MANON REVEL

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https://manrev.github.io/manon/
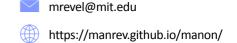
Research maths and governance. Passionate about aligning engineering systems with democratic values.

Education

Sep.19-Aug.23	**MIT**	PhD in Social and Engineering Systems and Statistics (GPA: 5/5)

Focus Area: Statistical Reinforcement Learning & Decision-Making, Discrete Probabilities & Stochastic Processes, Statistics, Mathematical Models in the Social Sciences, Data-Driven Decision-Making & Society

Sep.17-Jun.19	**MIT**	MSc in Technology and Policy (GPA: 4.8/5)

Focus Area: Statistics Computation & Application, Network Science & Models, Causal Inference, Fundamentals of Probability, Political Economy, Science Technology & Public Policy, Law Technology & Policy

Sep.15-Jun.17	**École Centrale Paris**	BSc of Engineering & Diplôme d'ingénieur (MSc. equivalent) in Applied Mathematics

Focus Area: Mathematics (fundamental and applied), Algorithms & Programming, Machine Learning, Physics

Work Experience

May.-Aug.22	**Palantir Technologies (NY)**	Deployment Strategist Intern

- Partnered with clients to scope problems and set vision for data-driven workflows in the Utility space
- Conceived and developed analytical workflows to augment data-driven decisions and product policy design

Jul.-Aug.19	**Aerospacelab (Belgium)**	Strategic Engineer - Machine Learning Consultant

- Envisioned and coded modules to monitor information virality on social media implementing natural language processing models, network dynamics analyses, time series analyses and other machine learning techniques

May.-Aug.18	**Center for Strategic and International Studies CSIS (DC)**	Policy Intern

- Studied Internet ecosystems and AI regulation's impact on people's relation to information
- Collaborate with lawyers, industry partners, and state officials to inform policymakers about GDPR

Jun.-Aug.17	**Nokia Bell Labs (NJ)**	Machine Learning Research Intern

- Optimized slice allocation with forecasting methods and time series analysis to lower communication latency
- Won intern R&D talk contest in department; and worked on a side project with CEO about news credibility

Research Experience

Sep.17-Aug.23	**MIT - Institute for Data, Systems, and Society (MA)**	PhD Researcher in Computational Social Science

- **Maths and Governance:** Authored mathematical theories on binary vote aggregation; studied the dynamics of networked delegations proving new results on the infinite Poly Urn processes;. designed 10+ experimental designs and conducted experiments that statistically validated the theory; led subsequent programs on decentralized governance with companies and political actors to deploy research in the real world
- **Statistical Analysis of the Causality of Information Disorders:** Studied resonance of narratives with the citizenry and its interplay on social movements in France through natural language processing (NLP) of a corpus of 10k+ public opinion surveys and scraped media output; measured the impact of online marketing on journalism credibility since the 2016 US election; conducted NLP and Bayesian analyses of 1M headlines, and randomized experiments (n=10,000) testing ads' causal effects
- **Data Science Projects:** Leveraged 100k Reddit posts on tinnitus with NLP and networks dynamics to understand peer-support online; studied NBA players' key performance drivers through machine learning for dimension reduction of plays

Aug.22-Aug.23	**Harvard Kennedy School**	Doctoral Democracy Fellow

- Researched democratic innovation, AI governance and alignment connecting maths and political philosophy

Teaching & Advising

Feb.21-Now	**MIT - Institute for Data, Systems, and Society:** *Quant Review*	Instructor for Masters Students

- Created content for, and teach a 15h-seminar in Algebra, Probability and Statistics, Micro-Economy and Data science for 30+ Masters Students. See class material here. (Feedback available upon request)

Jul.-Aug.20-21	**MIT - Sloan School:** *Data, Model, and Decisions*	Teaching Assistant for Executive MBAs

- Taught 120 MBA Students in Probability, Statistics, and Optimization, created recitations, wrote and graded problem sets (Teaching Evaluation: 6.7/7, details available upon request)

Sept.18-Aug.19	**MIT - Institute for Data, Systems, and Society**	Undergraduate Research Advisor

- Advised MIT UROP students Mariette Munier and Yi Wang

Service and Leadership (selection)

Aug.22-Now	**Mechanism Design for Social Good (MD4SG)** - Co-lead the civic participation research group ([link](#))
Jun.19-Now	**Reviewer for Academic Conferences** - Association for the Advancement of Artificial Intelligence (AAAI), Conference on Decision and Control (CDC) and American Control Conference (ACC), International Conference on Autonomous Agents and Multiagent Systems (AAMAS)
Jan.22-Dec.22	**Workshop on Liquid Democracy** - Co-organized a 2-day conference to connect 50 scholars researching liquid democracy from various fields to spark inter-disciplinary discoveries
Sep.21-Apr.22	**CYN.AI** - Advised R&D team in building AI to detect bias in readers' content and flag missing context.
Apr-Jul.20	**MIT IDSS - Covid-19 COLLABORATION** - Co-designed opting-out and class schedules for MIT back-to-campus strategy following COVID-19 lockdown
Jan.-Jun.21	**International Conference of the Web and Social Media (ICWSM)** - Co-organized 1-day archival workshop *Alternative Realities in Troubled Democracies* ([link](#)). Created content, advertised event, reviewed papers.
Sep.15-Jun.18	**BeeGames Association** - Launched a cross-functional collaboration between companies, universities, and basketball professionals. Lead of a 25-person team creating a network of investors and organizing networking

Awards

events. Worked with the former head coach of the French national team and Olympics vice-champions.

2022	**Harvard Kennedy School Democracy Fellowship** - Reward students leading democratic innovations
2021	**Best Research Talk** - Selected best pitch talk at the Virtual Conference on Computational Audiology
2019	**Hammer Fellowship** - Award that empowers first-year IDSS PhD students
2019	**Best Masters Thesis Nominee** - One of four finalists for the best thesis award in Technology & Policy
2017	**Centrale Talent** - Reward outstanding initiatives and achievements of a student at École Centrale Paris
2017	**Coordination Jeunes Promotions** - Best associative project for the BeeGames Association

Publications (CS: theoretical computer science, E: quantitative empirical science, P: philosophy)

2012	**Education Award** - Reward exceptional academics, leadership and civic life engagement in Ile-de-France

Peer-reviewed ([Link](#) to Google Scholar page)

- CS *In Defense of Liquid Democracy,* (alphabetical) Halpern, Halpern, Jadbabaie, Mossel, Procaccia, Revel, **Proceedings of Economics and Computation EC 23**, 2023
- P How to Open Democratic Representation? Revel, **European Journal of Risk Regulation, Cambridge University Press,** 2023
- CS How Many Representatives Do We Need? The Optimal Size of an Epistemic Congress, Revel*, Lin*, Haleprn* - **Proceedings of 36th AAAI Conference on Artificial Intelligence, 2022**
- E *Liquid Democracy in Practice: An Empirical Analysis of its Performance,* Revel, Haleprn, Berinsky, Jadbabaie - **Equity and Access in Algorithms, Mechanisms, and Optimization,** 2022
- E *Varieties of Resonance: The Subjective Interpretations and Utilizations of Media Output in France,* Park, Abecassis, Revel - **Poetics**, 2021

Working Papers

- CS *In Defense of Liquid Democracy* (under review, [link](#)) with Halpern, Halpern, Mossel, Procaccia, Jadbabaie
- CS *Selection Representative Bodies: An Axiomatic View* (under review), with Bohemer, Brill, Colley, Elkind, Faliszewski
- E *Native advertisement and the credibility of online publishers* (under review, [link](#)) with Tohidi, Eckles, Berinsky, Jadbabaie

Media Articles

- *Foundry: Think global, act local.* ([link](#)) with Papaemmanuel - **Palantir Blog**, Dec.2022
- *Rules of Thumb: Adjusting Class Schedules in Fall Term '20* ([link](#)) with Haupt - **MIT ISOLAT**, Aug.2020
- *A privacy-preserving opt-out mechanism for returning to campus* ([link](#)) with Haupt - **MIT ISOLAT**, July.2020

Research Conference (selection)

- *Internet, you lie! (in French)* ([link](#)) — **L'Hémicycle**, Aug. 2019
- **Economics and Computation EC'23 (Kings College)** Talk: In Defense of Liquid Democracy
- **AI for Institutions (Cooperative AI Foundation)** Lightening Talk: AI Governance
- **Plurality Research Network Conference (UC Berkeley)** Lightening Talk: Governance with Proxy Democracy ([link](#))
- **Long-term Risks and Future Generation Worksop (Maastricht University)** Talk: *How to Open Democratic Representation?*
- **International Workshop on Reimagining Democracy 2022** Talk: *How to Open Democratic Representation* ([link](#))
- **INFORMS 2022** Talk: *Democracy Mechanisms for emerging forms of democratic participation*

- **EAAMO 2022** <u>Oral Presentation</u>: *Liquid Democracy in Practice (Presented by D Halpern)*
- **SDSCon 2022 (MIT)** <u>Lightening Talk & Poster Session</u>: *Collective Decision-Making in Representative Democracy*
- **WiDS 2022** <u>Lightening Talk</u>: *Collective Decision-Making in Democracy*
- **AAAI Conference on Artificial Intelligence 2022** <u>Selected Oral Presentation & Poster</u>: *Optimal Congress Size*
- **LIDS Student Conference 2022 (MIT)** <u>Talk & Poster</u>: *Collective Decision-Making on Binary Issues in Representative Democracy*
- **VCCA21 2021** <u>Talk</u>: *What can we learn about tinnitus from social media posts? (Best Pitch Award)*
- **IC2S2 2020** <u>Talk</u>: *The effect of native advertising on the U.S. News Industry*
- **College of Computing Launch 2018 (MIT)** <u>Poster</u>: *Online Ads: Failure of Quick-Fix Solution to Journalism Crisis*
- **TMP Consortium 2018 (Delft University)** <u>Talk</u>: *The role of the CRNs in online misinformation*

Invited Speaker (selection)

- **Spread of Misinformation and Collective Action (MIT)** <u>Talk</u>: The Institutional Design Problem - Apr.23 ([link](#))
- **Harvard Department of Mathematics** *The Mathematics of Democracy - Mar.23* ([link](#))
- **Entretiens de New York** *Garry Kasparov and Hubert Vedrine interview - Mar.23* ([link](#))
- **Metagov Seminar** *Liquid Democracy in Practice - Feb.23* ([link](#))
- **Computational Social Choice Seminar** *Democratic Innovations and Social Choice - Nov.22* ([link](#))
- **GoogleX Alphabet Modeling Seminar** *Modeling Democratic Innovations - Nov.22*
- **University of Amsterdam** *Innovating with Democratic Representation - Oct.22*
- **Datascientest** *Data and Models to Study Alternative Voting Systems - Sept.22* ([link](#))
- **HEC Paris** *Innovating with Democratic Representation - Sept.22*
- **bluenove & Hypermind** *Liquid Democracy and Collective Intelligence - Apr.22*
- **University of Groningen** *In Defense of Liquid Democracy - Mar.22*
- **Debating Europe Think Tank** *What should democracy look like in the 21st century? - Feb.22* ([link](#))
- **MIT Sloan Fellows Speaker Series** *Collective Intelligence: Applications to Democracy - Dec.21*
- **WiDS 2020** *Data weaponized, data scrutinized: a war on information*, May20

News Coverage

- **IDSS News**, *Aligning Decision-Making Processes with Democratic Values* ([link](#)) - Apr.23
- **CentraleSupelec Social Media**, *Maths rescuing democracy +100,000 views across social media* ([link](#)) - Feb.22
- **MIT News & LIDS/All**, *Understanding how people make sense of information in the information age* ([link](#) & [link](#)) - Nov.20
- **MIT News**, Combining artificial intelligence with their passions ([link](#)) - Aug.19
- **Alter Ago Le Mag** *Manon Revel: En deça et au-delà des algorithmes* (Under and beyond algorithms) ([link](#)) - Sept. 18

Skills and Interests

Languages: Python (preferred), R, SQL, HTML (experienced), JAVA, Matlab, CSS (basic), French (native), English (fluent), Italian (proficient), Spanish (basic)

Journalism: Created a newspaper (The Fool on the Hill) and worked for two radios (Radio Parentheses and Soleil de Re), writing editorials and hosting live shows between 2010 and 2018. Conducted monthly interviews.

Basketball: Practice in competition, national level. Coach in summer camp (TBA) and of university men's B team

Windsurfer, runner, books lover