

Lovekesh Vig

Senior Scientist & Head Deep Learning & AI

TCS Research & Innovation

Education :

PhD in Computer Science from Vanderbilt University, USA

Research interests

Computational Neuroscience and Neural Networks

Publications

Journals:

1. Narendhar Gugulothu, Vishnu Tv, Pankaj Malhotra, Lovekesh Vig, Puneet Agarwal, and Gautam Shroff, "Predicting Remaining Useful Life Using Time Series Embeddings based on recurrent neural networks", *International Journal of Prognostics and Health Management (IJPHM)*, 2018.
2. Priyanka Gupta, Vishnu TV, Pankaj Malhotra, Lovekesh Vig, and Gautam Shroff, Transfer Learning for Clinical Time Series Analysis using Deep Neural Networks, *Springer Journal of Healthcare Informatics*, 2019
3. Ashwin Srinivasan, Lovekesh Vig and Michael Bain, Logical Explanations for Deep Relational Machines Using Relevance Information, *Journal of Machine Learning Research (JMLR)*, 2019
4. Ashwin Srinivasan, Lovekesh Vig and Gautam Shroff, Constructing generative logical models for optimisation problems using domain knowledge, *Machine Learning Journal (MLJ)*, 2019

Conferences

5. Pankaj Malhotra, Anusha Ramakrishnan, Gaurangi Anand, Lovekesh Vig, Puneet Agarwal, Gautam Shroff, "LSTM-based Encoder-Decoder for Multi-sensor Anomaly Detection", *ICML Workshop on Anomaly Detection, 2016, New York*
6. Pankaj Malhotra, Vishnu TV, Anusha Ramakrishnan, Gaurangi Anand, Lovekesh Vig, Puneet Agarwal, Gautam Shroff
7. "Multi-Sensor Prognostics using an Unsupervised Health Index based on LSTM Encoder-Decoder", *KDD Workshop on ML for Prognostics and Health Management, 2016, San Francisco*
8. Ashwin Srinivasan, Gautam Shroff, Lovekesh Vig, Sarmila Saikia, Puneet Agarwal, "Generation of Near Optimal Solutions using ILP guided sampling", (* Best Paper Award) *ILP 2016, London*

9. Perla Ramakrishna, Ramya Hebbalaguppe, Gaurav Gupta, Geetika Sharma, Ehtesham Hassan, Monika Sharma, Lovekesh Vig, Gautam Shroff. "An AR Inspection Framework: Feasibility Study with Multiple AR Devices", *ISMAR, Merida, 2016*
10. Ankit Verma, Monika Sharma, Ramya Hebbalaguppe, Ehtesham Hassan, Lovekesh Vig, "Automatic Container Code Recognition via Spatial Transformer Networks and Connected Component Region Proposals", *ICMLA, Anaheim, 2016*
11. Anirban Chakraborti, Kiran Sharma, Aditeya Pandey, Kaushal Paneri, Sidharth Verma, Gunjan Sehgal, Bindu Gupta, Geetika Sharma, Lovekesh Vig, Puneet Agarwal, Gautam Shroff, "Spatio-Temporal Analysis of Ethnic Conflicts and Human Rights Violations in Africa and Middle East", *SBP-BRIMS, Washington DC, 2016*
12. Sarmimala Saikia, Lovekesh Vig, Ashwin Srinivasan, Gautam Shroff, Puneet Agarwal, Richa Rawat, " Knowledge-Rich Deep Networks for Optimization by Inclusion of ILP-constructed Features ", *NIPS Workshop on Cognitive Computing and Neuro Symbolic Integration, Barcelona, 2016*
13. Karamjit Singh, Garima Gupta, Lovekesh Vig, Gautam Shroff, and Puneet Agarwal, "Deep Convolutional Neural Networks for Pairwise Causality", *What If? NIPS workshop on on hypothetical and counterfactual interventions, Barcelona, 2016*
14. Mohit Yadav, Lovekesh Vig, and Gautam Shroff, "Learning and Knowledge Transfer with Memory Networks for Machine Comprehension", *EACL, Valencia, 2017*
15. Pankaj Malhotra, Lovekesh Vig, Puneet Agarwal, and Gautam Shroff, "TimeNet: Using Pre-trained Embeddings based on LSTM-Autoencoders for Time-Series Classification and Clustering", *ESANN, Bruges, 2017*
16. Monika Sharma, Oindrila Saha, Anand Sriram, Shirish Karande, and Lovekesh Vig, "Crowdsourcing for Chromosome Segmentation and Deep Classification", *CVMI Workshop, CVPR, Hawaii, 2017*
17. Narendhar Gugulothu, Vishnu Tv, Pankaj Malhotra, Puneet Agarwal, Lovekesh Vig, and Gautam Shroff "Predicting Remaining Useful Life using Time Series Embeddings based on Recurrent Neural Networks", *2nd ACM SIGKDD Workshop on Machine Learning for Prognostics and Health Management, Halifax, 2017*
18. Vishnu Tv, NarendharGugulothu, Pankaj Malhotra, Puneet Agarwal, Lovekesh Vig and Gautam Shroff, Explainable Deep Learning for Health Monitoring of Complex Systems *AI4IOT Workshop, IJCAI, Melbourne, 2017*
19. Gaurav Gupta, Swati J, Monika Sharma, and Lovekesh Vig, Data Extraction from Handmarked Inspection Sheets *Workshop on Camera Based Document Analysis and Recognition, ICDAR, Kyoto, 2017*
20. Lovekesh Vig, Ashwin Srinivasan, Michael Bain, and Ankit Verma, "An Investigation into the Role of Domain-Knowledge on the Use of Embeddings", *ILP, Orleans, 2017*
21. Ashwin Srinivasan, Lovekesh Vig and Gautam Shroff, "Mode-Directed Neural-Symbolic Modelling" , *ILP, Orleans, 2017*
22. Swati J, Gaurav Gupta, Mohit Yadav, Monika Sharma, and Lovekesh Vig, Siamese Networks for Chromosome Classification, *Bioimage Computing workshop, ICCV, Venice 2017*

23. Somdyuti Paul and Lovekesh Vig, "Deterministic Policy Gradient Based Robotic Path Planning with Continuous Action Spaces", *Workshop on Vision in Practice on Autonomous Robotics, ICCV, Venice, 2017*
24. Mayur Patidar, Puneet Agarwal, Lovekesh Vig, Gautam Shroff, "Correcting Linguistic Training Bias in an FAQ-bot using LSTM-VAE", *ECML-PKDD Data Mining and Natural Language Processing (DMNLP) Workshop, Macedonia, 2017*
25. Prerna Khurana, Puneet Agarwal, Ashwin Srinivasan, Gautam Shroff, and Lovekesh Vig, "Hybrid BiLSTM-Siamese network for FAQ Assistance", *CIKM Case Studies Track, Singapore 2017*
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27. S Vishal, Mohit Yadav, Lovekesh Vig and Gautam Shroff, "Information Bottleneck inspired method for chat text segmentation", *IJCNLP, Taiwan, 2017*.

28. D. Vishwanath, Lovekesh Vig, Puneet Agarwal and Gautam Shroff, "MEETING BOT: Reinforcement Learning for Dialogue Based Meeting Scheduling", *AAAI 2018, DEEPDIAL Workshop on Reasoning and Learning for Human-Machine Dialogues*, New Orleans, 2018.
29. Sakti Saurav, Pankaj Malhotra, Vishnu Tv, Narendhar Gugulothu, Lovekesh Vig, Puneet Agarwal, Gautam Shroff, "Online Anomaly Detection with Concept Drift Adaptation using Recurrent neural Networks", *IKDD, Conference on Data Science (CoDS)*, Goa, 2018.
30. Perna Khurana, Puneet Agarwal, Gautam Shroff, Lovekesh Vig, "Resolving Abstract Anaphora Implicitly in Conversational Assistants using a Hierarchically stacked RNN", *KDD (Applications Track)*, London, 2018
31. Monika Sharma, Swati J, Lovekesh Vig, "Automatic Chromosome Classification using Deep Attention Based Sequence Learning of Chromosome Bands", *IJCNN*, Rio, 2018
32. S. Vishal, Arnab Chatterjee, Lovekesh Vig, Gautam Shroff, "Prosocial or Selfish?: Multi-Behaviour Agents for Contract Negotiation using Reinforcement Learning", *IJCAI Workshop on Automated Negotiating*, Stockholm, 2018
33. Priyanka Gupta, Pankaj Malhotra, Lovekesh Vig, and Gautam Shroff, "Transfer Learning for Clinical Time Series Analysis using Recurrent Neural Networks", *IJCAI Workshop in Knowledge Discovery in Healthcare*, Stockholm, 2018
34. Priyanka Gupta, Pankaj Malhotra, Lovekesh Vig, and Gautam Shroff, Using Features From Pre-trained TimeNET For Clinical Predictions, *IJCAI Workshop in Knowledge Discovery in Healthcare*, Stockholm, 2018
35. Narendhar Gugulothu, Pankaj Malhotra, Lovekesh Vig and Gautam Shroff, "Sparse Neural Networks for Anomaly Detection in High Dimensional Time Series", *IJCAI Workshop on AI4IOT*, Stockholm, 2018
36. Vishnu TV, Pankaj Malhotra, Lovekesh Vig, Gautam Shroff, "Deep Ordinal Regression for Remaining Useful Estimation from Censored Data", *ICML Workshop on Deep Learning for Safety-Critical Applications in Engineering Systems*, Stockholm, 2018
37. Arindam Chowdhury and Lovekesh Vig, "An efficient end-to-end neural model for handwritten text recognition ", *BMVC*, 2018
38. Swati J, Monika Sharma, and Lovekesh Vig, "Automatic Classification of Low Resolution Classification Images", *ECCV Workshop on Bio-Image Computing*, Munich, 2018
39. Monika Sharma; Abhishek Vermaa; Lovekesh Vig, "Learning to Clean: A GAN Perspective", *International Workshop on Robust Reading*, ACCV, Perth, 2018
40. Rohit Rahul; Arindam Chowdhury; Animesh Animesh; Samarth Mittal; Lovekesh Vig, "Reading Industrial Inspection Sheets by Inferring Visual Relations", *International Workshop on Robust Reading*, ACCV, Perth, 2018

41. Vishwanath D; Rohit Rahul; Gunjan Sehgal; Swati; Arindam Chowdhury; Monika Sharma; Lovekesh Vig; Gautam Shroff; Ashwin Srinivasan, "Deep-Reader: End-to-end framework for relevant text extraction from real image documents with Natural Language Interface", *International Workshop on Robust Reading, ACCV*, Perth, 2018
42. Tirthraj Dash, Ashwin Srinivasan, Lovekesh Vig, Oghenejokpeme I. Orhobor, and Ross King Large-Scale Assessment of Deep Relational Machines, *28th International Conference on ILP* 2018, Ferrara, Italy, 2018,***Best Student Paper
43. Mayur Patidar, Puneet Agarwal, Lovekesh Vig, and Gautam Shroff, Automatic Conversational Helpdesk Solution using Seq2Seq and Slot-filling Models., *CIKM*, Turin, 2018
44. Sarmimala Saikia, Richa Verma, Puneet Agarwal, Gautam Shroff, Lovekesh Vig and Ashwin Srinivasan, Evolutionary RL for Container Loading, *ESAAN*, Bruges, 2018
45. Arijit Ukil, Pankaj Malhotra, Soma Bandyopadhyay, Tulika Bose, Ishan Sahu, Ayan Mukherjee, Lovekesh Vig, Arpan Pal, and Gautam Shroff, Fusing Features based on Signal Properties and TimeNet for Time Series Classification, *ESAAN*, Bruges, 2019
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47. Monika Sharma, Shikha Gupta, Arindam Chowdhury and Lovekesh Vig. ChartNet: Visual Reasoning over Statistical Charts using MAC-Networks, *IJCNN*, Budapest, 2019
48. Saurabh Srivastava, Puneet Agarwal, Gautam Shroff, Lovekesh Vig, Hierarchical Capsule Based Neural Network Architecture for Sequence Labeling, *IJCNN*, Budapest, 2019
49. Diksha Garg, Priyanka Gupta, Pankaj Malhotra, Lovekesh Vig and Gautam Shroff, Sequence and Time Aware Neighborhood for Session-based Recommendations, *SIGIR*, Paris, 2019
50. Ankit Sharma, Garima Gupta, Ranjitha Prasad, Arnab Chatterjee, Lovekesh Vig, Gautam Shroff, "MetaCl: Meta-Learning for Causal Inference in a Heterogeneous Population", *Workshop on Do the right thing: machine learning and causal inference for improved decision making, Neurips 2019, Montreal*
51. Vishnu T. V. , Pankaj Malhotra, Jyoti Narwariya, Lovekesh Vig, Gautam Shroff, *Meta-Learning for Black Box Optimization, ECML 2019 (Main Track)*
52. Jyoti Narwariya, Pankaj Malhotra, Lovekesh Vig, Gautam Shroff, T. V. Vishnu, Meta-Learning for Few-Shot Time Series Classification, *CoDS, 2020 (Main Track)*
53. Shubham Palliwal, Vishwanath D, Rohit Rahul, Monika Sharma, Lovekesh Vig, TableNet: Deep Learning model for end-to-end Table detection and Tabular data extraction from Scanned Document Images, *ICDAR 2020, Sydney (Main Track)*
54. Kushagra Mahajan, Monika Sharma, Lovekesh Vig, Character Keypoint based homography estimation in Scanned Documents for Efficient Information Extraction, *CBDAR Workshop ICDAR 2020*

Srinidhi Hegde, Ranjitha Prasad, Ramya Hebbalaguppe, Vishwajeet Kumar:
Variational Student: Learning Compact and Sparser Networks In Knowledge Distillation
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AirPen: A Touchless Fingertip Based Gestural Interface for Smartphones and Head-Mounted
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*Varun Jain, Gaurav Garg, Ramakrishna Perla, Ramya Hebbalaguppe:
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Variational Student: Learning Compact and Sparser Networks in Knowledge Distillation
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*Varun Jain, Shivam Aggarwal, Suril Mehta, Ramya Hebbalaguppe:
Synthetic Video Generation for Robust Hand Gesture Recognition in Augmented Reality
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60. *Gaurav Garg, Srinidhi Hegde, Ramakrishna Perla, Varun Jain, Lovekesh Vig, Ramya Hebbalaguppe:
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