

Maneesha Papireddygari

Research Interests

Micro-economic Theory, Algorithmic Economics, Contract Theory, Online Learning Algorithms, Information Elicitation

Education

- 2020 - 2025* **PhD, Theoretical Computer Science**, [University of Colorado Boulder](#), Boulder, Aggregate: 3.84/4.
- Research Advisor : [Prof. Bo Waggoner](#)
- 2018 - 2020 **Master of Arts, Economics**, [Delhi School of Economics](#), (DSE), Delhi, Aggregate: 75.07/100.
- Research Advisor : [Prof. Abhijit Banerji](#)
- 2011 - 2015 **Bachelor of Technology - Major in Computer Science Engineering**, [International Institute of Information Technology \(IIIT\) Hyderabad](#), India, Aggregate: 82.9/100.
- Project Advisor : [Prof. Rajan K.S.](#)
- 2009 - 2011 **Higher Secondary Examination (Standard 12th)**, [Sri Chaitanya Junior College](#), Hyderabad, India, Aggregate: 94/100.

Papers

Contracts with Information Acquisition, via Scoring Rules EC 2022 - Maneesha Papireddygari and Bo Waggoner. Arxiv Link - <https://arxiv.org/abs/2204.01773>

Scholastic Merits

- 2022 Recipient of Casey Feldman Memorial Scholarship for volunteer work.
- 2018-2019 Ranked 7th among 250 students (top 3 %) at Delhi School of Economics.
- 2018 Recipient of Smt. Shanti Sharma Memorial Scholarship at Delhi School of Economics.
- 2018 Secured All-India 5th rank in DSE entrance exam, 2018.
- 2012 Recipient of Dean's List of Academic Excellence Award for 2nd semester at IIIT Hyderabad.
- 2011 Ranked All India 84 (top 99.99 %) over a million students in [All India Engineering Entrance Exam \(AIEEE\)](#)
- 2011 Ranked All India 2267 (top 99.56 %) out of about 400k students in [IIT Joint Entrance Exam \(IIT-JEE\)](#)
- 2011 Among the 300 students in India selected for National Physics Olympiad.
- 2011 Among the 300 students in India selected for National Astronomy Olympiad.

Research And Professional Experience

- May - July **Research Intern**, [Indian Statistical Institute \(ISI\)](#), Kolkata, India.
- 2019 Theoretical research - Did exploratory work on single sided stable matching algorithms, equivalence of these mechanisms (RSD, random TTC etc) under uniform distribution/

Jan - March **Research Assistant**, *University of York, UK*.
 2019 Applied - Worked with Prof. Anindya Bhattacharya on automating data refinement and scraping
 July 2015 - **Software Developer**, *Citrix R&D India Pvt. Ltd, Hyderabad, India*.
 Nov 2016 Worked on Apache CloudStack - an open source software designed to deploy and manage large networks of virtual machines, as a highly available, highly scalable Infrastructure as a Service (IaaS) cloud computing platform.
 May - July **Undergraduate Summer Intern**, *Progress Software., Hyderabad, India*.
 2013

Conferences, Schools and Workshops Attended

Service Volunteer - Conference of Learning Theory (COLT) 2021, Boulder, 7-10 July, 2021.
 Conference EC 2020, 2021 - 21st ACM Conference on Economics and Computation, Virtual
 Conference STOC 2020(partial) - 52nd Annual ACM Symposium on Theory of Computing, Virtual, June 22-26, 2020.
 Service Volunteer - Winter School 2019, Delhi School of Economics, 10-13 December, 2019.
 Service Volunteer - Winter School 2018, Delhi School of Economics, 10-13 December, 2018.

Projects

March 2022 - **Axiomatic study of Constant Function Market Makers used in blockchains**, with [Prof. Bo Waggoner](#),
 ongoing University of Colorado, Boulder.
 With blockchains gaining immense traction, it has become important to study and design decentralized markets. Unfortunately decentralized markets have not been looked into keenly compared to the immense knowledge we have about traditional markets with money. Most blockchains use Constant Function Market Maker(CFMM) as their trading function and it surprisingly encompasses most cost-function based market makers and hence can be viewed as a generalization. In this project, we aim to study the axioms the CFMMs should ideally satisfy to run like a "market" and characterize the specific functions that satisfy them.

May 2020 - **Contracts with Information Acquisition, via Scoring Rules**, with [Prof. Bo Waggoner](#), University of
 Feb 2022 Colorado, Boulder, Submitted to ACM Conference on Economics and Computation (EC), 2022.
 We consider a principal-agent problem where the agent may privately choose to acquire relevant information prior to taking a hidden action. This model generalizes two special cases: a classic moral hazard setting, and a more recently studied problem of incentivizing information acquisition (IA). We show that all of these problems can be reduced to the design of a proper scoring rule. Under a limited liability condition, we consider the special cases separately and then the general problem. We give novel results for the special case of IA, giving a closed form "pointed polyhedral cone" solution for the general multidimensional problem. We also describe a geometric, scoring-rules based solution to the case of the classic contracts problem. Finally, we give an efficient algorithm for the general problem of Contracts with Information Acquisition.

June-July **On Equivalence of Single-Sided Matching Mechanisms**, with [Prof. Souvik Roy](#), Indian Statistical
 2019 Institute, Kolkata.
 The equivalence of many one-sided matching mechanisms for indivisible objects has been discussed in papers like Pathak(2008), Carroll(2014), Sethuraman & Lee(2011). But the equivalence had only been discussed under the assumption of uniform distribution of priority structures. We looked into the conditions of the distribution for which the equivalence further holds.

2015-2016 **Citrix CloudPlatform (powered by Apache CloudStack)**, [Apache CloudStack](#).

Apache CloudStack is an open source software designed to deploy and manage large networks of virtual machines, as a highly available, highly scalable Infrastructure as a Service (IaaS) cloud computing platform. CloudStack is used by a number of service providers to offer public cloud services, and by many companies to provide an private cloud offering, or as part of a hybrid cloud solution. I had worked on areas like its support for vmware, job monitoring, kubernetes etc..

2014 **Distributed Key-Value Store**, with [Prof. Vasudeva Verma](#), IIIT Hyderabad.

Built a distributed key value store which provides an interface to store data and efficiently search on primary key and/or multiple secondary keys unlike traditional key-value stores which provides search only on primary variables. The system guarantees strong consistency by trading off little of availability. This System works on two basic concepts of Hyperspace Hashing and Value-dependent Chaining.

2013-2014 **Behavioural understanding of Spatial Data**, with [Prof. K.S.Rajan](#), IIIT Hyderabad.

Project involved developing a spatial understanding, by accumulating and analyzing big data related to students' movement in campus and outside. Aim is to derive social and behavioral patterns from the data, thus converting useless information into meaningful insights such as effects of road blockages, appropriate change in timings to control traffic in frequently used areas etc.

Computer Skills

Scientific Computing - Matlab **Programming** - C, C++, Python, Java.

Others - MySQL, Web2py, HTML **Operating Systems** - MacOS, Linux (Ubuntu), Windows.

Teaching Experience

Fall 2021 **Teaching Assistant**, [CSCI 3104](#), "Algorithms", CU Boulder.

My responsibilities included taking recitation sessions, preparing homework problems and recitation worksheet, holding office hours and grading exams.

Spring **Teaching Assistant**, [CS101](#), "Data Structures", IIIT - Hyderabad.

2014, 2015 My responsibilities included taking recitation sessions, assisting students in lab sessions, holding office hours, grading homeworks and exams.

Fall 2014 **Teaching Assistant**, [CS102](#), "Algorithms", IIIT - Hyderabad.

My responsibilities included taking recitation sessions, holding office hours, grading homeworks and exams.

Languages

Telugu (Native) - Fluent, English - Fluent, Hindi - Fluent

Volunteer Work

- Volunteered for a week (40 hours) at Catalina island conservancy. Participated in conservancy activities like trail building, invasive plant removal, building enclosure etc.
- Volunteered for a semester with a local non-profit to teach math to underprivileged kids
- Engaged in making baked goods for children in the foster system through the Cakes4kids's North Colorado chapter

Extracurricular Activities, Hobbies and miscellaneous

- * Travel and Hiking enthusiast, done several treks in South India and three in the Himalayas.

- * First in women chess and second in carroms at Progress Software.
- * Wildlife photography enthusiast. Clicked 100+ birds of Indian subcontinent.

For more information visit Maneesha Papireddygaru webpage at : [Maneesha Webpage](#)