Ananya Das

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Research Interests

Designing and analyzing algorithms for optimization problems, particularly related to vehicle routing and distributed systems.

Education

Columbia University, New York, NY	Computer Science	B.S. 2004
University of California Davis, Davis, CA	Computer Science	Ph.D. 2010

Professional Experience

Associate Professor 2021-present
Department of Computer Science, Middlebury College, Middlebury, VT
Assistant Professor 2013-2021
Department of Computer Science, Middlebury College, Middlebury, VT
Assistant Professor 2010-2013
Department of Mathematics and Computer Science, Lake Forest College, Lake Forest, IL

Publications **(*undergraduate student co-author;† authors are listed in alphabetical order, per convention for theoretical computer science research papers)**

1. BARBARA ANTHONY, CHRISTINE CHUNG, ANANYA DAS, DAVID YUEN. *Earliest Deadline First is a 2-approximation for DARP with Time Windows*. Conference on Combinatorial Algorithms and Applications (COCOA), December 2023.†

2. BARBARA ANTHONY, ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, DAVID YUEN. *Maximizing the number of rides served for time-limited Dial-a-Ride*. Submitted to Optimization Methods and Software.†

3. BARBARA ANTHONY, ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, RICKY BIRNBAUM*, SARA BOYD*, PATRICK DAVIS*, JIGAR DHIMAR*, DAVID YUEN. *Algorithms and experiments for maximizing the number of rides served for Dial-a-Ride*. Submitted to Theory of Computing Systems.†

4. ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, NICHOLAS JACZKO*, TIANZHI LI*, SCOTT WESTVOLD*, XINYUE XU*, DAVID YUEN. *Improved bounds for budgeted Online Dial-a-Ride*. Springer Nature Operations Research Forum (ORFO), vol. 2, no. 9, July 2021.†

5. BARBARA ANTHONY, ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, DAVID YUEN. *Serving rides of equal importance for budgeted Dial-a-Ride*. International Conference on Mathematical Optimization Theory and Operations Research (MOTOR), July 2021.†

6. ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, NICHOLAS JACZKO*, TIANZHI LI*, SCOTT WESTVOLD*, XINYUE XU*, DAVID YUEN. *New bounds for maximizing revenue in Online Dial-a-Ride*. International Workshop on Combinatorial Algorithms (IWOCA), June 2020.†

7. ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, NICHOLAS JACZKO*, SCOTT WESTVOLD*, DAVID YUEN. *Robustly assigning unstable items*. Journal of Combinatorial Optimization (JOCO), January 2020.†

8. BARBARA ANTHONY, ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, RICKY BIRNBAUM*, SARA BOYD*, PATRICK DAVIS*, JIGAR DHIMAR*, DAVID YUEN. *Maximizing the number of rides served*

for Dial-a-Ride. Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS), September 2019.†

9. ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, NICHOLAS JACZKO*, SCOTT WESTVOLD*, DAVID YUEN. *Robustly assigning unstable items*. Conference on Combinatorial Algorithms and Applications (COCOA), December 2018.†

10. ANANYA DAS CHRISTMAN, WILLIAM FORCIER*, AAYAM POUDEL*. *From theory to practice: maximizing profit for Online Dial-a-Ride*. Journal of Combinatorial Optimization (JOCO), vol. 35, issue 2, pp. 512-529, October 2017.†

11. ANANYA DAS CHRISTMAN, CHRISTINE CHUNG, NICHOLAS JACZKO*, MARINA MILAN*, ANNA VASILCHENKO*, SCOTT WESTVOLD*. *Revenue maximization in Online Dial-a-ride*. Workshop on Algorithmic Approaches for Transportation Modeling, Optimization, and Systems (ATMOS), September 2017.†

12. HAMZA ALSARHAN*, DAVIN CHIA*, ANANYA DAS CHRISTMAN, SHANNIA FU*, YANFENG JIN*. *A two-pass algorithm for unordered colored bin packing*. Conference on Discrete Optimization and Operations Research (DOOR) (Now known as the Conference on Mathematical Optimization Theory and Operations Research - MOTOR), September 2016.†

13. ANANYA DAS CHRISTMAN AND WILLIAM FORCIER*. *Maximizing revenue for On-Line Dial-a-Ride*. Conference on Combinatorial Optimization and Applications (COCOA), December 2014.†

14. JOAO CASSAMANO* AND ANANYA DAS CHRISTMAN. *Maximizing the probability of arriving on time*. Conference on Analytical and Stochastic Modeling Techniques and Applications (ASMTA), July 2013. †

15. ANANYA DAS. *Maximizing profit using SLA-aware provisioning*. IEEE Network Operations and Management Symposium (NOMS), April 2012.

16. ANANYA DAS, CHARLES MARTEL, BISWANATH MUKHERJEE, AND SMITA RAI. *A new approach to reliable multipath provisioning*. Journal of Optical Communications and Networking (JOCN), vol. 3, issue 1, pp. 95-103, December 2010.

17. ANANYA DAS, CHARLES MARTEL, BISWANATH MUKHERJEE. *A partial-protection approach using multipath provisioning*. IEEE International Communications Conference (ICC), June 2009.

18. ANANYA DAS AND CHARLES MARTEL. *Stochastic shortest paths with unlimited hops*. Information Processing Letters (IPL), vol. 109, issue 5, pp. 290-295, February 2009. †

19. ANANYA DAS, CHARLES MARTEL, BISWANATH MUKHERJEE, SMITA RAI. *A better approach to multipath provisioning*. IEEE Global Telecommunications Conference (GLOBECOM), March 2007.

Selected Talks

Research/Academic talks

◦ *Maximizing Revenue for Online Dial-a-Ride*. Dartmouth College Combinatorics Seminar, October 2020.

◦ *Maximizing Revenue for Online Dial-a-Ride*. New York Combinatorics Seminar, September 2020.

◦ *New Bounds for Online Dial-a-Ride*. International Workshop on Combinatorial Algorithms, June 2020.

◦ *The Change Making Problem*. Governor's Institute of Vermont for Mathematical Sciences, hosted by the University of Vermont, June 2019.

◦ *Tackling Intractability – Efficient Algorithms for Hard Problems*. University of Vermont, March 2019.

◦ *Tackling Intractability – Efficient Algorithms for Hard Problems*. Providence College, February 2019.

◦ *Robustly Assigning Unstable Items*. Conference on Combinatorial Optimization and Applications. December 2018.

◦ *Bin Packing with Multiple Colors*. Southeastern International Conference on Combinatorics, Graph Theory & Computing. March 2016.

◦ *Competitive Algorithms for the Online Dial-a-Ride Problem*. Saint Michael's College Computer Science Colloquium. March 2015.

◦ *Competitive Algorithms for the Online Dial-a-Ride Problem*. Middlebury College Carol Rifelj Faculty Lecture Series. January 2015.

◦ *Maximizing Revenue for the Online Dial-a-Ride Problem*. Conference on Combinatorial Optimization and Applications. December 2014.

Panel Speaker

◦ Picture a Scientist Panel, February 2021, Middlebury College

◦ Career Development Conference, University of California at Los Angeles, May 2017 (as a representative for the Consortia of Liberal Arts Diversity Officers)

◦ Academic Career Paths at a Liberal Arts College, University of California at Irvine, May 2017 (as a representative for the Consortia of Liberal Arts Diversity Officers)

Selected College Service

◦ Faculty mentor for student scholars of the Posse Foundation

◦ Co-founder and faculty advisor for Middlebury College's Women in Computer Science (WiCS++)

◦ Co-organizer of Middlebury College's Martin H. Freeman Lecture Series for scientists of color

◦ Faculty representative for STEM branch of Middlebury College's Posse Program selection committee (2018)

Professional Activities

◦ Reviewer:
  - Annals of Operations Research (2024)
  - Educational Advancement for Artificial Intelligence (EAAI) (2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023)
  - Special Interest Group on Computer Science Education Technical Symposium (SIGCSE TS) (2020)
  - IEEE Intelligent Transportation Systems Magazine (2018, 2020)
  - Symposium on Algorithms and Data Structures (WADS) (2019)
  - Symposium on Theoretical Aspects of Computer Science (STACS) (2018)

◦ Program Committee member for Educational Advancement for Artificial Intelligence (EAAI) (2019)

◦ Professional Membership:
  - Association for Computing Machinery (ACM)
  - Association of Computing Machinery Special Interest Group on Computer Science Education (ACM SIGCSE)
  - Association of Computing Machinery Special Interest Group on Algorithms and Computation Theory (ACM SIGACT)

Awards

- Mobility and Transportation Innovations Grant, Vermont Agency of Transportation (2021)
- Mobility and Transportation Innovations Grant, Vermont Agency of Transportation (2020)
- Funding from National Grid Inc. for Middlebury's Women in Computer Science club (WiCS++) (2019)
- Educational Advancement for Artificial Intelligence (EAAI) Travel Grant (2019)
- Google Travel Grant (2018)