ASEEM BARANWAL in 🎓 🌐

EDUCATION

Ph.D. in Computer Science   Sep 2020 – Present
University of Waterloo. Supervised by Aukosh Jagannath and Kimon Fountoulakis.

M.Math. in Computer Science (thesis option)   Sep 2018 – Apr 2020
University of Waterloo. Supervised by Jeffrey Shallit.

B.Tech. in Computer Science   Jul 2012 – May 2016
Indian Institute of Technology Jodhpur.

EXPERIENCE

· **Research Intern, Microsoft Research, Redmond**   Jun 2023 – Sep 2023
Worked on graph learning models for polymorphic malware detection.

· **Research Intern, Google Research (Remote)**   Oct 2022 – Dec 2022
Worked with the Graph mining group on scalable GNNs for sparse graphs.

· **Software Engineer, Microsoft Corporation**   Jun 2016 – Jul 2018
Worked with the Azure compute group on distributed systems and anomaly detection.

PUBLICATIONS

· **Optimality of Message-passing Architectures for Sparse Graphs**. A. Baranwal, K. Fountoulakis, A. Jagannath. Neural Information Processing Systems (NeurIPS), 2023. ☑ ⚪

· **Graph Attention Retrospective**. K. Fountoulakis, A. Levi, S. Yang, A. Baranwal, A. Jagannath. Journal of Machine Learning Research (JMLR) vol. 24:246 pp. 1–52, 2023. ☑ ⚪

· **Effects of Graph Convolutions in Multi-layer Networks**. A. Baranwal, K. Fountoulakis, A. Jagannath. International Conference on Learning Representations (ICLR), 2023. *(Spotlight)* ☑ ⚪

· **Graph Convolution for Semi-supervised Classification: Improved Linear Separability and Out-of-distribution Generalization**. A. Baranwal, K. Fountoulakis, A. Jagannath. International Conference on Machine Learning (ICML), 2021. *(Spotlight)* ☑ ⚪

· **Antisquares and Critical Exponents**. A. Baranwal, J. Currie, L. Mol, P. Ochem, N. Rampersad, J. Shallit. Discrete Mathematics & Theoretical Computer Science vol. 25:2, 2023. ☑

· **Ostrowski-automatic Sequences: Theory and Applications**. A. Baranwal, L. Schaeffer, J. Shallit. Theoretical Computer Science 858, pp. 122–142, 2021. ☑

· **Decision Algorithms for Ostrowski-automatic Sequences.** A. Baranwal. MMath Thesis, University of Waterloo, School of Computer Science, 2020. ☑

· **Repetitions in Infinite Palindrome-rich Words**. A. Baranwal, J. Shallit. In Combinatorics on Words. WORDS 2019. LNCS vol. 11682, Springer, pp. 93–105, 2019. ☑

· **Critical Exponent of Balanced Words via the Pell Number System**. A. Baranwal, J. Shallit. In Combinatorics on Words. LNCS vol. 11682, Springer, pp. 80–92, 2019. ☑

AWARDS AND ACHIEVEMENTS

· Cheriton Graduate Scholarship, School of Computer Science, University of Waterloo	2024
· President's Graduate Scholarship, University of Waterloo	2023–2024
· Ontario Graduate Scholarship, Province of Ontario and the University of Waterloo	2023–2024
· Best paper award, GroundedML workshop at ICLR	2022
· Top reviewer award, Learning on Graphs conference	2022
· Graduate Excellence Award, University of Waterloo	2020–2022
· Graduate Research Travel Grant, GSPA, University of Waterloo	2019
· Microsoft Engineering Star Award – Changing Status Quo	2017
· Team ranked 14 at ACM ICPC Asia regionals	2015

TALKS AND PRESENTATIONS

· Optimality of Message-passing Architectures for Sparse Graphs, NeurIPS, New Orleans.	Dec 2023
· Polymorphic Malware Classification using Graph Neural Networks, Microsoft Research.	Aug 2023
· Effects of Graph Convolutions in Multi-layer Networks, ICLR (virtual talk).	Apr 2023
· Graph Convolutions for semi-supervised learning, ICML (virtual talk).	Jul 2021
· Decision Algorithms for Ostrowski-Automatic Sequences, University of Waterloo.	Apr 2020
· Repetitions in infinite palindrome-rich words, Loughborough University, England.	Sep 2019
· Anomaly detection and monitoring of metrics in Azure services, Microsoft Corporation.	Jan 2017

TEACHING

· Instructional Apprentice, CS 341 - Algorithms	2019–2023
· Teaching Assistant, CS 135 - Designing Functional Programs	2018–2019

MISCELLANEOUS

· Serving/served as a reviewer for NeurIPS, ICLR, LoG, UAI	2021–Now
· Helped underprivileged kids with education at SOS Children's Villages of India	2016–2018
· Associate member, National Cyber Safety and Security Standards India	2017–2018
· President, Programming Club IIT Jodhpur	2013–2014
· Problem setter for ACM ICPC preliminary contests in India	2015–2016