Arindam Khan

CONTACT INFORMATION

Mailing Address:
Lehrstuhl für Theoretische Informatik (IN-14)
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RESEARCH INTERESTS

Theoretical computer science and discrete mathematics.

EDUCATION

Georgia Institute of Technology, Atlanta, USA.

- **Ph.D.** in *Computer Science* (Algorithms, Combinatorics and Optimization),
  Thesis: *Approximation Algorithms for Multidimensional Bin Packing*,
  Advisor: Prasad Tetali,
  2010-2015.
- **M.S.** in *Mathematics*. 2010-2015.

Indian Institute of Technology, Kharagpur, India.

- **B. Tech** in Computer Science and Engineering,
  M. Tech in Computer and Information Technology (Dual Degree),
  2004-2009.

RESEARCH EXPERIENCE

Technical University (TU), Munich, Munich, Germany.

Postdoctoral Researcher **November '17 to Present**

- Research on matching, coloring, packing and scheduling.

IDSIA, University of Lugano, Lugano, Switzerland.

Ricercatore (Researcher) **November '15 to October '17**

- Research on geometric packing, network design and scheduling.

Microsoft Research, Redmond, USA.

Research Intern in Theory Group **May-August '14**

- Research on edge coloring and scheduling. [Mentor: Mohit Singh]

University of California, Berkeley, CA, USA.

Visiting Student Researcher **August-Dec '13**

- Research on bin packing and 3-D matching. [Host: Prasad Raghavendra]

Microsoft Research, Silicon Valley, USA.

Research Intern in Search Labs **May-August '13**

- Research on opinion elicitation in social networks and skill based group formation. [Mentors: Abhimanyu Das and Sreenivas Gollapudi]

TU Eindhoven, Eindhoven, Netherlands.

Visiting Student Researcher **Feb-Mar '13, Sept-Oct '14**

- Research on vector packing. [Host: Nikhil Bansal]

IBM Research, New Delhi, India.

Blue Scholar in Analytics & Optimization Group **June '09 to July '10**

- Research on bucket order problem and business continuity planning.

University of Illinois, Urbana-Champaign, USA.

Undergraduate summer intern **May-July '14**

- Research on network security. [Mentor: Carl Gunter]

Papers in Submission/ Manuscript

- *On the Matching Augmentation Problem.*
  Joseph Cheriyan, Jack Dippel, Fabrizio Grandoni, Arindam Khan, Vishnu V. Narayan.
  (*7/4 approximation for matching augmentation.*)
- *On Minimum Linear Ordering Problems.* Arindam Khan, Prasad Tetali.
  (*Approximation algorithms for min-max linear ordering and minimum linear ordering.*)
- *A Geometric Approach to Diverse Group Formation.*
  Sreenivas Gollapudi, Arindam Khan, Janardhan Kulkarni and Kunal Talwar.
- *On Absolute Approximation of Strip Packing.*
  Waldo Galvez, Fabrizio Grandoni, Klaus Jansen, Arindam Khan, Malin Rau.

Publications

(*Author names are listed alphabetically following the Theoretical Computer Science convention. "⋆" denotes that the paper was presented in the conference by me.*)

- ⋆ *Approximating Geometric Knapsack via L-packings.*
  Waldo Galvez, Fabrizio Grandoni, Salvatore Ingala, Arindam Khan, Andreas Wiese.
  58th IEEE Annual Symposium on Foundations of Computer Science (**FOCS**): 260–271, 2017.
- *Approximation and online algorithms for multidimensional bin packing: A survey.*
  Henrik I. Christensen, Arindam Khan, Sebastian Pokutta, Prasad Tetali.
  SURVEY PAPER, Computer Science Review 24: 63-79, 2017.
- ⋆ *Improved Pseudo-Polynomial-Time Approximation for Strip Packing.*
  Waldo Galvez, Fabrizio Grandoni, Salvatore Ingala, Arindam Khan.
  Foundations of Software Technology and Theoretical Computer Science (**FSTTCS**):9:1–9:4, 2016.
- ⋆ *Improved Approximation for Vector Packing.*
  Nikhil Bansal, Marek Elias and Arindam Khan.
  27th Annual ACM-SIAM Symposium on Discrete Algorithms (**SODA**):1561-1579, 2016.
- ⋆ *On Weighted Bipartite Edge Coloring.*
  Arindam Khan, Mohit Singh.
  Foundations of Software Technology and Theoretical Computer Science (**FSTTCS**):136-150, 2015.

- ⋆ *An Improved Approximation Algorithm for Two-Dimensional Bin Packing.*
  Nikhil Bansal, Arindam Khan.
  25th Annual ACM-SIAM Symposium on Discrete Algorithms (**SODA**):13-25, 2014.
- *Role of Conformity in Opinion Dynamics in Social Networks.*
  Abhimanyu Das, Sreenivas Gollapudi, Arindam Khan and Renato Paes Leme.
  ACM Conference on Online Social Networks (**COSN**):25-36, 2014.
- *On Mimicking Networks Representing Minimum Terminal Cuts.*
  Arindam Khan, Prasad Raghavendra.
  Information Processing Letters, Volume 114, Issue 7, July 2014, Pages 365-371.
- *Diffuse Reflection Diameter and Radius for Convex Quadrilateralizable Polygons.*
  Arindam Khan, Sudebkumar Pal, Mridul Aanjaneya, Arijit Bishnu, Subhas Nandy.
  Discrete Applied Mathematics 161(10-11): 1496-1505 (2013).
- *Discovering Bucket Orders from Data.*
  Sreyash Kenkre, Arindam Khan and Vinayaka Pandit.
  SIAM International Conference on Data Mining (**SDM**):872-883, 2011.
- *A Study on Detecting Malcodes Disgtribution Sites.*
  DongWon Seo, Arindam Khan and Heejo Lee.
  Korean Information Processing Society (KIPS) 30th Fall Conference, Volume 15, No. 2, pages 1425-1428, Nov. 14. 2008.
- *Attribute-Based Messaging: Access Control and Confidentiality.*
  Rakeshbabu Bobba, Omid Fatemieh, Fariba Khan, Arindam Khan, Carl A. Gunter, Himanshu Khurana, Manoj Prabhakaran.
  ACM Transactions on Information and System Security (TISSEC). 13(4): 31:1-31:35 (2010)

Teaching Experience

- At Indian Statistical Institute, Kolkata, India:
  Approximation Algorithms: Research Course (Fall 2015)
  (Co-taught with Prof. Arijit Bishnu).
- At Georgia Tech, USA:
  (Nominated for CETL/BP Outstanding Graduate Teaching Assistant)
  CS4510: Automata and Complexity (Spring 2012).
  CS6505: Computability and Algorithms (Spring 2013).
  CS4540: Advanced Algorithms (Spring 2014) (taught approximation algorithms).
  CS4510: Automata and Complexity (Spring 2014)(held monthly review sessions).
  CS6505: Computability, Complexity and Algorithms (Spring 2014).
  CS3510: Design and Analysis of Algorithms (Spring 2015).
- At IIT Kharagpur, India:
  Algorithms -II (Fall 2008).
  Computer Architecture and Operating Systems (Spring 2009).
  Computational Geometry (Spring 2009).

Professional Service

- Reviewer/subreviewer for conferences:
  STOC, SODA, ITCS, ICALP, ESA, SPAA, FSTTCS, WAOA, CIAC etc.
- Reviewer/subreviewer for journals: SIAM Journal on Computing (SICOMP), IEEE Transactions on Information Theory, Mathematical Programming, Discrete Optimization, Journal of Scheduling,Informs Journal on Computing etc.
- Organizer, Reading Group on Algorithmic Techniques, Georgia Tech, 2014-15.
- Organizer, Reading Group on Algorithmic Techniques,TU Munich, 2017-18.

Other Achievements

- SIAM Student Travel Award for SODA 2014.
- Winner, Palletization Contest, IEEE ICRA 2013 Robot Challenge - VMAC : Virtual Manufacturing Automation Competition.
- CETL/BP Outstanding Teaching Assistant Award 2013 Finalist, Georgia Tech. (One nominee from each school).
- Winner of Google Games: programming and puzzles competition, Atlanta, 2012 and 2013.
- Georgia Tech ARC Fellowship, Fall 2012.
- Georgia Tech ACO Fellowship, Fall 2010.
- IBM Blue Scholarship, 2009.
- Nominated for *Innovative Students Project Award for Masters level projects*, Indian National Academy of Engineering, 2009.
- Highest Semester GPA at IIT Kharagpur in four semesters (Autumn 2007 to Spring 2009 : 10, 9.78, 9.86, 10 respectively).
- Jagadis Bose National Science Talent Search Scholarship, 2005.
- 1st in Mathematical Olympiad Contest in Kshitij, IIT Kharagpur, 2008.
- State-level topper in Mathematics Aptitude Test (MAT), 2002.
- State-level topper in Achievement cum Diagnostic Test in Mathematics (ADTM), organized by Center for Pedagogical Studies in Mathematics, India (CPSM), 2002.

Technical Skills

Programming: C, C++, Java, PHP, SQL, Gurobi solver.