RushabMunot

COMPUTER SCIENCE AND ENGINEERING,
Indian Institute of Technology, Kanpur

Homepage: home.iitk.ac.in/~rushab
Email: rushab@iitk.ac.in
Phone: +91 7755048125

EDUCATION

Bachelor of Technology in Computer Science and Engineering,
Indian Institute of Technology, Kanpur
CGPA: 9.2/10.0 (2014-18)

TECHNICAL SKILLS

Python, R, Matlab, PyTorch, Lua, C, C++, Java, HTML, CSS

INTERNSHIPS

Risk Analyst – Risk Division, Goldman Sachs *Summer 2017*

- Worked with the **Market Risk Management and Analysis - Credit Risk Modelling** team
- Modelled **constrained non-linear dependencies** between time-dependent **Credit Risk Factors**
- Handled three **critical fixes in models in production** pertaining to constraints on risk factors
- Developed several generalized methods to handle inconsistencies in stationarity, co-integration, etc.
- Calibrated financial indexes for markets outside the United States, where such data is unavailable
- **Offered** a full-time position at Goldman Sachs

Extracting Relevant Information from html profiles – New York Office, IIT Kanpur *Summer 2016*

- Extract relevant information from html profiles to adapt to changes in html format
- Extracted information included Names, Organizations, Skills, etc.

Research Intern - Prof. Vibhav Gogate, University of Texas at Dallas *Summer 2016*

- Theoretically analyzed a paper on tying parameters by quantization and applied it to logistic regression
- Obtained an accuracy about **2-3%** higher than L2 regularization on specific email classification and Iris dataset

ACADEMIC PROJECTS

Probabilistic Models for Word Representation (Reports 1 & 2) *Sep 2017-Present*
Prof. Piyush Rai and **Prof. Purushottam Kar**

- Improvising on the paper *Multimodal word embeddings, ACL 2017* by Athiwaratkun and Wilson
- Our model **reduces the number of parameters (by 10^2)** and makes the model **nonparametric**
- Each sense of every word is modelled using an **abstract concept pool** (basically a mixture over concepts)
- A word is a mixture over its senses (Dirichlet Process, non-parametric model)
- Complete Inference is performed by large Gibbs Sampling Sweeps, using conjugacy wherever possible
- For point estimates stochastic EM or SGD can also be used
- In another approach we model the problem as a Matrix Factorization problem

Word Sense Disambiguation using Localized RNNs – Undergraduate Project I, II, Dr. Harish Karnick *Jan 2017-Present*

- The model is a deep LSTM layer with **word dependent, context-independent attention** mechanism
- Working on using WordNet Sense Keys **hierarchically to disambiguate senses**
- Hierarchical disambiguation provides much more tagged data as we go higher in the hierarchy
- Obtaining accuracies in the range of **80-95%** on the hard, line, serve, interests datasets (Senseval 2)
- Obtained an improvement of about **5-7%** for some words (One million sense tagged instances dataset)

Abstractive Summarization using seq2seq models – Dr. Harish Karnick, Course Project, NLP *Aug-Dec 2016*

- Developed an abstractive summarization model for the Amazon Fine Food Reviews Dataset
- Based on the neural translation model proposed by Mikolov et al. 2014
- An end-to-end deep encoder-decoder model, using LSTM layers for each of them

OTHER PROJECTS

Comparing Subgraph Isomorphism Algorithms
Implementing OS Functionalities in NachOS
Image Tagging using Fast-Tag and Fast-Zero-Tag

Compiler for C Programming Language
Share@IITK – A platform to share belongings in IIT Kanpur
The Lemke-Howson Algorithm

RESEARCH INTERESTS

Machine Learning, Natural Language Processing, Probabilistic Machine Learning, Risk Modeling

COURSE WORK

Artificial Intelligence :	Machine Learning Techniques, Natural Language Processing, Probabilistic Machine Learning, Topics in Learning Theory, Algorithmic Game Theory, Computational Cognitive Science
Computer Science :	Data Structures, Algorithms, Database Management, Operating Systems, Compiler Design, Computer Organization
Mathematics :	Probability and Statistics, Linear Algebra, Real Analysis, Complex Analysis, Linear Programming and Spectral Graph Theory, Discrete Mathematics, Abstract Algebra, Logic, Theory of Computation, Numerical Methods

TEACHING EXPERIENCE

- Teaching Assistant, Data Structures and Algorithms (ESO207, IIT Kanpur) *Spring 2018*
- Tutor, Introduction to Computing (ESC101, IIT Kanpur) *Fall 2017*
- Mentor, Machine Learning Techniques (CS771, IIT Kanpur) *Fall 2017*

ACADEMIC AWARDS

- **Academic Excellence Award for 2015-16, IIT Kanpur,** awarded for outstanding academic performance
- **Academic Excellence Award for 2014-15, IIT Kanpur,** awarded for outstanding academic performance
- Secured a **rank of 20** in the **Regional Mathematics Olympiad**, 2012
- Qualified for the **Indian National Informatics Olympiad** 2013
- Secured **rank 1** in the **Centralized Admission Process**, Maharashtra State Board, 2014

POSITIONS OF RESPONSIBILITY

- Vice President Helpline, Kanpur City – BloodConnect Foundation (2015-16)
- Secretary, Fine Arts Club, IIT Kanpur (2015-16)
- Volunteer, National Social Service, IIT Kanpur(2014-15)