

Sakshi Agarwal

Curriculum Vitae

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Education

- 2019–present **PhD, Computer Science**, *University of California, Irvine*.
Machine Learning and Deep Learning, Deep Generative Models, Inference, Image Inpainting
- 2013–2017 : **B.Tech in Electrical Engineering, Minor in Computer Science & Engineering**, *Indian Institute of Technology, Kharagpur*.

Publications

In Conference Proceedings

- 2023 **Agarwal, Sakshi**, Gabriel Hope, Ali Younis, and Erik B. Sudderth. A decoder suffices for query-adaptive variational inference. In Robin J. Evans and Ilya Shpitser, editors, *Proceedings of the Thirty-Ninth Conference on Uncertainty in Artificial Intelligence*, volume 216 of *Proceedings of Machine Learning Research*, pages 33–44. PMLR, 31 Jul–04 Aug 2023.
- 2022 **Sakshi Agarwal**, Kalev Kask, Alexander Ihler, and Rina Dechter. NeuroBE: Escalating NN approximations of bucket elimination. In *The 38th Conference on Uncertainty in Artificial Intelligence*, 2022.
- 2021 Yasaman Razeghi, Kalev Kask, Yadong Lu, Pierre Baldi, **Agarwal, Sakshi**, and Rina Dechter. Deep bucket elimination. In Zhi-Hua Zhou, editor, *Proceedings of the Thirtieth International Joint Conference on Artificial Intelligence, IJCAI-21*, pages 4235–4242. International Joint Conferences on Artificial Intelligence Organization, 8 2021. Main Track.
- 2018 **Agarwal, Sakshi**, Krishnaprasad Narayanan, Manjira Sinha, Rohit Gupta, Sharanya Eswaran, and Tridib Mukherjee. Decision support framework for big data analytics. In *2018 IEEE World Congress on Services (SERVICES)*, pages 53–54, 2018.
- 2017 Mohit Yadav and **Agarwal, Sakshi**. Regularization and learning an ensemble of rnns by decorrelating representations. In *AAAI Workshops*, 2017.

Patents

- 2021 **Agarwal, Sakshi** and SS Mannarswamy. Neural network architecture for subtle hate speech detection, us patent 10,936,817, 2021.
- 2020 **Agarwal, Sakshi**, Poorvi Agarwal, Arun Rajkumar, and Sharanya Eswaran. Method and system for forecasting in sparse data streams via dense data streams, us patent app. 16/112,768, 2020.
- 2019 Sharanya Eswaran, **Agarwal, Sakshi**, Sitara Shah, Narayanan Krishnaprasad, Banerjee Shisagnee, Johnston Terry, Avantika Gupta, and Tridib Mukherjee. Operational recommendations based on multi-jurisdictional inputs, us patent app. 15/988,247, 2019.

Research Experience

University of California, Irvine

- March, 2022 – **A decoder suffices for query-adaptive variational inference**.
- March, 2023 Developed a variational inference algorithm for deep (Hierarchical) VAEs for accurate and multiple plausible imputations for missing data (images, tables).

- Advisor : **Prof. Erik Sudderth**, *Professor, Department of Computer Science & Statistics, University of California, Irvine* ([Personal Web-page](#))
- May, 2020 – **NeuroBE: Escalating NN approximations of bucket elimination.**
 Feb, 2021 Built an approximate message-passing inference algorithm using neural networks for graphical models with discrete variables.
- Advisor : **Prof. Rina Dechter**, *Professor, Department of Computer Science, University of California, Irvine* ([Personal Web-page](#)), **Prof. Alex Ihler**, *Professor, Department of Computer Science, University of California, Irvine* ([Personal Web-page](#))
- [Amazon.com, Seattle](#)
- June, 2020 – **Theme Categorization.**
 Sept, 2020 Categorized Q/A pairs on Amazon website into "generic themes" using statistical models like LDA, unsupervised learning methods like clustering on word2vec. Proposed suitable evaluation metrics to measure the exhaustive and discriminative aspects of the generated themes.
- [Xerox Research Center, India](#)
- July, 2017 – **Hate Speech Detection.**
 July, 2019 Built an attention based RNN model to detect "subtle" hate-speech in online comments of an article using additional features like article titles, previous comments.
- July, 2017 – **Crime Analytics.**
 July, 2019 Built a model to predict the time of occurrence of crime events in a particular city (especially low crime cities) based on its past crime events.
- [TCS Innovation Labs, India](#)
- May, 2016 – **Query Classification.**
 July, 2016 Built a Recurrent Neural Network (LSTM) classifier to classify user queries into hardware, software and e-mail related issues.
- [Duke University, North Carolina](#)
- May 2015 – **Wildlife Conservation.**
 July 2015 Integrated an existing commercial drone, an infrared camera, and a tablet controller, enabling an operator with no piloting skills the ability to track wildlife preserves at night.
- [Indian Institute of Technology, Kharagpur](#)
- Aug, 2016 – **Biomedical Semantic Indexing.**
 Mar, 2017 Built a deep learning model for indexing Medical Subject Headings (MeSH) for abstracts of biomedical articles. The semantics of the text was captured with different architectures of RNN (LSTM, GRU) followed by classification into MeSH terms.
- Advisor : **Prof. Sudeshna Sarkar**, *Professor, Department of Computer Science & Engineering, IIT Kharagpur* ([Personal Web-page](#))

Academic Achievements

- 2022 Reviewer at Artificial Intelligence and Statistics (AISTATS) 2023
- 2013 Qualified in the Joint Entrance Examination (Advanced & Main), 2013 with a percentile of 98.3% and 99.7% respectively.

Computer Skills

Programming Languages Python, PyTorch, TensorFlow, Theano, R, C, C++, JAVA (Basics), Spark, Hadoop

Teaching Assistantship

- Winter, 2022 **CS175: Project In AI**, UC Irvine.
- Spring, 2021 **CS171: Intro to Artificial Intelligence**, UC Irvine.
- Winter, 2020 **CS265: Graph Algorithms**, UC Irvine.