Siddharth Bhatia

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• siddharth@turboml.com

Work Experience

TurboML
Co-founder and CEO (2022 - Present)

Education

National University of Singapore
Ph.D. Computer Science (2018 - 2022)
• Presidents Graduate Fellowship

BITS Pilani
M.E. Computer Science (2018)
B.E. Computer Science (2016)
M.Sc. Mathematics (2016)

Research Interests

• Streaming Anomaly Detection, Graph Mining, Scalable Machine Learning

Honors and Awards

1. Presidents Graduate Fellowship, Singapore (2018-2022)
2. Invited to Global Young Scientists Summit, 2022
3. Invited to Google Research Graduate Symposium, 2021
4. NUS Research Achievement Award, 2020, 2021, and 2022
5. Popular Choice Award, Microsoft Azure Hackathon, 2020
6. Young Researcher, ACM Heidelberg Laureate Forum, 2016
7. Registration/Travel Grants: KDD, WWW, AAAI, NeurIPS, MSR, SIGMOD, SOSP, ICDM, HPDC, POPL, ECOOP
8. KVPY Fellowship (2011-2016)
9. Indian National Olympiad in Informatics, 2008

Recent Publications

1. <u>Siddharth Bhatia</u>, Bryan Hooi, Minji Yoon, Kijung Shin, Christos Faloutsos. "Midas: Microcluster-Based Detector of Anomalies in Edge Streams." AAAI Conference on Artificial Intelligence (AAAI), 2020. (700+ stars on GitHub)

2. <u>Siddharth Bhatia</u>, Arjit Jain, Pan Li, Ritesh Kumar, Bryan Hooi. "MStream: Fast Anomaly Detection in Multi-Aspect Streams." The Web Conference (WWW), 2021 (Best Paper Candidate)

3. <u>Siddharth Bhatia</u>[*], Arjit Jain[*], Bryan Hooi [* denotes equal contribution]. "ExGAN: Adversarial Generation of Extreme Samples." AAAI Conference on Artificial Intelligence (AAAI), 2021.

4. <u>Siddharth Bhatia</u>, Yiwei Wang, Bryan Hooi, Tanmoy Chakraborty. "GraphAnoGAN: Detecting Anomalous Snapshots from Attributed Graphs." European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), 2021.

5. Koki Kawabata[*], <u>Siddharth Bhatia</u>[*], Rui Liu, Mohit Wadhwa, Bryan Hooi [* denotes equal contribution]. "SSMF: Shifting Seasonal Matrix Factorization." Conference on Neural Information Processing Systems (NeurIPS), 2021

6. <u>Siddharth Bhatia</u>, Rui Liu, Bryan Hooi, Minji Yoon, Kijung Shin, Christos Faloutsos. "Real-Time Anomaly Detection in Edge Streams." Transactions on Knowledge Discovery from Data (TKDD)

7. Yiwei Wang, Yujun Cai, Yuxuan Liang, Henghui Ding, Changhu Wang, <u>Siddharth Bhatia</u>, Bryan Hooi. "Adaptive Data Augmentation on Temporal Graphs." Conference on Neural Information Processing Systems (NeurIPS), 2021

8. Jiabao Zhang, Shenghua Liu, Wenting Hou, <u>Siddharth Bhatia</u>, Huawei Shen, Wenjian Yu, Xueqi Cheng. "AugSplicing: Synchronized Behavior Detection in Streaming Tensors." AAAI Conference on Artificial Intelligence (AAAI), 2021

9. <u>Siddharth Bhatia</u>, Arjit Jain, Shivin Srivastava, Kenji Kawaguchi, Bryan Hooi. "MemStream: Memory-Based Streaming Anomaly Detection." The Web Conference (WWW), 2022

10. Xiaobing Sun, Wenjie Feng, Shenghua Liu, Yuyang Xie, <u>Siddharth Bhatia</u>, Bryan Hooi, Wenhan Wang, Xueqi Cheng. "MonLAD: Money Laundering Agents Detectionin Transaction Streams." ACM International Conference on Web Search and Data Mining (WSDM), 2022

11. Ying Sun, Wenjun Wang, Nannan Wu, Chaochao Liu, <u>Siddharth Bhatia</u>, Yang Yu, Wei Yu. "AAAN: Anomaly Alignment in Attributed Networks." Knowledge-Based Systems, 2022

12. <u>Siddharth Bhatia</u>, Mohit Wadhwa, Kenji Kawaguchi, Neil Shah, Philip S. Yu, Bryan Hooi. "Sketch-Based Anomaly Detection in Streaming Graphs." SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2023

Older Publications

1. <u>Siddharth Bhatia</u>, Kunal Lad, Rajiv Kumar. "Bend-optimal orthogonal drawings of triconnected plane graphs." AKCE International Journal of Graphs and Combinatorics, 2018.

2. Yash Sinha, <u>Siddharth Bhatia</u>, Virendra S Shekhawat, G S S Chalapati. "MPLS based Hybridization in SDN." International Conference on Software Defined Systems, 2017.

3. <u>Siddharth Bhatia</u>, Yash Sinha, Lavika Goel. "Lung Cancer Detection: A Deep Learning Approach." Soft Computing for Problem Solving, 2017

4. <u>Siddharth Bhatia</u>, Mohan Pavan Kumar Badarla. "Parallelization of Error Weighted Hashing for Approximate k-nearest neighbor search on GPUs." IEEE International Conference on High Performance and Smart Computing, 2016.

5. Chandra Shekhar, Madhu Jain, <u>Siddharth Bhatia</u>. "Fuzzy analysis of machine repair problem with switching failure and reboot." Journal of Reliability and Statistical Studies Special Issue, 2014.

Posters/Workshops

1. Jie Zhang, Nannan Wu, Wenjun Wang, Ying Sun, <u>Siddharth Bhatia</u>. "Anomaly Alignment Across Multiple Attributed Networks." KDD Workshop on Outlier Detection and Description (ODD), 2021.

2. <u>Siddharth Bhatia</u>, Bryan Hooi, Minji Yoon, Kijung Shin, Christos Faloutsos. "Midas: Microcluster-Based Detector of Anomalies in Edge Streams." KDD Workshop on Mining and Learning with Graphs (MLG), 2020.

3. <u>Siddharth Bhatia</u>. Approximate Triangle Count and Clustering Coefficient. ACM Special Interest Group on Management of Data Conference (SIGMOD) Student Research Competition, 2018.

4. <u>Siddharth Bhatia</u>, Yash Sinha, G S S Chalapati and Rajiv Kumar. "MPI aware routing using SDN." ACM International Symposium on High Performance Distributed Computing (HPDC), 2017.

5. <u>Siddharth Bhatia</u>. "SmallTable." ACM International Symposium on High Performance Distributed Computing (HPDC), 2017.

6. Yash Sinha and <u>Siddharth Bhatia</u>. "Control-data plane intelligence trade-off in SDN." IEEE Symposium on Security and Privacy (S&P), 2017.

Internships

Google Research (2021)

Intern, Streaming Restless Multi-Armed Bandits

Amazon Web Services (2020)

Intern, Semi-supervision in Anomaly Detection

Microsoft Research (2016)

Intern, Code Switching

University of Cambridge (2015)

Intern, Approximate Triangle Count in Large Scale Graphs

Indian Institute of Science (2014)

Intern, Parallel Hashing for Approximate k-NN Search in GPU-CPU Hybrid

Indian Space Research Organisation (2013)

Intern, 3D visualization

IIIT Delhi (2012)

Intern, Mobile and Ubiquitous Computing

SERVICE

Chair
- Organiser, 6th Outlier Detection and Description (ODD) Workshop, KDD 2021
- Publications Chair, 11th ACM Symposium on Cloud Computing (SOCC), 2020

Senior Program Commitee Member
- 30th International Joint Conference on Artificial Intelligence (IJCAI), 2021

Program Committee Member
- 15th International Conference on Web Search and Data Mining (WSDM), 2022
- 10th International Conference on Learning Representations (ICLR), 2022
- 35th AAAI Conference on Artificial Intelligence (AAAI), 2021
- 35th Conference on Neural Information Processing Systems (NeurIPS), 2021
- ACM SIGKDD Workshop on Deployable Machine Learning for Security Defense (MLHat), 2021
- Workshop on Artificial Intelligence for Anomalies and Novelties, IJCAI, 2021
- NeurIPS Workshop on Fair AI in Finance, 2020
- ACM SIGKDD International Workshop on Mining and Learning with Graphs (MLG), 2020
- ACM SIGKDD Workshop on Machine Learning in Finance, 2020
- Workshop on Artificial Intelligence for Anomalies and Novelties, IJCAI, 2020

TALKS

Alan Turing Institute
Amazon
Data+AI Summit
Data Science Congress
DataScience SG
Knowledge Graphs Meetup
MIT
New York University
NUS Computing Research Week
RSA Conference
Security Weekly

PRESS COVERAGE

ACM TechNews
AIhub:1, 2
AI Trends
Analytics India Magazine: 1 2
Bloomberg
Hacker News
Hacker Noon
insideBIGDATA
KDnuggets:1, 2
Lionbridge
MarkTechPost
MarTech
Microsoft Azure

TEACHING

National University of Singapore: Teaching Assistant

- DSA5102: Foundations of Machine Learning (Fall 2020)
- TIC1001: Introduction to Computing and Programming I (Fall 2020)
- CS5228: Knowledge Discovery and Data Mining (Spring 2020)
- BT5151: Foundation in Data Analytics II (Spring 2020)
- TIC1002: Introduction to Computing and Programming II (Spring 2020)
- TIC2002: Introduction to Software Engineering (Fall 2019)
- TIC1001: Introduction to Computing and Programming I (Fall 2019)

BITS Pilani: Teaching Assistant

- CS F211: Data Structures and Algorithms
- CS F212: Database Systems
- CS F372: Operating Systems

MENTORING / ADVISING

- Arjit Jain, IIT Bombay
- Mohit Wadhwa, Google
- Rui Liu, National University of Singapore
- Ritesh Kumar, IIT Kanpur
- Rama Rohit Reddy, IIIT Hyderabad