

Matteo Russo

RESEARCH INTERESTS

My main research interests lie at the intersection between Theoretical Computer Science, Economics, and Learning. In particular, Approximation and Online Algorithms [3, 6, 7, 8] and Online Learning with its applications to Online Markets [2, 12]. Recently, I also focused on Coresets construction for metric clustering and other related problems [1, 5, 9], as well as Contract Design and Fair Division [4, 10, 11].

EDUCATION

Sapienza Università di Roma, Class of 2025 (XXXVIII cycle)

Rome, Italy

Ph.D. Data Science

Advisor: Professor Stefano Leonardi.

Research Interests: Mechanism Design, Online and Approximation Algorithms, Online Learning.

Coursework: Spectral Graph Theory and Random Walks, Matching Theory and School Choice, Crypto and Incentive-based Mechanisms for Blockchain Technology, Prophet Inequalities and Optimization under Uncertainty.

ETH Zurich, Class of 2022

Zurich, Switzerland

Master's Computer Science

Coursework: Advanced Algorithms, Algorithmic Game Theory, Optimization for Data Science, Randomized Algorithms and Probabilistic Methods, High-Dimensional Statistics, Foundations of Reinforcement Learning, Reliable and Interpretable AI, Artificial Intelligence in Education, Computational Intelligence Lab, Information Security Lab, Big Data, Network Modeling.

Princeton University, Class of 2020

Princeton, NJ, United States

BSE Computer Science (Magna Cum Laude)

Minors: Applied and Computational Mathematics, Statistics and Machine Learning, Technology and Policy

Coursework: Theory of Algorithms, Economics and Computation, Computational Complexity Theory, Probability and Stochastic Systems, Algorithms and Data Structures, Programming Systems, Advanced Machine Learning, Applied Machine Learning, Advanced Programming Techniques, Mathematical Econometrics.

PUBLICATIONS

1. A Tight VC-Dimension Analysis of Clustering Coresets with Applications ([arXiv](#))

with Vincent Cohen-Addad, Andrew Draganov, David Saulpic, Chris Schwiegelshohn (SODA 2025).

2. Online Learning with Sublinear Best-Action Queries ([arXiv](#))

with Andrea Celli, Riccardo Colini-Baldeschi, Federico Fusco, Daniel Haimovich, Dima Karamshuk, Stefano Leonardi, Niek Tax (NeurIPS 2024).

3. Universal Optimization for Non-Clairvoyant Subadditive Joint Replenishment ([arXiv](#))

with Tomer Ezra, Stefano Leonardi, Michał Pawłowski, William Seeun Umboh (APPROX 2024).

4. Fair Division with Interdependent Values ([arXiv](#))

with Georgios Birmpas, Tomer Ezra, Stefano Leonardi (SAGT 2024).

5. Low-distortion clustering with ordinal and limited cardinal information ([arXiv](#))

with Jakob Burkhardt, Ioannis Caragiannis, Karl Fehrs, Chris Schwiegelshohn, Sudarshan Shyam (AAAI 2024).

6. Prophet Inequalities via the Expected Competitive Ratio ([arXiv](#))

with Tomer Ezra, Stefano Leonardi, Rebecca Reiffenhäuser, Alexandros Tsigonias-Dimitriadis (WINE 2023).

7. Submodular Norms with Applications to Online Facility Location and Stochastic Probing ([arXiv](#))

with Kalen Patton, Sahil Singla (APPROX 2023).

8. Fully Dynamic Online Selection through Online Contention Resolution Schemes ([arXiv](#))

with Vashist Avadhanula, Andrea Celli, Riccardo Colini-Baldeschi, Stefano Leonardi (AAAI 2023).

9. Simple and Optimal Sublinear Algorithms for Mean Estimation ([arXiv](#))

with Beatrice Bertolotti, Chris Schwiegelshohn, Sudarshan Shyam (Submitted).

10. Contract Design Beyond Hidden-Actions ([arXiv](#))

with Tomer Ezra, Stefano Leonardi (Submitted).

11. Multi-Agent Anonymous Contracts

with Johannes Brüstle, Paul Dütting, Stefano Leonardi (Submitted).

12. Online Learning in the Random Order Model

with Martino Bernasconi, Andrea Celli, Riccardo Colini-Baldeschi, Federico Fusco, Stefano Leonardi (Submitted).

VISITS AND INTERNSHIPS

Computer Science Department, New York University

Visit to Prof. Anupam Gupta, New York City (US), September 2024 - March 2025

Meta Core Data Science

Research Scientist Intern, London (UK), July 2023 - November 2023 (hosted by Riccardo Colini-Baldeschi)

Computer Science Department, Aarhus University

Visit to Prof. Chris Schwiegelshohn, Aarhus (Denmark), March 2023 and March 2024

PAST WORK EXPERIENCE

Sapienza University Rome, Department of DIAG

Research Assistant (Algorithms for Online Decision Making), Rome (Italy), December 2022 - June 2023

Sapienza University Rome, Department of DIAG

Research Assistant (Algorithms for Online Decision Making), Rome (Italy), November 2021 - October 2022

ETH Zurich, Department of MTEC

Applied Game Theory Student Assistant, Zurich (Switzerland), November 2020 - November 2021

NASA Goddard Space Flight Center

Machine Learning Intern, Greenbelt (MD, United States), Summer 2019

King Street Capital Management

Data Science Intern, New York City (NY, United States), Spring 2019

Max Planck Institute for Dynamics and Self-Organization

Applied Algorithms Intern, Gottingen (Germany), Summer 2017

Villa Santa Teresa, Istituto Rizzoli

Applied Mathematics Intern, Bagheria (Italy), Summer 2015

TEACHING EXPERIENCE

Sapienza University Rome, Bachelor in Scienze matematiche per l'intelligenza artificiale

Teaching Assistant for Tecniche di Programmazione con Laboratorio (Algorithms and Data Structures), Spring 2023 and Spring 2024.

Princeton University, Department of Computer Science

Lab Teaching Assistant, Princeton (NJ, United States), February 2018 - February 2019

ACTIVITIES

[WALE 2024](#) - Workshop on Algorithms for Learning and Economics, Kefalonia, Greece. *Invited Speaker.*

[HALG 2024](#) - IGAFIT Highlights of Algorithms Workshop, Warsaw, Poland. *Short-Talk and Poster.*

[SLMath 2023](#) - Algorithms, Approximation, and Learning in Market and Mechanism Design, Berkeley, US. *Poster.*

[ALGA 2023](#) - Workshop on Algorithms, Learning, and Games, Scicli, Italy. *Short-Talk and Poster.*

[WALE 2022](#) - Workshop on Algorithms for Learning and Economics, Naxos, Greece. *Poster.*

OTHER ACADEMIC RESEARCH

Best-Choice Prophet Inequalities with and without Samples

Sapienza University Rome, with Prof. Stefano Leonardi, Fall 2021

Low-degree polynomials for Gaussian Graphical Models Computation-Information Gap

ETH Zurich, with Prof. David Steurer, Spring 2021

Truthful Combinatorial Auctions: Bidders with Partition Valuation Functions

Sapienza University Rome, with Prof. Stefano Leonardi, Fall 2020 - Spring 2021

Credible, Truthful, Optimal, Bounded-Round Mechanisms through Commitment Schemes

Princeton University, with Prof. Matthew S. Weinberg, Summer 2020

Exploiting Mean-Based Bidders in Symmetric Settings

Princeton University, with Prof. Mark Braverman, Spring 2020

Robust OOD Detection in Secure Open-World Learning

Princeton University, with Prof. Prateek Mittal, Spring 2019

Poisoning Attacks with Generative Adversarial Nets

Imperial College London, with Prof. Emil Lupu, Summer 2018

AWARDS

High-Honors (Magna cum Laude) in Princeton Computer Science (2020)

Gamma Kappa Alpha, The National Italian Honor Society of Princeton University (2020)

ETH Exchange Program Award Winner (2019)

Streicker International Fellows Fund Award Winner (2018)

UROP Research Program Award Winner (2018)

International Internship Program Award Winner (2017)

UWC successful candidate (2014)

AFS/Intercultura successful candidate (2014)

PROGRAMMING SKILLS

Languages: Python, Java, C, C++, Matlab, SQL, HTML, CSS, JavaScript, jQuery, AJAX, Verilog, R, React Native, AWK, x86 Assembly, PyTorch, Keras, Tensorflow

Databases: MySQL, PostgreSQL, MongoDB, Cypher, HBase, Neo4j, ROLAP

Frameworks: Django, Flask, oTree

VCS: Emacs, GitHub, Bitbucket, Visual Studio

Rome, April 23, 2025