Gaurush Hiranandani

Personal Information

Current Position:	Ph.D. Candidate, Department of Computer Science, Univeristy of Illinois Urbana-Champaign
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Research Interests

Machine Learning, Metric Elicitation, Learning to Rank, Recommendation Systems

Education and Experience

2017-Present	Ph.D. in Computer Science, University of Illinois - Urbana Champaign, CGPA: **4.0/4.0**
May-Aug 2020	Research Intern, Google Research
May-Aug 2019	Research Intern, Amazon (A9) Research
May-Aug 2018	Research Intern, Microsoft Research
2015-2017	Member of Technical Staff (Research), Big Data Experience Lab, Adobe Research, Bengaluru
2010-2015	M.Sc. (Integrated) in Mathematics and Scientific Computing, Indian Institute of Technology Kanpur CGPA: **9.4/10.0**, Department Rank: **1** (out of 45 students) Institute Rank: **1** (out of 830 students in the years 2013-14 and 2014-15)

Awards and Honors

1. **C.L. and Jane Liu Award:** For showing exceptional research promise. Awarded to one student across batches *(2020)*
2. **Google PhD Fellowship Nomination:** Selected across all departments to represent UIUC for the fellowship *(2019-20)*
3. **Best Reviewer:** Among the top reviewers for NeurIPS'20, ICML'20, and NeurIPS'19
4. **B.D. Sanghi Gold Medal:** For best academic performance in Mathematics & Statistics Department *(2015)*
5. **S. Gupta Gold Medal:** For highest CGPA in Mathematics & Scientific Computing M.Sc.(Int.) program *(2015)*
6. **Project Proficiency Medal:** For best project in Mathematics & Scientific Computing M.Sc.(Int.) Program *(2015)*
7. **General Proficiency Medal:** For best academic performance in Mathematics & Scientific Computing program *(2015)*
8. **Academic Excellence Awards:** For being among the top 7% of the batch (830 students) academically *(2013, 2014)*

Research Publications

1. **Gaurush Hiranandani**, Harikrishna Narasimhan, and Oluwasanmi Koyejo. Fair Performance Metric Elicitation. In *Neural Information Processing Systems - NeurIPS*, 2020.
2. **Gaurush Hiranandani**, Warut Vijitbenjaronk, Oluwasanmi Koyejo, and Prateek Jain. Optimization and Analysis of the pAp@k Metric for Recommender Systems. In *International Conference on Machine Learning - ICML*, 2020.
3. **Gaurush Hiranandani**, Shant Boodaghians, Ruta Mehta, and Oluwasanmi Koyejo. Multiclass Performance Metric Elicitation. In *Neural Information Processing Systems - NeurIPS*, 2019.
4. **Gaurush Hiranandani**, Sumeet Katariya, Nikhil Rao, and Karthik Subbian. Online Bayesian Learning for E-commerce Query Reformulation. In *Bayesian Deep Learning* workshop at *Neural Information Processing Systems - NeurIPS*, 2019.
5. **Gaurush Hiranandani***, Harvineet Singh*, Prakhar Gupta*, Iftikhar Ahamath Burhanuddin, Zheng Wen, and Branislav Kveton. Cascading Linear Submodular Bandits: Accounting for Position Bias and Diversity in Online Learning to Rank. In *Uncertainty in Artificial Intelligence - UAI*, 2019. **(Oral)**
6. **Gaurush Hiranandani**, Shant Boodaghians, Ruta Mehta, and Oluwasanmi Koyejo. Performance Metric Elicitation from Pairwise Classifier Comparisons. In *Artificial Intelligence and Statistics - AISTATS*, 2019.

7. **Gaurush Hiranandani***, Raghav Somani*, Sreangsu Accharya, Oluwasanmi Koyejo. Clustered Monotone Transforms for Rating Factorization. In *Web Search and Data Mining - WSDM*, 2019.
8. Sunav Choudhary, **Gaurush Hiranandani**, and Shiv Kumar Saini. Sparse Decomposition for Time Series Forecasting and Anomaly Detection. Accepted to *SIAM International Conference on Data Mining - SDM*, 2018.
9. **Gaurush Hiranandani**, K. Ayush, A. R. Sinha, S.V.R. Maram, C. Varsha, and P. Maneriker. Enhanced Personalized Targeting Using Augmented Reality. In *International Symposium on Mixed and Augmented Reality - ISMAR*, 2017.
10. **Gaurush Hiranandani**, Pranav Maneriker, and Harsh Jhamtani. Generating Appealing Brand Names. In *International Conference on Computational Linguistics and Intelligent Text Processing - CICLing*, 2017.
11. **Gaurush Hiranandani**, and Jean-Marc Schlenker. Small Circulant Complex Hadamard Matrices of Butson Type. In *European Journal of Combinatorics*, pp. 306-314 (50), 2016.
12. Natwar Modani, P. Maneriker, **Gaurush Hiranandani**, A. R. Sinha, Utpal, Vaishnavi S., and S. Gupta. Summarizing Multimedia Content. In *International Conference on Web Information Systems Engineering - WISE*, 2016.
13. **Gaurush Hiranandani**, and Harish Karnick. Improved Classification and Reconstruction by Introducing Independence and Randomization in DNNs. In *Digital Image Computing: Techniques and Applications - DICTA*, 2015.

Patents

Organization: Adobe Research

1. **Gaurush Hiranandani**, Sai Varun Reddy Maram, Kumar Ayush, Chinnaobireddy Varsha, and Siddhant Jain. Product Recommendations Based on Augmented Reality Viewpoints. *US62/415332 (Filed in multiple countries)*.
2. **Gaurush Hiranandani**, T. Goyal, P. Bajaj, and S. Shekhar. Determination of Paywall Metrics. *US15/277,136*.
3. **Gaurush Hiranandani**, Chinnaobireddy Varsha, Sai Varun Reddy Maram, Kumar Ayush, and Atanu R. Sinha. Identifying Augmented Reality Visuals Influencing User Behavior in Virtual-Commerce Environments. *US15/433,834*.
4. **Gaurush Hiranandani**, S. K. Saini, and M. Sinha. Anomaly Detection at Coarse Granularity of Data. *US15/428,523*.
5. **Gaurush Hiranandani**, Kumar Ayush, Chinnaobireddy Varsha, and Sai Varun Reddy Maram. Creating Targeted Content Based on Detected Characteristics of an Augmented Reality Scene. *US15/454,750*.
6. **Gaurush Hiranandani**, and N. Modani. Representative Metrics for Efficient Anomaly Detection. *US15/178,403*.
7. **Gaurush Hiranandani**, Pawan Vaishnav, Aditya Jain, Moumita Sinha, and Kushal Chawla. Augmented Reality Predictions using Machine Learning. *US15/868,531*.
8. Branislav Kveton, **Gaurush Hiranandani**, Prakhar Gupta, Harvineet Singh, Iftikhar Ahamath Burhanuddin, and Zheng Wen. Online Diverse Set Generation from Partial Click Feedback. *US15/892,085*.
9. Prakhar Gupta, **Gaurush Hiranandani**, H. Singh, and S. K. Saini. End of Day Metric Projection. *US15/609,254*.
10. S. Choudhary, **Gaurush Hiranandani**, and S.K. Saini. Sparse Decomposition of Time Series Data. *US15/804,012*.
11. Shivani Gupta, **Gaurush Hiranandani**, Charanjit Ghai, and Anshul Agrawal. Target Audience Content Interaction Quantification. *US14/548,061.*
12. Natwar Modani, Pranav Maneriker, **Gaurush Hiranandani**, Atanu R. Sinha, Utpal, Vaishnavi S., and Shivani Gupta. Determining Quality of a Summary of Multimedia Content. *US14/959,219.*
13. Shivani Gupta, Charanjit Ghai, **Gaurush Hiranandani**, and Anshul Agrawal. User Interest Learning through Hierarchical Interest Graphs. *US14/548,116.*
14. Natwar Modani, Pranav Maneriker, **Gaurush Hiranandani**, Atanu R. Sinha, Utpal, Vaishnavi S., and Shivani Gupta. Multimedia Document Summarization. *US14/947,964.*
15. Kumar Ayush, and **Gaurush Hiranandani**. Generating and Providing Augmented Reality Representations of Recommended Products Based on Style Compatibility in Relation to Real-World Surroundings. *US15/972,815.*
16. Kumar Ayush, and **Gaurush Hiranandani**. Generating and Providing Augmented Reality Representations of Recommended Products Based on Style Similarity in Relation to Real-World Surroundings. *US16/004787.*
17. Natwar Modani, Iftikhar Ahamath Burhanuddin, **Gaurush Hiranandani**, and Shiv Kumar Saini. Providing Personalized Alerts and Anomaly Summarization. *US15/238,208.*

*Equal Contribution

18. Balaji Vasan Srinivasan, Sanket Mehta, **Gaurush Hiranandani**, Harsh Jhamtani, Natwar Modani, and Cedric Huesler. Propagation of Changes in Master Content to Variant Content. *US15/184,959*.

Teaching and Responsibilities

1. *Teaching Assistant, Machine Learning (Fall 2017)*: Assisted in teaching Machine Learning to 130+ students.
2. *Internship Mentor, Adobe Research (Summer 2016)*: Mentored a team of 3 students on a project based on *Augmented Reality for Digital Marketing*. The project resulted in 3 patents and a paper accepted to *ISMAR'2017*.
3. *Internship Co-Mentor, Adobe Research (Summer 2015)*: Co-mentored a team of 3 students on a project based on *Multimedia Content Summarization*. The project resulted in 2 patents and a paper accepted to *WISE'2016*.

Relevant Courses with Grades

Machine Learning: Tools and Techniques (A)
Mathematics for Machine Learning (A)
Applied Nonlinear Programming (A)
Data Mining: Principles and Algorithms (A)
Introduction to Game Theory (A)
Statistical Simulation and Data Analysis (A)
Non-Linear Regression (A)
Discrete Mathematics (A)
Graph Theory (A)
Partial Differential Equations (A)
Machine Learning Theory (A)
Computational Inference and Learning (A)
Regression Analysis (A)
Time Series Analysis (A)
Inference I (A)
Applied Stochastic Processes (A)
Probability Theory (A)
Linear Programming and Extensions (A)
Topology (A)
Algebraic Topology (A)

Extra Curricular Activities

1. **Cricket:** Winner of the intra-university cricket championship (Cricket Club of Illinois - Spring 2019, Fall 2019).
2. **Dance:**
   - First prize in both street dance and stage dance competition in Antragni (IIT Kanpur's Cultural Festival, 2011).
   - First prize in street dance competition in Rendevouz (IIT Delhi's Cultural Festival, 2011).
   - Third prize in stage dance competition in Mood Indigo (IIT Bombay's Cultural Festival, 2011).
3. **Photography:** First prize in both monomode and black & white photography competitions in Spectrum'2012.
4. **Professional Shows Coordinator**: Worked in a team of 5 to bring together 5 shows involving budget of $35,000 which witnessed a total audience of 30,000+ people in Antragni'2012 (IIT Kanpur's cultural festival).
5. **Counseling Service:**
   - Link Student (2012-13), IIT Kanpur: Aided 1 student to come out of Academic Probation through guided motivation and academic help.
   - Student Guide, IIT Kanpur: Successfully performed the role of incubating 9 new students.