Research Presentation

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January 19, 2020

About Me

March 2019-: Research assisstant professor at ELTE University, Budapest Hungary.
2017-2019: Research Scientist at IBM Research at Bangalore
2013-2016: Ph.D. student in Computer Science at IIT Roorkee, India.
2010-2012: M.Tech at JNU New Delhi, India
2006-2010: B.Tech at BIET Jhansi, India

Outline

Research Contribution

My research area primarily has been in data mining and machine learning during Ph.D. In the last two years, I have been working in the NLP, IR and IE domain. So far, I have worked on the following problems:

- Anomaly Detection in Big Data (Ph.D. Topic) (**ML, DM, Convex optimization**)
- Creative Tagline Generation for Product Advertisement (under IBM"s CFP entitled "Creative AI") (**ML, DM, NLP, IE**)
- Prediction of Invoice Payment Status in Account Payable Business Process. (Client project) (**ML**)
- Similarity Learning with Feedback for Invoice Line Item Matching (Client Project) (**ML, NLP**)
- Automatic extraction of change configuration requests from email tickets (Current work with T-labs and TU Berlin) (**NLP via DL, IE**)

Publications (Journals)

1. C. Maurya; D. Toshniwal; G. Venkoparao, "Distributed Sparse Class-Imbalance Learning and its Applications," in **IEEE Transactions on Big Data** , vol.PP, no.99, pp.1-1 https://doi.org/10.1109/TBDATA.2017.2688372
2. Chandresh Kumar Maurya, Durga Toshniwal, Gopalan Vijendran Venkoparao, Online sparse class imbalance learning on big data, **Neurocomputing**, Volume 216, 5 December 2016, Pages 250-260, ISSN 0925-2312, http://doi.org/10.1016/j.neucom.2016.07.040. (IF 3.317)
3. Chandresh Kumar Maurya, Durga Toshniwal, Large-Scale Distributed Sparse Class-Imbalance Learning with Application to Anomaly Detection, **Information Sciences**, Volume 456, 4 May 2018, Pages 1-12, ISSN 0020-0255, Elsevier, https://doi.org/10.1016/j.ins.2018.05.004 (IF 4.832)

1. Creative Tagline Generation Framework for Product Advertisement, Chandresh Kumar Maurya et al., in **IBM Journal of Research & Development**) (SCIE IF 0.6)
2. Online Similarity Learning with Feedback for Invoice Line Item Matching (submitted to IEEE TKDE, short version accepted in **AAAI 2020** workshop on intelligent process mining, NY, USA)
3. DeLAEE: A Deep Learning Architecture for Automated Essay Evaluation (under review in Neural Netowrks and Learning Systems,Springer)
4. Gmean optimization using PSO for Multi-Class Imbalance learning (under review in Applied Soft Computing)

Publications (Conferences/Workshops)

1. Prediction of Invoice Payment Status in Account Payable Business Process. Tarun Tater, Sampath Dechu, Senthil Mani, and Chandresh Kumar Maurya, **International Conference on Service-Oriented Computing (ICSOC)** 2018, China.
2. Anomaly Detection via Distributed Sparse Class-Imbalance Learning. Chandresh Kumar Maurya, Durga Toshniwal, and Vishal Agarwal, (presented in International Conference on Machine Learning, ICML 2016 workshop on Anomaly detection, NY, USA)
3. Online Anomaly Detection via Class-Imbalance Learning, Chandresh Kumar Maurya and Durga Toshniwal, in **International Conference on Contemporary Computing (IC3)** , organised jointly by JIIT Noida and University of Florida, USA, Sep 2015.

Publications (Conferences/Workshops)

1. Anomaly Detection in Nuclear Power Plant Data using Support Vector Data Description, Chandresh Kumar Maurya and Durga Toshniwal, in IEEE TechSym at IIT Kharagpur, Feb 2014.
2. Fuzzy Inference System for Internet Traffic Load Forecasting, Chandresh Kumar Maurya and Sonajharia Minz. In the Proceedings of National Conference of Computing & Communications (NCCCS)-2012. DOI:10.1109/NCCCS.2012.6413010. .
3. Anomaly Detection in Streaming Data using Online Non-negative Matrix Factorization, Chandresh Kumar Maurya, Arun Chauhan and Durga Toshniwal, poster presentation at International workshop on machine learning & Text analytic(MLTA 2013), South Asian University, New Delhi. (Best presentation Award)

Patents While @IBM

1. A System and Method for Automatic Adjustment of Brightness of Mobile Devices based on Visual Sight (**FILED**)
2. A System and Method for Recommending Popular Features for a Product based on Crowd-source Reviews of the Product and Competitor Product (**Rated search-2 by IBM, under search**)
3. A System and Method for Finding Best Accommodation using Deep Asthetic Features in Multimodal Data from Social Networks. (**Defensive publication**)
4. A System and Method for Automatic Compliance Checking in Clinical Process using Deep Multi-task Learning. (**Defensive publication**)
5. A system and Method for Similarity Learning with Heterogeneous Catalogues and Taxonomies for Invoice and PO Line Item Matching (under review).
6. An Intelligent and Proactive Reminder System using Multi-Modal Data through AI (under review).
7. A System and Method for Consistency Verification of Product's Information on E-commerce Portals (under review).

Projects

- **Evaluation of Effectiveness of Gerson Therapy for Cancer** (In collaboration with IIT Patna India and NTU Singapore, submitted for funding)
- **Intelligent reminder system based on multi-model data** (Independent research)
- **Multimodal incident similarity inference for improving ticket resolution** (In collaboration with IBM Research and IIIT Gwalior, India)
- **Feature/Suggestion recommendation based on crowd-source data** (In collaboration with NIT Shilong, India, IBM Research and NTNU Norway)

Extra-curricular

Project-guidance

- Currently, guiding one B.Tech student at IIIT Gwalior (In collaboration with IBM Research)
- Guiding 2 B.Tech students at NIT Shilong (In collaboration with IBM Research and NTNU Norway)
- Guided one IDD students at IIIT-M Gwalior India for dissertation
- Guided two M.Sc. students for their curriculum's projects at Eotvos Lorand University, Budapest, Hungary.

Extra-curricular

Invited Talks

- Invited talk at machine learning workshop at NIT Shilong, India Nov 1, 2018.
- Invited as a resource person for faculty development program at Visvesvaraya Technological University, Belgaon, India betwen dec 10-14, 2018.
- Invited talk at Jawaharlal Nehru University, New Delhi, between Nov 7-9, 2016.

Scholorships/Awards

- Prime Minister Fellowship for Doctoral Research, awarded by Confederation of Indian Industry(CII, part of DST, Govt. of India New Delhi) and Robert Bosch Engineering & Business Solution Ltd.(RBEI), Bangalore.
- Awarded Topper's scholorship in the 1^{st} year of Undergradute.
- Junior Research Fellowship by IIT Roorkee, INDIA.
- Junior Research Fellowship by University Grant Commission, INDIA.

Future research plans

My future research plans include the following:

1. External knowledge injestion in deep architectures
2. Class-imbalance learning in multi-modal streaming data
3. AI for social good

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