Kaushik Roy

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Student in advanced Machine Learning and Artificial Intelligence. I am interested in Research Scientist (or related) roles in (AI/ML/Data Science).

Education

Bachelor of Engineering in Computer Science (RV College of Engineering, Bangalore, India, 2011-2015). GPA: 8.3/10

Master of Science in Computer Science (Indiana University Bloomington, USA, 2016-2017). GPA: 3.88/4

PhD student at University of Texas, Dallas, USA, 2017-2019, on a break, visiting India. GPA: 3.55/4

Technical Skills and Projects

Programming Languages - Python, C and Java

Developed Relational Functional Gradient Boosting (RFGB) algorithm, an inductive-logic based program. *(A method to work with classification on multi relational data with different objects and attributes. It can be used where the data cannot be represented using a standard vector because of relational structure)*

Developed Fitted Value Approximation Algorithm using the RFGB program. *(A method for evaluating the value of a policy using bellman updates for complex relational domains such as the blocks world domain)*

Developed human-in-the-loop algorithm to allow collaboration between data-driven technology and experts using the RFGB program. *(A method that allows experts to encode knowledge as a clause which is then incorporated into the inductive logic learning to learn from both clauses learned from the data and expert advice)*

Developed a coursework project for ratings prediction using singular-value decomposition, probabilistic matrix factorization, and Bayesian matrix factorization. *(The well-known Netflix dataset challenge where matrix factorization was used to recommend movies to users based on low dimensional representations of the movies and users)*

Software available at: https://github.com/kkroy36/

Significant Publications

1. Nasreen, A., Roy, K., Roy, K., & Shobha, G. (2015). Key Frame Extraction and Foreground Modelling Using K-Means Clustering. 2015 7th International Conference on Computational Intelligence, Communication Systems and Networks.

2. Anchalia, P., Roy, K., & Roy, K. (2015). Two Class Fisher's Linear Discriminant Analysis Using
MapReduce. 2015 17th UKSIM-AMSS International Conference on Modelling and Simulation.

3. Bhat, A.,Roy, K., Anchalia, P. and H,M,J. (2015). Design and Implementation of a Dynamic Intelligent Traffic Control System. 2015 17th UKSIM-AMSS International Conference on Modelling and Simulation.

4. Anchalia, P. P., & Roy, K. (2014). The k-Nearest Neighbor Algorithm Using MapReduce Paradigm. 2014 .5th International Conference on Intelligent Systems, Modelling and Simulation.

Current Research:

I am working on a formulation based on the Franke Wolfe constrained optimization method to incorporate human advice into the learned model by treating the advice knowledge as constraints on the functional space. I have shown the current state of the art method to be a subset of the developed formulation and currently working on experimentation for further proof of concept in tasks such as classification, guided policy learning in reinforcement learning and in the case of multiple experts collaborating. Also working on interaction with the expert by seeking advice on subsets of the data using a measure of uncertainty to iteratively build the model with communication with experts.

Hobbies and Interests

Music: Guitar and Drums

Art: Sketching

Sports: Tennis and Racquet Ball

Reading: Academic Material