS 115 and CS 135 (Basic Racket Programming courses)
Awards : David R. Cheriton Scholarship, International Masters Student Award.
Reviewing : Reviewer for workshops at ICML 2019 and NeurIPS 2020.

TECHNICAL SKILLS

Languages : Python, Java, C, SQL.
Frameworks and Tools : PyTorch, Keras, PyCaffe, Numpy, Scipy, LaTex, MATLAB, Git, sk-learn, OpenMP, opencv.