

# Daniel Aronoff

daronoff@mit.edu

<https://www.media.mit.edu/people/daronoff/projects/> · (248)840-1476

Citizenship: USA

## Research interests

Digital currencies, Smart contracts, Blockchain protocols, Industrial organization, Financial markets and Machine learning

## Education

2017 - 2022

**Massachusetts Institute of Technology** – Cambridge, MA

PhD in Economics

Thesis Advisors: Professors Nikhil Agarwal, Glenn Ellison and Robert Townsend

Doctorate awarded September 2022

**London School of Economics and Political Science** – London, UK

B.Sc. Econ in Philosophy and Economics

Tutors: Professors Peter Urbach (Philosophy) and John Sutton (Economics)

Graduated with *First Class Honours*

**University of Michigan** – Ann Arbor, MI

Studied Russian Intellectual History

Mentor: Professor Arthur Mendel

## Honors and academic appointments

2022 - Present

Research Scientist, MIT Media Lab @ Digital Currency Initiative

2022 - Present

Research Associate, The Laboratory for Economic Analysis and Design at MIT

2023

Program Committee *Cryptoeconomic Systems Conference (CES Spring 2024)* at MIT

2022

Program Committee *4th Conference on Advances in Financial Technology (AFT 2022)*, MIT

2019 - 2022

MIT Media Lab Digital Currency Initiative Collaborator

2021

Co- Principal Investigator (with Isaac Ardis), Ethereum Classic Labs Game Theoretic Security Study

2021

Referee/reviewer *Cryptoeconomics Journal*. MIT Press

## Publications and Working Papers

- 2000- Present **Over 100 Published Letters to the Editor, The Financial Times Newspaper**  
Daniel Aronoff
- 2023 **Conservation Priorities and Environmental Offsets: Markets for Florida Wetlands**  
Daniel Aronoff and Will Rafey  
*National Bureau of Economic Research* <https://www.nber.org/papers/w31495>, July 2023
- 2023 **DeFi for the Securites Industry**  
Daniel Aronoff  
*Finadium Research Report*, April 2023
- 2022 **Bank Stablecoins vs. Central Bank Digital Currencies for Capital Markets**  
Daniel Aronoff and Josh Galper  
*Finadium Research Report*, October 2022
- 2022 **Essays on Incentive Designs to Improve Market Performance**  
Daniel Aronoff  
*Doctoral Dissertation, MIT*
- 2022 **A Smart Contract for the US Treasury Market**  
Daniel Aronoff and Robert Townsend  
*Working paper, MIT*
- 2022 **Coordination Problems, Leverage Constraints and Smart Contract Solutions for the Repo Market**  
Daniel Aronoff and Robert Townsend  
*Working paper, MIT*
- 2022 **NP+BRC: A Proof-of-Work Protocol Modification to Reduce Bitcoin Energy Consumption**  
Daniel Aronoff  
*Working Paper, MIT*
- 2022 **ADESS: A Proof of Work Protocol Modification to Deter Double-Spend Attacks**  
Daniel Aronoff and Isaac Ardis  
*Working Paper, MIT*

- 2020 **Double-Spend Counterattacks: Threat of Retaliation in Proof-of-Work Systems**  
 Daniel Moroz, Daniel Aronoff, Neha Narula and David Parkes  
 Arxiv: <https://arxiv.org/abs/2002.10736>
- 2019 **Binance Bets the Farm**  
 Daniel Aronoff  
 Medium: <https://medium.com/coinmonks/binance-bets-the-house-9a2d1a46af60>
- 2016 Book  
**The Financial Crisis Reconsidered: The Mercantilist Origin of Secular Stagnation and Boom-Bust Cycles**  
 Daniel Aronoff.  
 Palgrave-Macmillan/Springer: <https://link.springer.com/book/10.1007/978-1-137-54789-7>
- 2015 Book  
**A Theorey of Accumulation and Secular Stagnation: A Malthusian Approach to Understanding a Contemporary Malaise**  
 Daniel Aronoff.  
 Palgrave-Macmillan/Springer: <https://link.springer.com/book/10.1057/9781137562210>

## Research experience

- 1989 - 1990 RA for the book **Sunk Cost and Market Structure: Price Competition, Advertising and the Evolution of Concentration**  
 by John Sutton. Published by MIT Press.  
<https://mitpress.mit.edu/books/sunk-costs-and-market-structure>

## Teaching and study group experience

- Fall term 2022 - Digital Finance Working Group  
 Weekly research meeting of MIT Econ PhD students, MIT Media Lab Digital Currency Initiative computer scientists and Federal Reserve economists  
 Position: Co- creator and organizer with Prof. Robert M. Townsend

- Fall term 2021 - Central Bank Digital Currency Reading Group  
Spring term 2022 Bi-weekly research meeting of MIT Econ PhD students, MIT Media Lab Digital Currency Initiative computer scientists and Federal Reserve economists  
Position: Creator and organizer
- Fall 2018 **Teaching assistant, The Challenge of World Poverty. MIT 14.73**  
Professors David Atkin and Esther Duflo

## Industry experience

- April 2022 - **RCM Labs** Digital Currency Advisor  
Present
- 1994 - 2014 **Landon Companies** President  
Real estate investment and development in industrial, retail and residential. Environmental markets in wetland and endangered species offset credits

## Talks and tutorials

- July 2023 Conservation priorities and environmental offsets: Markets for Florida wetlands  
*Presentation at the National Bureau of Economic Research Summer Institute*
- May 2023 Targeted Nakamoto: A Proof-of-Work Protocol Modification to Improve Security and Limit Energy Consumption  
*Presentation to Chanicode Research Conference*
- September 2022 Conservation priorities and environmental offsets: Markets for Florida wetlands  
*Presentation to the MIT Economics Industrial Organization Departmental Workshop*  
lead: Daniel Aronoff
- May 2022 A Smart Contract for the US Treasury Market  
*Presentation to the MIT Media Lab Digital Currency Initiative and the Federal Reserve Bank of Boston Project Hamilton CBDC Team*
- May 2022 Conservation priorities and environmental offsets: Markets for Florida wetlands  
*Presentation to the University of California System Environmental Economics Workshop*  
lead: Co-author Will Rafey
- March 2022 A Proof of Work Protocol to Reduce Bitcoin Energy Consumption  
*Presentation to the MIT Media Lab Digital Currency Initiative*

- January 2022 Wholesale CBDC and Ledger UST in the Repo Market  
*Finadium Roundtable on CBDC and Repo*
- May 2021 Rethinking Currency: CBDC in the Context of the Current US Monetary System  
*Rethinking Economics NL Invited Lecture: <https://www.youtube.com/watch?v=wRamd3xaJ8>*
- February 2021 Coordination Problems, Leverage Constraints and A Smart Contract Implementation for the Repo Market  
*Presentation to the MIT Media Lab Digital Currency Initiative and the Federal Reserve Bank of Boston Project Hamilton CBDC Team*
- January 2021 Conservation priorities and environmental offsets: Markets for Florida wetlands  
*Presentation to the University of California at Berkeley Environmental Economics Workshop lead: Co-author Will Rafey*
- November 2019 Double-Spend Counter-Attacks: Threat of Retaliation in Proof-of-Work Systems  
*Presentation to the University of Chicago, Becker-Friedman Institute: Cryptocurrencies and Blockchains Conference lead: Co-author Daniel Moroz*

## Volunteer positions

- 2003 - 2009 Grand Valley State University, Michigan USA  
*Member of the Board of Trustees. Vice-Chairman 2006-2008*
- 2007 - 2010 Roeper School, Bloomfield Hills MI  
*Member of the Board of Trustees*

## Technical skills

### Programming languages

Proficient in Python and Lisp (Scratch)

Familiar with: Julia, Gen (a Julia DSL for Probabilistic Modeling) and Pytorch

### Software

LaTeX

### Languages

English (fluent - occasionally)

## Other interests

My Family, Baseball, Shakespeare, Cross-fit, Coffee, Political Philosophy, Chinese history/culture/politics