

# Derek Sorensen

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## Curriculum Vitae

### Education

- 2019 - **PhD in Computer Science**, *University of Cambridge*.  
Present
- 2016–2017 **MSc in Mathematics and Foundations of Computer Science**,  
*University of Oxford*.
- 2013–2016 **BSc in Mathematics**, *Brigham Young University*, Provo, UT, USA.
- 2015–2016 **Exchange year, Mathematics**, *Higher School of Economics*, Moscow, Russia.

### Interests

I am interested in blockchain technology and its applications as financial infrastructure, a novel environment for new and decentralised business models, the foundations of a digital metaverse, and as a social coordination mechanism. My current focus is sustainability, in particular tokenized carbon offsets, and formal verification of smart contracts.

### Experience

- May 2021 - **Sustainability Lead**, *Tezos Foundation*, London, United Kingdom.
- Aug 2022 - Lead business development for sustainability on the Tezos blockchain, including tokenized carbon offsets, regenerative finance (ReFi), and sustainability-oriented art marketplaces.  
- Member of the Technical Advisory Committee, the funding body for the Tezos Foundation
- March 2021 - **Consultant: Decentralised Finance**, *Gro*, London, United Kingdom.  
May 2021 - Advised on decentralised deposit insurance on the Ethereum Blockchain  
- Built optimisation model for the system we built to optimise parameters for consumers
- Jan 2021 - **Consultant: Intellectual Property on Blockchains**, Cambridge, United Kingdom.
- March 2021 - Identified industries most likely to tokenise intellectual property rights  
- Delivered specific, technical details to tokenise intellectual property rights and how it might integrate with existing business models and regulation
- Oct 2019 - **Formal Verification Engineer**, *Clearmatics*, London, United Kingdom.
- Nov 2020 - Designed, formally specified, and formally verified enterprise blockchains  
- Advised the software development life cycle to formally verify Ethereum smart contracts  
- Lectured to the engineering team on formal methods
- Jul 2019 - **Consultant: Cryptocurrency Design**, *Digital Asset*, New York, NY.
- Sep 2019 - Designed and built a functional cryptocurrency that supports legal compliance and business-friendly privacy features  
- Specified privacy model, fee structure, minting structure, and incentive systems

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- March 2018 - **Consultant: Blockchain Language Verification**, *RChain Coop*, Seattle, WA.  
 Oct 2018 - Developed the formal semantics of RChain's smart contracting language Rholang  
 Mar 2018 - **Research Mathematician**, *Pyrofex Corporation*, Provo, UT.  
 Jun 2019 - Research in the fundamental algorithms supporting cryptocurrencies.  
 - Developed cryptocurrency that can process transactions at the rate of Visa.  
 - Built the formal semantics for Rholang in K-Framework for the RChain Coop.
- 2017-2019 **Adjunct Faculty (Mathematics)**, *Utah Valley University*, Orem, UT.  
 - Wrote lecture notes, homework, quizzes, exams.  
 - Marked and give feedback to all written work.

## Preprints

- 2019 Maric, O., Lochbihler, A., Sorensen, D. CantonCoin: Gaining Horizontal Scalability and Privacy with Distributed Commits Instead of Global Consensus. (2019)  
 2018 Butt, K., Sorensen, D., Stay, M. Casanova. (2018)  
<https://arxiv.org/abs/1812.02232>  
 (Awaiting response from IEEE.)

## Publications

- 2019 Butt, K., Sorensen, D. *Streamlining Classical Consensus*.  
 Appeared in IJBC.  
 2019 Sorensen, D. *Establishing Standards for Consensus on Blockchains*.  
 Appeared in the 2019 International Conference on Blockchain.  
 2017 A. Francis, D. Smith, D. Sorensen and B. Webb, *Extensions and applications of equitable decompositions for graphs with symmetries*. *Linear Algebra and its Applications* **532** (2017), 432-462.

## Scholarships and Awards

- 2016 Robert K Thomas Honors Scholarship  
 2015 AMS Math in Moscow Travel Grant  
 2015 Marc Burton Scholarship  
 2015 Best of session at the 2015 BYU Spring Research Conference  
 2014 & 2015 Award for Excellence in Undergraduate Research  
 2014 & 2015 Award for Academic Excellence in Mathematics

## Teaching

- Mich. 2022 Types  
 Lent 2021 Intro to Crypto and DeFi  
 Mich. 2020 Economics, Law, and Ethics (University of Cambridge)  
 Mich. 2020 Analysis & Topology (University of Cambridge)  
 Summer 2020 Artificial Intelligence in Blockchain Security (Immerse Education)

- Summer 2020 Relating the Price of Bitcoin and its Related Cryptocurrencies to Their Respective Trading Volumes (Horizon Inspires)
- Summer 2020 Predicting NBA Playoff Results With Machine Learning (Horizon Inspires)
- Lent 2020 Groups, Rings, and Modules (University of Cambridge)
- Spring 2019 Stat 1040 - Introduction to Statistics (Utah Valley University)
- Spring 2018 Stat 1040 - Introduction to Statistics (Utah Valley University)
- Spring 2018 Stat 2040 - Introduction to Statistics (Utah Valley University)
- Spring 2018 Math 1050 - College Algebra (Utah Valley University)

## Presentations

- 2022 Applications of Blockchains to Decentralised Finance, Markets, Art, and Beyond, **University of Cambridge**, *Cambridge, England*
- 2021 Blockchain & DeFi: The Technology and its Applications, **Judge Business School, University of Cambridge**, *Cambridge, England*
- 2018 Rholang Semantics and the K-Framework, **RCon3**, *Berlin, Germany*
- 2018 Formal Verification Panel, **RCon3**, *Berlin, Germany*
- 2015 Presentation at the 2015 BYU Spring Research Conference
  - Voted best of session
- 2014 Presentation at the 2014 BYU Spring Research Conference

## Summer Schools

- 2021 Oxford Fintech Programme
- 2019 Interenational Conference and Summer School of Homotopy Type Theory
- 2017 CMI-LMS Research School Algebraic Topology of Manifolds

## Computer skills

Coq, OCaml, CameLIGO, Solidity, DAML, K Framework

## Spoken Languages

- Native English
- Fluent Spanish
- Intermediate Russian
- Basic French