

# CURRICULUM VITAE

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L. ELISA CELIS

*Department of Statistics and Data Science  
Yale University*

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<https://datascienceethics.wordpress.com/elisacelis/>

## RESEARCH INTERESTS:

I study the manifestation of social and economic biases in our online lives via the algorithms that encode and perpetuate them. My research leverages both experimental and theoretical approaches, and my work spans multiple disciplines including data science, machine learning, fairness in socio-technical systems and algorithm design.

## EMPLOYMENT:

<b>Assistant Professor</b> <i>Department of Statistics and Data Science Yale University</i>	Jan 2019-Present
<b>Senior Research Scientist</b> <i>School of Computer and Communication Sciences (IC) École Polytechnique Fédérale de Lausanne (EPFL)</i>	June 2014-Dec 2018
<b>Research Scientist</b> <i>Xerox Research Centre, Bangalore, India</i>	June 2012-May 2014
<b>Head, Crowdsourcing and Human Computation Thrust</b> <i>Xerox Research, Worldwide (XRC-India, XRC-Grenoble, XRC-Whitefield, Xerox-PARC)</i>	June 2013-May 2014

## EDUCATION:

<b>Ph.D.</b> Computer Science & Engineering, University of Washington, Seattle WA <i>Thesis: Information Economics in the Age of e-Commerce</i> Advised by Anna Karlin and Yuval Peres	Sept 2010-Aug 2012
<b>M.Sc.</b> Computer Science & Engineering, University of Washington, Seattle WA <i>Thesis: Local Dynamics and Balanced Outcomes in Exchange Networks</i> Advised by Anna Karlin and Yuval Peres	Sept 2008-Aug 2009
<b>M.Sc.</b> Mathematics, University of Washington, Seattle WA <i>Thesis: Bias in the Indegree Distribution in a Snowball Sample of a Large Random Network</i> Advised by Abraham Flaxman and Christopher Hoffman	Sept 2006-June 2008
<b>B.Sc. with Honors</b> Computer Science & Mathematics, Harvey Mudd College, Claremont CA Advised by Ran Libsekind-Hadas and Michael Orrison	Aug 2002-May 2006

OTHER AFFILIATIONS, ENGAGEMENTS, AND SHORT-TERM POSITIONS:

<b>Research Staff</b> , Cowles Foundation for Research in Economics <i>Yale</i>	2021-Present
<b>Faculty Fellow</b> , Institution for Social and Policy Studies <i>Yale</i>	2021-Present
<b>Member</b> , Scholar’s Council of Center for Critical Internet Inquiry <i>UCLA</i>	2020-Present
<b>Advisory Board Member</b> , A+ Alliance <i>Geneva</i>	2019-Present
<b>Advisory Board Member</b> , Advancing Pretrial Policy & Research	2019-Present
<b>Advisory Board Member</b> , NSF ECR grant on Collaborative Research: <i>Exploring Algorithmic Fairness and Potential Bias in K-12 Mathematics Adaptive Learning</i>	2019-Present
<b>Co-founder</b> , Computation and Society Initiative <i>Yale</i>	2020-Present
<b>Visiting Scientist</b> , Fairness Summer Cluster <i>Simons Institute for the Theory of Computing at UC Berkeley, CA</i>	June-July 2019
<b>Visiting Scientist</b> , Fairness Summer Cluster <i>Simons Institute for the Theory of Computing at UC Berkeley, CA</i>	June-July 2019
<b>Visiting Scientist</b> , Data Privacy: Foundations and Applications <i>Simons Institute for the Theory of Computing at UC Berkeley, CA</i>	Mar-April 2019
<b>Short-Term Scholar</b> , School of Mathematics <i>Institute for Advanced Study (IAS), Princeton, NJ</i>	Jan-Feb 2018
<b>Visitor</b> , Center for Quantum Technologies <i>National University of Singapore, Singapore</i>	April 2018
<b>Visitor</b> , Research Institute for Mathematical Sciences (RIMS) Kyoto University, Kyoto, Japan	June 2016
<b>Participant</b> , Algorithmic and Computational Game Theory Workshop <i>Hausdorff Center for Mathematics, Bonn, Germany</i>	Dec 2015
<b>Research Intern</b> , Microeconomics and Social Sciences Group <i>Yahoo! Research, Santa Clara, CA</i>	Aug-Oct 2011
<b>Member</b> , Group on Algorithmic Game Theory <i>Israel Institute for Advanced Studies (IIAS)</i> Hebrew University of Jerusalem, Jerusalem, Israel	April-June 2011
<b>Research Intern</b> , Theory Group <i>Microsoft Research Silicon Valley, Mountain View, USA</i>	Jan-March 2011
<b>Research Intern</b> , Machine Learning and Statistics Group <i>Microsoft Research New England, Cambridge, MA</i>	June-Sept 2010
<b>Visiting Researcher</b> , Theory Group <i>Microsoft Research Redmond, Redmond, WA</i>	June-Sept 2008

SELECTED HONORS & FELLOWSHIPS:

<b>NSF CAREER Award</b>	2021
<b>J.P. Morgan Faculty Research Award</b>	2020
<b>100 Brilliant Women in AI Ethics</b>	2019
<b>Invited at TEDx Providence, Should you trust what AI says?</b>	2019
<b>Best Technical Paper Award, ACM Conference on Fairness, Accountability, and Transparency (FAT*)</b>	2019
<b>Yahoo! Key Scientific Challenges (KSC) Award</b>	2011
<b>Binational Grant for Algorithmic Game Theory</b>	Spring 2011
<b>Invited to China Theory Week</b>	2011
<b>UW Engineering Graduate Fellowship</b>	2010-2011
<b>Fellowship, Go-MAP Graduate Award</b>	2010-2011
<b>Fellowship, NASA Space Grant Graduate Fellowship</b>	Spring 2010
<b>National Physical Science Consortium Graduate Fellowship</b>	2007-2010
<b>Scholarship, 5th Cornell Probability Summer School,</b>	July 2009
<b>Scholarship, Women in Theory Workshop, Princeton University</b>	June 2008

PUBLICATIONS:

An up-to-date list of my publications and preprints can be found at <https://datascienceethics.org/elisacelis/publications/>.

*Preprints.*

- (1) *Revisiting Group Fairness Metrics: The Effect of Networks* by Anay Mehrotra, Jeffrey Sachs and **L. Elisa Celis**. Under review.
- (2) *Characterizing Human Preferences for Interpretability in Artificial Intelligence* by Anne-Marie Nussberger, Lan Luo, **L. Elisa Celis**, Molly J. Crockett. Under review.
- (3) *The Representation Pact - A Case Study in Computational Participatory Elections* by Florian Evéquo, Johan Rochel, Vijay Keswani, **L. Elisa Celis**. Under review.
- (4) *Debiasing the Algorithm* by **L. Elisa Celis**. Invited chapter in *From Bias to Feminist AI*, Sep 2021. <https://feministai.pubpub.org/pub/debiasing-the-algorithm/release/1>
- (5) *More Competitive Search Through Regulation* by Alessandro Bonatti, **L. Elisa Celis**, Gregory S. Crawford, David Dinielli, Paul Heidhues, Michael Luca, Tobias Salz, Monika Schnitzer, Fiona M. Scott Morton, Katja Seim, Michael Sinkinson, Jidong Zhou. Policy Discussion Paper No. 2 of the Tobin Center for Economic Policy at Yale, May 20, 2021. Available at SSRN [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3923593](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3923593).

*Peer-Reviewed Conferences and Journals.*

- (6) *Fair Classification with Adversarial Perturbations* by **L. Elisa Celis**, Anay Mehrotra and Nisheeth K. Vishnoi. In the proceedings of the Conference on Advances in Neural Information Processing Systems (**NeurIPS**), 2021
- (7) *Fair Classification with Noisy Protected Attributes: A Framework with Provable Guarantees* by **L. Elisa Celis**, Lingxiao Huang, Vijay Keswani and Nisheeth K. Vishnoi. In the proceedings of the International Conference on Machine Learning (**ICML**), 2021
- (8) *Auditing for Diversity using Representative Examples* by Vijay Keswani and **L. Elisa Celis**. In the proceedings of the ACM Special Interest Group on Knowledge Discovery and Data Mining (**KDD**), 2021
- (9) *Dialect Diversity in Text Summarization on Twitter* by Vijay Keswani and **L. Elisa Celis**. In the proceedings of The Web Conference (**WWW**), 2021
- (10) *Mitigating Bias in Set Selection with Noisy Protected Attributes* by Anay Mehrotra and **L. Elisa Celis**. In the proceedings of the ACM Conference on Fairness Accountability and Transparency Conference (**FAccT**), 2021
- (11) *The Effect of the Rooney Rule on Implicit Bias in the Long Term* by **L. Elisa Celis**, Chris Hays, Anay Mehrotra and Nisheeth K. Vishnoi. In the proceedings of the ACM Conference on Fairness Accountability and Transparency Conference (**FAccT**), 2021
- (12) *Implicit Diversity in Image Summarization* by **L. Elisa Celis** and Vijay Keswani. In the proceedings of the ACM Conference on Computer-Supported Cooperative Work and Social Computing (**CSCW**), 2020.
- (13) *Data Preprocessing to Mitigate Bias: A Maximum Entropy-Based Approach* by **L. Elisa Celis**, Vijay Keswani and Nisheeth K. Vishnoi. In the proceedings of the International Conference on Machine Learning (**ICML**), 2020
- (14) *Interventions for Ranking in the Presence of Implicit Bias* by **L. Elisa Celis**, Anay Mehrotra and Nisheeth K. Vishnoi. In the proceedings of the ACM Conference on Fairness, Accountability, and Transparency (**FAccT**), 2020.
- (15) *Towards Just, Fair and Interpretable Methods for Judicial Subset Selection* by Lingxiao Huang, Julia Wei and **L. Elisa Celis**. In the proceedings of the ACM/AAAI Conference on AI, Ethics and Society (**AIES**), 2020.
- (16) *Assessing Social and Intersectional Biases in Contextualized Word Representations* by Yi Chern Tan and **L. Elisa Celis**. In the proceedings of the Conference on Neural Information Processing Systems (**NeurIPS**), 2019.
- (17) *Towards Controlling Discrimination in Online Ads* by **L. Elisa Celis**, Anay Mehrotra and Nisheeth K. Vishnoi. In the proceedings of the International Conference on Machine Learning (**ICML**), 2019. *This work received the **Best Student Paper Award** at the*

*workshop Mechanism Design for Social Good (MD4SG), 2019 and accepted at the Stony Brook International Conference on Game Theory (GTCenter), 2019.*

- (18) *A General Framework for Sensor Placement in Source Localization* by Brunella Spinelli, **L. Elisa Celis** and Patrick Thiran. In IEEE Transactions on Network Science and Engineering, 2019.
- (19) *A dashboard for controlling polarization in personalization* by **L. Elisa Celis**, Sayash Kapoor, Farnood Salehi, Vijay Keswani, Nisheeth K. Vishnoi. **Invited Paper** to AI Communications, volume 32, issue 1, 2019.
- (20) *Controlling Polarization in Personalization: An Algorithmic Framework* by **L. Elisa Celis**, Sayash Kapoor, Farnood Salehi and Nisheeth K. Vishnoi. In the proceedings of the ACM Conference on Fairness, Accountability, and Transparency (**FAccT**), 2019. *This work received the **Best Paper Award**.*
- (21) *Classification with Fairness Constraints: A Meta-Algorithm with Provable Guarantees* by **L. Elisa Celis**, Lingxiao Huang, Vijay Keswani and Nisheeth K. Vishnoi. In the proceedings of the ACM Conference on Fairness, Accountability, and Transparency (**FAccT**), 2019.
- (22) *How Many Sensors to Localize the Source? The Double Metric Dimension of Random Networks* by Brunella Spinelli, **L. Elisa Celis** and Patrick Thiran. In Annual Allerton Conference on Communication, Control and Computing (**Allerton**), 2018.
- (23) *Ranking with Fairness Constraints* by **L. Elisa Celis**, Damian Straszak and Nisheeth K. Vishnoi. In the proceedings of the International Colloquium on Automata, Languages, and Programming (**ICALP**), 2018.
- (24) *Fair and Diverse DPP-Based Data Summarization* by **L. Elisa Celis**, Vijay Keswani, Damian Straszak, Amit Deshpande, Tarun Kathuria and Nisheeth K. Vishnoi. In the proceedings of the International Conference on Machine Learning (**ICML**), 2018.
- (25) *Multiwinner Voting with Fairness Constraints* by **L. Elisa Celis**, Lingxiao Huang and Nisheeth Vishnoi. In the proceedings of the International Joint Conferences on Artificial Intelligence (**IJCAI**), 2018.
- (26) *Balanced News Using Constrained Bandit-based Personalization* by Sayash Kapoor, Vijay Keswani, Nisheeth Vishnoi and **L. Elisa Celis**. In the proceedings of the International Joint Conferences on Artificial Intelligence (**IJCAI**), 2018.
- (27) *Coordinate Descent with Bandit Sampling* by Farnood Salehi, Patrick Thiran and **L. Elisa Celis**. In the proceedings of the Conference on Neural Information Processing Systems (**NeurIPS**), 2018.
- (28) *The Effect of Transmission Variance on Observer Placement for Source-Localization* by Brunella Spinelli, **L. Elisa Celis** and Patrick Thiran. In the Journal of Applied Network Science, 2017.

- (29) *On the Complexity of Constrained Determinantal Point Processes* by **L. Elisa Celis**, Amit Deshpande, Tarun Kathuria, Damian Straszak, Nisheeth K. Vishnoi. In the proceedings of Approximation, Randomization, and Combinatorial Optimization. Algorithms and Techniques (**APPROX/RANDOM**), 2017)
- (30) *Dictionary Learning Based on Sparse Distribution Tomography* by Pedram Pad, Farnood Salehi, **L. Elisa Celis**, Patrick Thiran and Michael Unser. In the proceedings of the International Conference on Machine Learning (**ICML**), 2017
- (31) *A Distributed Learning Dynamics in Social Groups* by **L. Elisa Celis**, Peter Krafft and Nisheeth Vishnoi. In the proceedings of the ACM Symposium on Principles of Distributed Computing (**PODC**), 2017
- (32) *A Dynamics for Advertising on Networks* by **L. Elisa Celis**, Mina Dalirrooyfard and Nisheeth K. Vishnoi In the proceedings of the Conference on Web and Internet Economics (**WINE**), 2017
- (33) *Back to the source: An online approach for sensor placement and source localization* by Brunella Spinelli, **L. Elisa Celis** and Patrick Thiran. In the proceedings of the World Wide Web Conference (**WWW**), 2017
- (34) *Observer Placement for Source Localization: The Effect of Budgets & Transmission Variance* by Brunella Spinelli, **L. Elisa Celis** and Patrick Thiran. In Annual Allerton Conference on Communication, Control and Computing (**Allerton**), 2016
- (35) *Sequential Voting Promotes Collective Discovery in Social Recommendation Systems* by **L. Elisa Celis**, Peter M. Krafft, and Nathan Kobe. In the proceedings of the International AAAI Conference on Web and Social Media (**ICWSM**), 2016.
- (36) *Assignment Techniques for Crowdsourcing Sensitive Tasks* by **L. Elisa Celis**, Sai Praneeth Reddy, Ishaan Preet Singh and Shailesh Vaya. In the proceedings of the ACM Conference on Computer-Supported Cooperative Work and Social Computing (**CSCW**), 2016.
- (37) *Crowds of Crowds: Performance based Modeling and Optimization over Multiple Crowdsourcing Platforms* by Sakyajit Bhattacharya, **L. Elisa Celis**, Deepthi Chander, Koustuv Dasgupta, Saras Karanam, and Vaibhav Rajan. In Human Computation Journal, 2015.
- (38) *Budgeted Sensor Placement for Source Localization on Trees* by **L. Elisa Celis**, Filip Pavetic, Brunella Spinelli and Patrick Thiran. In Algorithms, Graphs and Optimization Symposium (**LAGOS**), 2015.
- (39) *Adaptive Performance Optimization over Crowd Labor Channels* by **L. Elisa Celis**, Saras Karanam, Deepthi Chander, Koustuv Dasgupta and Vaibhav Rajan. In Conference on Human Computation & Crowdsourcing (**HCOMP**), 2014.
- (40) *Post it or Not: Viewership Based Posting of Crowdsourced Tasks* by Pallavi Manohar, Deepthi Chander, **L. Elisa Celis**, Koustuv Dasgupta, and Sakyajit Bhattacharya. In Conference on Human Computation & Crowdsourcing (**HCOMP**), 2014.

- (41) *Crowdutility: a recommendation system for crowdsourcing platforms* by Deepthi Chander, Sakyajit Bhattacharya, **L. Elisa Celis**, Koustuv Dasgupta, Saraschandra Karanam, Vaibhav Rajan, Avantika Gupta Conference on Human Computation & Crowdsourcing (**HCOMP**), 2014.
- (42) *Buy-it-now or Take-a-chance: Price Discrimination through Randomized Auctions* by **L. Elisa Celis**, Greg Lewis, Markus Mobius and Hamid Nazerzadeh **Management Science**, 2014. Also presented in Manufacturing & Service Operations Management Society Conference (**MSOM**), 2012.
- (43) *On Revenue Maximization for Agents with Costly Information Acquisition* by **L. Elisa Celis**, Dimitrios Gklezacos and Anna Karlin International Colloquium on Automata, Languages and Programming, (**ICALP**), 2013.
- (44) *Balls and Bins: Smaller Hash Families and Faster Evaluation* by **L. Elisa Celis**, Omer Reingold, Gil Segev and Udi Wieder. In SIAM Journal on Computing (**SICOMP**), 2013.
- (45) *Adaptive Crowdsourcing for Temporal Crowds* by **L. Elisa Celis**, Koustuv Dasgupta and Vaibhav Rajan. In In the proceedings of the International World Wide Web Conference (**WWW**) companion, 2013.
- (46) *Approximately Revenue-Maximizing Mechanisms for Deliberative Agents* by **L. Elisa Celis**, Anna Karlin, Kevin Leyton-Brown, Thach Nguyen and David Thompson. In the proceedings of Association for the Advancement of Artificial Intelligence (**AAAI**), 2012.
- (47) *Balls and Bins: Smaller Hash Families and Faster Evaluation* by **L. Elisa Celis**, Omer Reingold, Gil Segev and Udi Wieder. In the proceedings of IEEE Foundations of Computer Science (**FOCS**), 2011.
- (48) *Buy-it-Now or Take-a-Chance: A Simple Sequential Screening Mechanism* by **L. Elisa Celis**, Gregory Lewis, Markus Mobius and Hamid Nazerzadeh. In the proceedings of the International World Wide Web Conference (**WWW**), 2011.
- (49) *Local Dynamics in Exchange Networks via Random Turn Games* by **L. Elisa Celis**, Nikhil Devanur and Yuval Peres. In the proceedings of the International Conference on Internet and Network Economics (**WINE**), 2010.
- (50) *Convergence of Local Dynamics to Balanced Outcomes in Exchange Networks* by Yossi Azar, Benjamin Birnbaum, **L. Elisa Celis**, Nikhil Devanur and Yuval Peres. In the proceedings of the IEEE Foundations of Computer Science (**FOCS**), 2009. Also presented in Institute for Operations Research and the Management Sciences (**INFORMS**) Annual Meeting, 2009.
- (51) *Traffic Grooming for Single-Source Multicast Communication in WDM Rings* by Dave Buchfuhrer, Timothy Carnes, **L. Elisa Celis**, Brian Tagiku and Ran Libeskind-Hadas. In the proceedings of the IEEE International Conference on Communications (**ICC**), 2005.

*Peer-Reviewed Non-Archival Venues.*

- (52) *A Model for Social Network Formation: Efficiency, Stability and Dynamics* by **L. Elisa Celis** and Aida Mousavifar. In Stony Brook International Conference on Game Theory (GTCenter) Meeting, 2016. (talk) Conference on Web and Internet Economics (**WINE**), 2017. <https://arxiv.org/abs/1510.09025>
- (53) *Fair Personalization* by **L. Elisa Celis** and Nisheeth K. Vishnoi. In Fairness, Accountability and Transparency in ML (**FAT/ML**), 2017. <https://arxiv.org/abs/1707.02260>
- (54) *Regulatory Mechanisms and Algorithms towards Trust in AI/ML* by Eva Th elisson, Kirtan Padh and **L. Elisa Celis**. In Workshop on Explainable Artificial Intelligence (XAI) at the International Joint Conference on Artificial Intelligence (**IJCAI**), 2017. <https://tinyurl.com/yf2385c>
- (55) *What Do Users Want in Q&A Sites: Quality or Diversity?* by **L. Elisa Celis** and Sidhartha Tekriwal. In International Conference on Computational Social Science (**IC2S2**), 2017.
- (56) *Auctions for Online Advertising with Constraints* by **L. Elisa Celis**, Farnood Salehi and Salman Salamatian. In Manufacturing & Service Operations Management Society (**MSOM**), 2017.
- (57) *How to be fair and diverse?* by **L. Elisa Celis**, Amit Deshpande, Tarun Kathuria, Nisheeth K. Vishnoi. In Fairness, Accountability and Transparency in ML (**FATML**), 2016. <https://arxiv.org/abs/1610.07183>
- (58) *Bandits in a Network* by **L. Elisa Celis** and Farnood Salehi. In International Symposium on Mathematical Programming (ISMP), 2015. <https://arxiv.org/abs/1704.04470>
- (59) *CrowdControl: An online learning approach for optimal task scheduling in a dynamic crowd platform* by Vaibhav Rajan, Sakyajit Bhattacharya, **L. Elisa Celis**, Deepthi Chander, Koustuv Dasgupta and Saraschandra Karanam ML meets Crowdsourcing Workshop at the International Conference on Machine Learning (**ICML**), 2013. <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.307.7284&rep=rep1&type=pdf>
- (60) *Lottery-based Payment Mechanism for Microtasks* by **L. Elisa Celis**, Shourya Roy and Vivek Mishra Conference on Human Computation & Crowdsourcing (**HCOMP**), WiP track, 2013. <https://www.aaai.org/ocs/index.php/HCOMP/HCOMP13/paper/viewFile/7568/7427>

DEMOS AND PROTOTYPES:

An up-to-date list of demos and code be found at <https://controlling-bias.github.io/>

- (61) Prototype for gender-balanced image search: <https://fair-image-search.herokuapp.com/imageDiversity.php>
- (62) Prototype for politically-balanced and personalized newsfeeds: <https://fair-personalized-news.herokuapp.com/fast/diversity.php>
- (63) Elect a committee that is balanced across different attribute types – **Deployed in a real-world election in Switzerland**: <https://fair-voting-demo.herokuapp.com/>



- (64) Prototype for gender-balanced rankings with applications to search engines, newsfeeds, and recommendation systems: <http://balanced-ranking.herokuapp.com/>
- (65) Python notebook for a meta fair classification algorithm, works for various fairness metrics—  
**Deployed in IBM AIF 360:** [https://github.com/Trusted-AI/AIF360/blob/master/examples/demo\\_meta\\_classifier.ipynb](https://github.com/Trusted-AI/AIF360/blob/master/examples/demo_meta_classifier.ipynb)
- (66) Prototype for gender-balanced and auction-based online advertising platform: <https://fair-online-advertising.herokuapp.com/>
- (67) Python notebook for learning and evaluating unbiased maximum-entropy distributions from biased datasets:  
<https://tinyurl.com/x4ncsy9j>

PATENTS:

- (68) Granted Patent No: US 2019/10354549  
*Methods and systems for training a crowdworker*  
Koustuv Dasgupta, **L. Elisa Celis**, 2019
- (69) Granted Patent No: US9098343  
*Method and system for managing allocation of tasks to be crowdsourced*  
**L. Elisa Celis** and Koustuv Dasgupta, 2015
- (70) Granted Patent No: US9152919  
*Method and system for recommending tasks to crowdworkers*  
Koustuv Dasgupta, Chithralekha Balamurugan, **L. Elisa Celis**, Saras Karanam, 2015
- (71) Patent Published No: US 2016/0042476  
*Methods and systems for remunerating crowdworkers*  
**L. Elisa Celis**, Shourya Roy, 2016
- (72) Patent Published No: US 2015/0242798  
*Methods and systems for creating a simulator for a crowdsourcing platform*  
Guangyu Zou, Marina L. Tharayil, Alvaro E. Gil, Deepthi Chandra, **L. Elisa Celis**, 2015
- (73) Patent Published No: US 2015/0220871  
*Methods and systems for scheduling a batch of tasks*  
Vaibhav Rajan, Sakyajit Bhattacharya, Koustuv Dasgupta, Nischal Piratla, **L. Elisa Celis**, Deepthi Chander, Saras Karanam, 2015
- (74) Patent Published No: US 2015/0199632  
Deepthi Chander, **L. Elisa Celis**, Koustuv Dasgupta, Nischal Murthy Piratla, Chithralekha Balamurugan, 2015

- (75) Patent Published No: US 2014/0298343  
*Method and system for scheduling allocation of tasks*  
 Vaibhav Rajan, Koustuv Dasgupta, **L. Elisa Celis**, 2014
- (76) Patent Published No: US 2012/0158522  
*Randomized auctions with priority option*  
 Hamid Nazerzadeh, Lee-Ming Zen, Markus M. Möbius, **L. Elisa Celis**, Gregory M. Lewis, 2015

MAJOR SERVICE AND PROFESSIONAL ACTIVITIES:

*Department and University Committees.*

<b>Member</b> , Faculty Hiring Committee, Department of Statistics and Data Science, <i>Yale</i>	Spring 2022
<b>Steering &amp; Council Member</b> , Women Faculty Forum (WFF), <i>Yale</i>	2019-2021
<b>Member</b> , Graduate Student Hiring Committee, Department of Statistics and Data Science, <i>Yale</i>	Spring 2021
<b>Elected Member</b> , Faculty of Arts and Sciences (FAS) Senate, <i>Yale</i>	2021-Present
<b>Co-Chair</b> , The Faculty of Arts and Sciences Senate Committee on Diversity, <i>Yale</i>	2021-Present
<b>Member</b> , Faculty Hiring Committee, Department of Statistics and Data Science, <i>Yale</i>	Spring 2020

*Conference and Workshop Organization.*

<b>PC Chair</b> , Symposium on the Foundations of Responsible Computing (FORC), <i>Cambridge, Massachusetts</i>	May 2022
<b>Executive Committee Member</b> , ACM Conference on Fairness, Accountability and Transparency (FAccT - formerly FAT*)	2021-Present
<b>Session Chair</b> , Data and Algorithmic Biases: Systematic Harms and Potential Solutions, <i>Joint Statistical Meeting (Virtual)</i>	Aug 2020
<b>PC Co-Chair</b> , ACM Conference on Fairness, Accountability and Transparency (FAT*), <i>Spain</i>	Jan 2020
<b>Co-Organizer</b> , 1st International Workshop on Fairness, Accountability and Transparency in Multimedia (FAT/MM). <i>Co-Located with the ACM International Conference on Multimedia (ACMMM), France</i>	Oct 2019
<b>Executive Chair</b> , LatinX in AI (LXAI). <i>Co-Located with the International Conference on Machine Learning (ICML), Los Angeles</i>	June 2019
<b>Co-Organizer</b> , Workshop for Women in Big Data, <i>Switzerland</i>	June 2019
<b>Co-Organizer</b> , 1st Yale workshop on AI, Ethics, and Society, <i>Yale</i>	April 2019

<b>Co-Organizer</b> , Fairness, Accountability and Transparency in Machine Learning (FAT/ML). <i>Co-Located with the International Conference on Machine Learning (ICML), Sweden</i>	June 2018
<b>Co-Organizer</b> , Models & Algorithms for Crowds & Networks. <i>Banff International Research Station (BIRS) Workshop, Oaxaca, Mexico</i>	Aug 2016
<b>Co-Organizer</b> , Alternative Workforces in Software Engineering. <i>Asia-Pacific Software Engineering Conference (APSEC) Workshop, India</i>	Dec 2015

*Program Committee and Service Panel Memberships.*

• Foundations of Responsible Computing (FORC), PC Member	2021
• AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society, PC Member	2020
• International Joint Conference on Artificial Intelligence (IJCAI), Senior PC Member	2020
• NSF Panel	2019
• ACM Fairness, Accountability and Transparency (FAT*), Track Chair “Applications”	2019
• 20th ACM Conference on Economics and Computation (EC), PC Member	2019
• CCC Fairness and Accountability Task Force Visioning Workshop at Harvard	2019
• International Conference on Machine Learning (ICML), PC Member	2018
• ACM Collective Intelligence Conference, PC Member	2018
• The Web Conference (WWW), PC Member	2018
• International Conference on Complex Networks and Their Applications, PC Member	2017
• AAAI Human Computation and Crowdsourcing (HCOMP), PC Member	2017
• The Web Conference (WWW), PC Member	2017
• International Colloquium on Automata, Languages, and Programming, PC Member	2016
• International Joint Conference on Artificial Intelligence (IJCAI), PC Member	2016
• AAAI Human Computation and Crowdsourcing (HCOMP), PC Member	2015
• Found. of Software Tech. and Theoretical Computer Science (FSTTCS), PC Member	2013

ADVISING AND MENTEES:

*Ph.D. Students.*

<b>Vijay Keswani</b> , Yale, Statistics and Data Science	2019-Present
<b>Dr. Farnood Salehi, Ph.D.</b> , EPFL. <i>Now Associate Research Scientist at Disney Research</i>	2014-2019
<b>Dr. Brunella Spinelli, Ph.D.</b> , EPFL. <i>Now Research Scientist at Credit Suisse</i>	2014-2018

*Graduate Student Mentees.*

<b>Jeffrey Sachs</b> , Yale, Sociology	2020-Present
<b>Anay Mehrotra</b> , Yale, Computer Science	2018-Present
<b>Dr. Peaks Krafft</b> , MIT. <i>Now Research Fellow at Oxford Internet Inst.</i>	2015-2017

*Undergraduate Student Mentees.*

<b>Eva Garces</b> , Applied Math, Yale	Graduating 2022
<b>Nathan Kim</b> , Statistics & Data Science, Yale	Graduating 2022
<b>Isabel Corpus</b> , Statistics & Data Science, Yale	2021
<b>Yi Chern Tan</b> , Computer Science, Yale. <i>Now Ph.D. Student at Yale</i>	2019
<b>Julia Wei</b> , Yale. <i>Now Senior Research Engineer at Reservoir Labs</i>	2019
<b>Vivek Ramanujan</b> , Brown University. <i>Now Ph.D. Student at U Washington</i>	2017
<b>Siddhartha Tekriwal</b> , IIT Kharagpur. <i>Now Research Associate at Goldman Sachs</i>	2016
<b>Salman Salamatian</b> , EPFL. <i>Now Ph.D. Student at MIT</i>	2015-2016
<b>Mina Dalirrooyfard</b> , Sharif University. <i>Now Ph.D. Student at MIT</i>	2015, 2016
<b>Lavisha Aggarwal</b> , IIT Kanpur. <i>Now Ph.D. Student at UIUC</i>	2015
<b>Aida Mousavifar</b> , University of Tehran. <i>Now Ph.D. Student at EPFL</i>	2015
<b>Ishaan Singh</b> , IIT Delhi. <i>Now Ph.D. Student at UC Berkeley</i>	2014, 2015
<b>Sai Praneeth Reddy</b> , IIT Delhi. <i>Now Ph.D. Student at EPFL</i>	2014

TEACHING:

**Probability for Data Science (SDS-240)** Fall 2021  
*Yale, Undergraduate Probability for non-Statistics and Data Science majors*

**Data Science Ethics (SDS-150)** Spring 2019, 2021  
*Yale, Undergraduate Senior Seminar*  
Syllabus: <https://datascienceethics.org/the-course/syllabus/>

**Equity in AI Systems (SDS-650)** Fall 2019  
*Yale, Graduate Seminar*

**Models and Methods for Random Networks (COM-512)** Spring 2016  
*EPFL, M.S. Level*  
Syllabus: <http://edu.epfl.ch/coursebook/en/networks-out-of-control-COM-512>

**Games for Crowds and Networks (CS-714)** Spring 2015  
*EPFL, Ph.D. Level*  
Syllabus: <http://edu.epfl.ch/coursebook/en/games-for-crowds-and-networks-CS-714>

**Introduction to Programming**, Summer Challenge Program Summer 2011  
*University of Washington, Community Program*  
Syllabus: [https://drive.google.com/file/d/1mgxV6iXrMCsoRrSU2o7a\\_eSgYMuyLeYk/view](https://drive.google.com/file/d/1mgxV6iXrMCsoRrSU2o7a_eSgYMuyLeYk/view)

**Algorithms and Computational Complexity (CS-417)**, Winter 2010  
*University of Washington, Undergraduate Level*  
Syllabus: <https://cse417win10.wordpress.com/main/>

GRANTS:

**Faculty Early Career Development Program (CAREER)**

**Project Title:** From Fairness to Justice in AI Systems

**Funding Source:** National Science Foundation (NSF)

**Received:** Aug 2021

**Role:** Sole Principal Investigator

**JP Morgan Chase Faculty Award**

**Project Title:** Fair AI for the Long Haul: Interventions and Tradeoffs

**Funding Source:** JP Morgan Chase

**Received:** Sept 2020

**Role:** Sole Principal Investigator

**SNSF Project Grant:**

**Project Title:** Bandits on Networks: Regret, Optimization and Equilibria

**Funding Source:** Swiss National Science Foundation (SNSF)

**Period:** Jan 2016 - Dec 2018 (36 months)

**Role:** Sole Principal Investigator

SELECTED MEDIA COVERAGE:

- *Podcast*, The Good, the Bad, and Ugly of Artificial Intelligence, Oct 6, 2021. <https://tinyurl.com/3ex7pbn8>
- *Interview in Article*, All Rise: Judicial Algorithms in the Courtroom, June 7, 2020. <https://thepolitic.org/all-rise-judicial-algorithms-in-the-courtroom/>
- *Article*, How asking ethical questions will determine altruism in AI, Feb 23, 2020. <https://tinyurl.com/rb8mnd6x>
- *Radio Interview*, Artificially-Intelligent Systems Should Be Free of Bias, But They Aren't, on Top of Mind with Julie Rose, Jan 06, 2020. <https://tinyurl.com/apwanyaj>
- TEDx Talk, Should you trust what AI says? Oct 2019 *TEDx Providence*, "Advance". [https://www.ted.com/talks/should\\_you\\_trust\\_what\\_ai\\_says](https://www.ted.com/talks/should_you_trust_what_ai_says)
- *Research Spotlight*, When our view of the world is distorted by algorithms. March 28, 2019. <https://www.pbs.org/wgbh/nova/article/radical-ideas-social-media-algorithms>
- *Extensive Media Coverage* on our work on Fair Elections in Switzerland in Sept 2018:
  - Video by Appel Citoyen: [https://www.youtube.com/watch?v=X6M1fpcEBQE&ab\\_channel=AppelCitoyen](https://www.youtube.com/watch?v=X6M1fpcEBQE&ab_channel=AppelCitoyen)
  - Canal 9 News: <https://tinyurl.com/2cy7kbj2>
  - Le Temps Newspaper: <https://tinyurl.com/x64mcz5k>
  - Le Nouvelliste Newspaper: <https://tinyurl.com/33ezxydc>

- Radio Chablais: [http://radiochablais.ch//podcast/mp3/info\\_12h\\_13062018.mp3](http://radiochablais.ch//podcast/mp3/info_12h_13062018.mp3)
- *Video Interviews* on algorithmic bias.
  - What is Discrimination? [https://www.youtube.com/watch?v=TFz-NMB0Bk4&ab\\_channel=ZettaBytes%2CEPFL](https://www.youtube.com/watch?v=TFz-NMB0Bk4&ab_channel=ZettaBytes%2CEPFL)
  - 3 Cases of Discriminative AIs. [https://www.youtube.com/watch?v=0bMFxMhB82o&ab\\_channel=ZettaBytes%2CEPFL](https://www.youtube.com/watch?v=0bMFxMhB82o&ab_channel=ZettaBytes%2CEPFL)
  - Challenges to Eliminate Algorithmic Discrimination. [https://www.youtube.com/watch?v=8LALww63KYQ&ab\\_channel=ZettaBytes%2CEPFL](https://www.youtube.com/watch?v=8LALww63KYQ&ab_channel=ZettaBytes%2CEPFL)
- *Research Spotlight*, When our view of the world is distorted by algorithms. April 19, 2018. <https://actu.epfl.ch/news/when-our-view-of-the-world-is-distorted-by-algorit/>
- *Research Spotlight*, Elisa Celis and the fight for fairness in artificial intelligence, Nov 06, 2019. <https://tinyurl.com/pywktvrj>
- Interview in Article, Should We Be Scared Of AI?, Sept 11, 2019. <https://www.tun.com/blog/should-we-be-scared-of-ai/>

INVITED TALKS AND PANELS:

<b>Rethinking Political Representation</b>	April 2021
<i>Panelist in ISPS Democracy Series</i>	
<i>Yale</i>	
<b>Screening of the movie “Coded Bias”</b>	April 2021
<i>Invited to a discussion with the filmmaker, Shalini Kantayya</i>	
<i>The Franke Program in Science and the Humanities at Yale</i>	
<b>Implicit Diversification in Algorithmic Systems</b>	April 2021
<i>Invited Speaker at the Equity and AI Center for AI and Society Symposium</i>	
<i>University of Southern California</i>	
<b>Invited Panelist for AI for Better and more Ethical Practices</b>	Nov 2020
<i>2020 Global Analytics Summit: Ethics in AI.</i>	
<i>Texas McCombs, UT Austin</i>	
<b>Invited to a Conversation with Safiya Noble</b>	Oct 2020
<i>The Order of Multitudes.</i>	
<i>Yale Mellon Sawyer Seminar</i>	
<b>Affirmative Action Algorithms</b>	Nov 2020
<i>Keynote Speaker at Launch Event</i>	
<i>A+ Alliance For Inclusive Algorithms</i>	
<b>Panel on AI &amp; Gender: A Human Rights Toolbox Approach</b>	Oct 2020
<i>Computation and Society Initiative</i>	
<i>Yale</i>	

<b>Fighting Discrimination in AI</b> <i>Invited Talk at Science Talks.</i> <i>Tilde Cafe</i>	Oct 2020
<b>Mitigating Social Problems with Math &amp; Data</b> <i>Keynote Speaker at Girls in Math</i> <i>Yale</i>	Feb 2020
<b>Towards Controlling Bias in Machine Learning</b> <i>Keynote Speaker at Fairness, Accountability, Transparency and Ethics in Machine Learning.</i> <i>Organized by LinkedIn, Microsoft Research and Indian Institute of Science, India</i>	Jan 2020
<b>Panelist at Yale Day of Data</b> <i>Yale</i>	Dec 2019
<b>Optimizing for Fairness in AI</b> <i>Invited Talk at Optimization Seminar</i> <i>Princeton</i>	Nov 2019
<b>Invited Panelist at Trusted AI</b> <i>AI World Conference and Expo</i> <i>Boston</i>	Oct 2019
<b>Optimization Framework for Group Fairness</b> <i>Invited Talk at Trustworthy AI Symposium</i> <i>Columbia</i>	Oct 2019
<b>Data, Data, Everywhere</b> <i>Invited Speaker at Yale Explores</i> <i>Houston and Denver</i>	Oct 2019
<b>Invited to AI Vulnerabilities: An Integral Look at Security for AI</b> <i>Organized by AI Now Institute, NYU and Google</i> <i>New York</i>	Aug 2019
<b>Moderating Discrimination in Online Ad Auctions</b> <i>Invited talk at Workshop on Recent Developments in Research on Fairness at Simons Institute</i> <i>UC Berkeley</i>	July 2019
<b>Towards Controlling Bias in Machine Learning</b> <i>Invited Talk at Jump Trading</i> <i>Chicago</i>	May 2019
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at the Information Systems Seminar</i> <i>University of California, Berkeley</i>	March 2019

<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at the Department of Computer Science and Engineering IIT Delhi, India</i>	Nov 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at the Department of Computer Science and Engineering IIT Bombay, India</i>	Oct 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at School of Technology and Computer Science Seminar Tata Institute of Fundamental Research, India</i>	Oct 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>CSE Department Talk IIT Goa, India</i>	Oct 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Keynote Speaker at PyData Berlin</i>	July 2018
<b>Invited Panelist for Governance of Decision Making Algorithms</b> <i>International Risk Governance Council (IRGC) Zurich</i>	July 2018
<b>Fairness and Diversity in Machine Learning</b> <i>Keynote Speaker at Summer School on Machine Learning Paris</i>	May 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Keynote Speaker at Strata Data Conference London</i>	May 2018
<b>Fairness and Diversity in Online Social Systems</b> <i>Invited Talk at the Department of Computer Science National University of Singapore</i>	April 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at the Department of Statistics and Data Science Yale</i>	Feb 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at the Department of Computer Science University of Illinois Urbana-Champaign</i>	Feb 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at Industrial Engineering and Operations Research Columbia</i>	Feb 2018



<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at Khoury College of Computer Science Northeastern</i>	Feb 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at the Department of Computer Science Boston University</i>	Feb 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at the IC Colloquium EPFL</i>	Feb 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at CSE Seminar University of Michigan</i>	Feb 2018
<b>Fairness in Machine Learning for Online Social Systems</b> <i>Invited Talk at the Computer Science Department Colloquium Rutgers</i>	Jan 2018
<b>Controlling Bias in Bandit-Based Personalization</b> <i>Invited Talk at the Session on Algorithmic Fairness and Optimization in the 23rd International Symposium on Mathematical Programming Bordeaux, France</i>	July 2018
<b>Controlling Bias in AI</b> <i>Invited to the Data Science Seminar London School of Economics</i>	Dec 2017
<b>Algorithmic Bias</b> <i>Invited Talk at the Algorithms and Optimization Workshop Google Research, Zurich, Switzerland</i>	Nov 2017
<b>AI and Bias</b> <i>Invited Presentation to delegates from United Nations OHCHR and Women@TheTable Geneva, Switzerland</i>	Nov 2017
<b>Diversity in Crowdsourced Forums</b> <i>Invited Talk at InfoLab, Department of Computer Science Stanford University</i>	Sept 2017
<b>Game Theory &amp; Social Networks: Incentives, Cooperation and Power</b> <i>Invited Talk at the Research Institute for Mathematical Sciences (RIMS) Kyoto University, Japan</i>	June 2016

- Game Theory & Social Networks: Incentives, Cooperation and Power** May 2016  
*Invited to the Communication Networks Seminar*  
*KTH Royal Institute of Technology, Stockholm, Sweden*
- Business Crowdsourcing: Distributing and Scheduling Crowd Work** Jan 2016  
*Invited Talk at Accenture Research Lab*  
*Bangalore, India*
- Game Theory & Social Networks: Incentives, Cooperation and Power** Jan 2016  
*Keynote Talk at the Symposium on Computation and Optimization in the Sciences and Engg.*  
*IIT Kanpur*
- Constrained Online Auctions** Dec 2015  
*Invited Talk at the Algorithmic and Computational Game Theory Workshop*  
*Hausdorff Center for Mathematics, Bonn*
- Bandits in a Network** July 2015  
*22nd International Symposium on Mathematical Programming (ISMP)* Pittsburgh, USA
- Epidemics and the Metric Dimension** April 2015  
*Invited Talk in the Theory Seminar, Department of Computer Science*  
*Cornell University, NY*
- Bandits with Side Observations: Regret and Equilibria** April 2015  
*Invited talk in the Econ-CS Seminar, School of Engineering and Applied Sciences*  
*Harvard University, Cambridge, MA*
- Crowdsourcing: Optimization and Privacy** Jan 2015  
*Invited Talk at IBM Research* Bangalore, India
- Playing Games in Mathematics and CS** Dec 2012  
*Invited Tak at the Grace Hopper Conference, Bangalore, India*
- Information Economics in Mechanism Design** Nov 2011  
*Invited Talk at Yahoo! Labs, Bangalore, India*
- Information Economics in Mechanism Design** Nov 2011  
*Invited Talk at the Game Theory Lab, Department of Computer Science and Automation*  
*Indian Institute of Science (IISc), Bangalore, India*
- Bargaining in Exchange Networks** Oct 2011  
*Invited Talk at the Department of Computer Science and Engineering*  
*Indian Institute of Technology (IIT), Delhi, India*
- Balls and Bins: Smaller Hash Families and Faster Evaluation** Sept 2011  
*Invited Talk at China Theory Week, Aarhus, Denmark*

<b>Price Discrimination Through Randomized Auctions</b> <i>Invited Talk at Research on Algorithms and Incentives (RAIN) Seminar Management Science and Engineering Department, Stanford University</i>	March 2011
<b>Price Discrimination Through Randomized Auctions</b> <i>Invited Search Seminar, Microsoft Research, Silicon Valley</i>	Feb 2011
<b>Fast Convergence of Bargaining Networks</b> <i>Invited Presentation at the INFORMS Annual Meeting, San Diego</i>	Oct 2009