

Anya Chaturvedi

Ph.D. Student
Arizona State University

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Education

- **Ph.D. in Computer Science (4/4)** (Aug'22-Present)
Arizona State University, Tempe
- **Master of Science in Computer Science (4/4)** (Aug'18-Aug'20)
Arizona State University, Tempe
- **Bachelor of Technology in Information Technology (8.54/10)** (Jul'14-May'18)
Motilal Nehru National Institute of Technology Allahabad, India

Technical Skills

- **Programming Languages:** C++, Python, C, HTML, Git, LaTeX, Java, JavaScript, SQL, C#, ASP.NET
- **Applications:** MATLAB, Visual Studio, Android Studio, Microsoft Office, SQL Server Management Studio

Work Experience

- **Visiting Scholar, Advisor: Prof. Ananth Grama** (Purdue University) (May'23-Jul'23)
 - The objective of this internship was to work on optimization techniques, their parallel formulations, and applications in diverse settings. The project involved understanding how tolerant Neural Networks are to noise and faults.
 - This involved collaboration with the Grama and Szpankowski Labs at Purdue.
- **Graduate Research Assistant, Advisor: Prof. Andrea Richa** (Arizona State University) (Aug'22-Present)
 - With a keen interest in theoretical computer science, I work on Distributed Computing randomized and combinatorial optimization algorithms, possibly incorporating Bio-Inspired Solutions.
- **Automation Software Engineer: Intel Corporation** (Sep'20-Jun'22)
 - Worked on software development and testing for factory automation in the Technology Development Analytics and Technology Automation group.
- **Automation Intern: Intel Corporation** (Mar'19-Aug'19)
 - Worked on the design and architecture of a software application while developing testing procedures, applying algorithms in software development along with analyzing security and performance of software modules.
- **Graduate Teaching Assistant, Instructor: Prof. Andrea Richa** (Arizona State University) (Dec'18-May'20)
 - Helped students and instructor by holding doubt solving sessions, making assignments and the respective solutions throughout the graduate level **Foundations of Algorithms** course (both online and offline offerings).
- **Graduate Research Assistant, Advisor: Prof. Andrea Richa** (Arizona State University) (Aug'18-Jul'20)
 - Worked on several projects with my main focus on the **All-or-Nothing Multicommodity flow** problem using various tools of Randomized and Approximation Algorithms to improve on existing bounds.
- **Summer Undergraduate Research Internship, Prof. Surender Baswana** (IIT Kanpur, India) (May'17-Jul'17)
 - As part of the SURGE program in IITK carried out an efficient implementation using several new ideas for two problems i.e. the **Smallest Enclosing Circle** problem and the **Minimum Spanning Tree** problem.
 - Successfully tested the implementations for accuracy for more than a million nodes.
- **Summer Undergraduate Research Internship, Prof. Naveen Garg** (IIT Delhi, India) (May'16-Jul'16)
 - Worked on finding a better approximation algorithm for the **Capacitated K- Centre** problem.

Publications

- A. Chaturvedi, J.J. Daymude, A. W. Richa, "On the Runtime of Local Mutual Exclusion for Anonymous Dynamic Networks". *Accepted at SAND 2025*.
- A. Chaturvedi, C. Chekuri, A. W. Richa, M. Rost, S. Schmid, J. Weber, "Improved Throughput for All-or-Nothing Multicommodity Flows with Arbitrary Demands", ACM SIGMETRICS Performance 2021. *arXiv:2005.04533v6, doi:10.1145/3529113.3529121*
- A. Brooks, S. Yang, G. Zhang, J. F. Yang, A. W. Richa, J. W. Weber, A. Chaturvedi, J. L. Briones, M. Strano. A Programmable Microbot Design for the Spontaneous Tracing of Isochemical Contours in the Environment. AICHE Annual Meeting 2023.
- Chaturvedi, A., Chekuri, C., Liu, M., Richa, A. W., Rost, M., Schmid, S., & Weber, J. Improved Throughput for All-or-Nothing Multicommodity Flows With Arbitrary Demands. IEEE/ACM Transactions on Networking, 1-16. *doi:10.1109/TNET.2023.3325437*

Course Projects

- **Spatial Hot Spot Analysis** (May'20)
 - For data consisting of the New York City Yellow Cab taxi trip network using Hadoop and Spark for handling the large and unstructured data through parallel processing using a centralized architecture.
- **Ant Colony Optimization for Network Repair** (May'19)
 - We explored a randomized algorithm inspired by the way ants repair their foraging routes and the algorithm was able to retrieve a path between two nodes when a link is lost **more than 90%** of the times.
- **Anomaly Detection using Negative Selection Algorithm** (Mar'19)
 - Implemented negative selection algorithm and compared its performance with the **support vector machine** on two different databases: ethnicities and languages.
- **Thread-Mapping in Parallel Environments using Genetic Algorithms** (Feb'19)
 - Used **genetic algorithms** to solve the thread-mapping problem and carried out experiments on different parameters.

Extracurricular Activities

- **Roles:** VP of External Affairs at Graduate Student Government, Fulton Fellowship Award Recipient, UBC International Advisory Board member, GPSA Awards' Reviewer
- **Other Organizations:** Women in Computer Science, Software Developers' Association, Graduate Women Association