

# Gaurush Hiranandani

## PERSONAL INFORMATION

---

CURRENT POSITION: Ph.D. Student, Department of Computer Science, Univeristy of Illinois Urbana-Champaign  
EMAIL: [gaurush.hiranandani@gmail.com](mailto:gaurush.hiranandani@gmail.com), [gaurush2@illinois.edu](mailto:gaurush2@illinois.edu)  
WEBSITE: [www.gaurush.com](http://www.gaurush.com)  
LINKEDIN, SCHOLAR: [in.linkedin.com/in/gaurushh](https://in.linkedin.com/in/gaurushh), [scholar.google.co.in/gaurushh](https://scholar.google.co.in/gaurushh)

## RESEARCH INTERESTS

---

Machine Learning, Statistical Inference, Learning to Rank, Preference Elicitation

## 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 Research Staff, 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 400 reviewers for NeurIPS (2019)
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 (Published)*.
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 (Granted)*.
13. Shivani Gupta, Charanjit Ghai, **Gaurush Hiranandani**, and Anshul Agrawal. User Interest Learning through Hierarchical Interest Graphs. *US14/548,116 (Published)*.
14. Natwar Modani, Pranav Maneriker, **Gaurush Hiranandani**, Atanu R. Sinha, Utpal, Vaishnavi S., and Shivani Gupta. Multimedia Document Summarization. *US14/947,964 (Published)*.
15. Kumar Ayush, and **Gaurush Hiranandani**. Context Aware Recommendations Embedded in Augmented Viewpoint to Retarget Consumers in v-commerce. *In filing process*.
16. Kumar Ayush, and **Gaurush Hiranandani**. Augmented Reality Based Style Aware Recommendations based on Perceptual Shape Style Compatibility with Objects in the Viewpoint. *In filing process*.
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)   | Machine Learning Theory (A)              |
| Mathematics for Machine Learning (A)         | Computational Inference and Learning (A) |
| Applied Nonlinear Programming (A)            | Regression Analysis (A)                  |
| Data Mining: Principles and Algorithms (A)   | Time Series Analysis (A)                 |
| Introduction to Game Theory (A)              | Inference I (A)                          |
| Statistical Simulation and Data Analysis (A) | Applied Stochastic Processes (A)         |
| Non-Linear Regression (A)                    | Probability Theory (A)                   |
| Discrete Mathematics (A)                     | Linear Programming and Extensions (A)    |
| Graph Theory (A)                             | Topology (A)                             |
| Partial Differential Equations (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 Rendezvous (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 monochrome 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.