

# ANA-ANDREEA STOICA

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Research Interests — *Machine Learning, Social Networks, Random Graph Theory.*

*My work focuses on mathematical models, data analysis, and policy implications for algorithm design in social networks. I am particularly interested in studying the effect of learning algorithms of biased network by employing graph theoretical and machine learning techniques.*

## EDUCATION

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<b>Columbia University</b> , New York, NY, USA Ph.D. Candidate, Computer Science Department <i>Advisor:</i> Associate Professor Augustin Chaintreau	September, 2016–
<b>Columbia University</b> , New York, NY, USA M.Sc., Computer Science Department <i>Advisor:</i> Associate Professor Augustin Chaintreau	September, 2016–June, 2018 GPA: 4.00/4.00
<b>Princeton University</b> , Princeton, New Jersey, USA B.A., Mathematics Department Graduated <i>magna cum laude</i> . <i>Undergraduate Advisor:</i> Professor Emmanuel Abbe Certificates: <i>Applied &amp; Computational Mathematics, Applications of Computing</i>	September, 2012–May, 2016 GPA: 3.7/4.00

## SELECTED FELLOWSHIPS, AWARDS, AND HONORS

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<b>J.P. Morgan AI Research PhD Fellowship</b>	2019–2020
<b>Andrew P. Kosoresow Memorial Award</b> for excellence in teaching, Columbia University	2018
<b>International Zhautykov Mathematics Olympiad</b> , Bronze Medal	2010
<b>Romanian National Mathematics Olympiad</b> , 1 Gold, 2 Silver, and 3 Bronze medals	2007–2012
<b>Diploma of Excellence</b> awarded by <b>Prime Minister of Romania</b>	2008

## PROFESSIONAL EXPERIENCE

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<b>Research Intern</b> <i>Advisor:</i> Siddhartha Sen	Spring, 2019 <i>Microsoft Research, NYC</i>
· Worked at the intersection of machine learning and databases, developing machine learning algorithms for building a universal data index that is able to adapt to different workloads in an online fashion. <i>Manuscript in preparation.</i>	
<b>Research Intern</b> <i>Advisor:</i> Professor Krishna Gummadi	Summer, 2019 <i>Max Planck Institute for Software Systems, Germany</i>
· Designed and analyzed voting mechanisms for clustering individuals into districts without creating disparate impact.	

## IN PREPARATION

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Mihir Nanavati, **Ana-Andreea Stoica**, Lloyd Brown, Nathan Taylor, Siddhartha Sen. “HAIbrid data structures.”  
*Manuscript in preparation.*

## CONFERENCE AND JOURNAL PUBLICATIONS

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**Ana-Andreea Stoica**, Abhijnan Chakraborty, Palash Dey, Krishna P. Gummadi. “Minimizing Margin of Victory for Fair Political and Educational Districting.” *To appear in Proceedings of the 19th International Conference on Autonomous Agents and MultiAgent Systems. International Foundation for Autonomous Agents and Multiagent Systems, 2020.* [pdf]

**Ana-Andreea Stoica**, Jessy Xinyi Han, Augustin Chaintreau. “Strategic influence maximization in networks with partial information.” *To appear in Proceedings of the 2020 World Wide Web Conference. International World Wide Web Conferences Steering Committee, 2020.* [pdf]

**Ana-Andreea Stoica**, Christopher Riederer, and Augustin Chaintreau. “Algorithmic Glass Ceiling in Social Networks: The effects of social recommendations on network diversity.” *Proceedings of the 2018 World Wide Web Conference. International World Wide Web Conferences Steering Committee, 2018.* [pdf]

Assimakis A. Kattis, Alexander Holiday, **Ana-Andreea Stoica**, and Ioannis G. Kevrekidis. “Modeling epidemics on adaptively evolving networks: A data-mining perspective.” *Virulence 7.2 (2016): 153-162.* [pdf]

## PEER-REVIEWED WORKSHOPS

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**Ana-Andreea Stoica** and Augustin Chaintreau. “Hegemony in Social Media and the effect of recommendations.” 1st Workshop on Fairness, Accountability, Transparency, Ethics and Society on the Web (FATES on the Web, WWW’19 Companion), companion proceedings of the 2019 World Wide Web Conference. International World Wide Web Conferences Steering Committee, 2019. [pdf]

**Ana-Andreea Stoica** and Augustin Chaintreau. “Fairness in the Social Influence Maximization Problem.” 1st Workshop on Fairness, Accountability, Transparency, Ethics and Society on the Web (FATES on the Web, WWW’19 Companion), companion proceedings of the 2019 World Wide Web Conference. International World Wide Web Conferences Steering Committee, 2019. [pdf]

**Ana-Andreea Stoica**, Christopher Riederer, and Augustin Chaintreau. “Algorithmic Glass Ceiling in Social Networks: The effects of social recommendations on network diversity.” Preliminary version showed at

- **Mechanism Design for Social Good Workshop** (MD4SG ’18) Poster and presentation session.
- **Highlights of Algorithms** (HALG 2018) Poster and presentation session, Vrije University, Amsterdam, Netherlands. June 4-6th, 2018.

**Ana-Andreea Stoica** and Emmanuel Abbe. “Community Detection in the Hypergraph Stochastic Block Model.” Princeton University Undergraduate Thesis, 2016. [pdf] Presented at:

- **New York Computer Science and Economics Day** (NYCE 2017) Poster session, New York University, New York, NY, USA. May 19th, 2017.
- **Fifth Networking Networking Women Workshop** (N<sup>2</sup> Women) Poster session, City University of New York, New York, NY, USA. October 3rd, 2016.

## TALKS

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Invited panelist, Int’l Social and Behavior Change Communication Summit, Marrakech, Morocco	October, 2020
Invited panelist, Fordham IPLJ Symposium, Fordham University, New York, NY	October, 2019
Invited speaker, Women in Data Science Workshop at the Web Conference ’18, Lyon, France	April, 2018
Invited seminar, Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland	May, 2018
Invited seminar, Cambridge University, Cambridge, UK	May, 2018
Invited seminar, Alan Turing Institute, London, UK	May, 2018

## LEADERSHIP AND INTERDISCIPLINARY WORK

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### **Mechanism Design for Social Good**

August 2019–

- Co-organizer for an interdisciplinary research initiative that includes workshops, colloquiums, and partnerships with NGO's and think tanks on the topics of inequality, development, online markets and social good.

### **Cyber 9/12 Student Challenge**

March 17–18, 2017

*Washington D.C.*

- Team leader. Drafted policy proposals for a given international cybersecurity challenge, organized by the Atlantic Council.

## TEACHING AND PROFESSIONAL SERVICE

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### **Program Committee**

- AAAI'20 Conference, AI for Social Good track
- NeurIPS'19 Workshop on AI for Social Good
- WWW'20 and WWW'19 Fairness, Accountability, Transparency, Ethics, and Society Workshop
- SIGIR'19 Workshop on Fairness, Accountability, Confidentiality, Transparency, and Safety in IR
- IJCAI'19 Workshop on AI for Social Good

### **Black in AI**

Fall, 2019

- Mentor for undergraduate students, assisting with graduate applications questions related to PhD programs in Computer Science and AI, with a focus on underrepresented groups.

### **Introduction to Social Networks**

Fall, 2016; Spring 2018

*Columbia University, New York, NY*

- Teaching Assistant

### **Engineering Graduate Student Council**

Fall, 2016

*Columbia University, New York, NY*

- Department Representative

### **Principia: The Princeton Undergraduate Mathematics Journal**

2014–2015

*Princeton University, Princeton, NJ*

- Editor