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# Jeremy Clark

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# Employment

## Academic Positions

- Associate Professor, Concordia Institute for Information Systems Engineering (CIISE), Concordia University. 1 June 2018 – present.
- Assistant Professor, Concordia Institute for Information Systems Engineering (CIISE), Concordia University. 1 August 2013 – 31 May 2018.

## Professional Designations

- Professional Engineer (Non-Practicing Status). Professional Engineers of Ontario (PEO). December 2018 – present.

## Consulting

- Subject matter expert on undisclosed digital asset subject, *Susman Godfrey LLP*. November 2022 – present.
- Subject matter expert on undisclosed cryptocurrency subject, *Williams & Connolly LLP*. January 2018 – March 2018.
- Subject matter expert on internet voting security, *City of Toronto*, RFP 3405-13-3197. November 2014 – September 2015.

## Advisory Boards

- Canadian Blockchain Supply Chain Association (CBSCA), Advisory Board, 2019 – present.
- 3iQ Digital Asset Management, Advisory Board, 2017 – 2021.

## Leaves

- Sabbatical: 1 July 2020 – 30 June 2021
- Parental: 27 October 2019 – 26 April 2020

# Academic Background

## Degrees

- Ph.D., Computer Science, University of Waterloo. Graduated: June 2011.
- M.A.Sc., Electrical Engineering, University of Ottawa. Graduated: October 2007.
- B.E.Sc., Computer Engineering, University of Western Ontario. Graduated: April 2004.

## Post-Doctorate

- Post Doctoral Fellow, School of Computer Science, Carleton University. 1 July 2011 – 1 August 2013.

## Awards

- Excellence in Teaching Award, Junior Faculty Member. Concordia University, 2017.
- Postdoctoral Fellowships Program (PDF). Natural Sciences and Engineering Research Council of Canada (NSERC). 2011–2013
- Alumni Gold Medal (Top Graduating PhD Student). University of Waterloo. 2011
- Alexander Graham Bell Canada Graduate Scholarship (CGS). Natural Sciences and Engineering Research Council of Canada (NSERC). 2008–2011
- David R. Cheriton Graduate Scholarship. University of Waterloo. 2008–2011
- President's Graduate Scholarship. University of Waterloo. 2008–2011
- Grand Prize: Best Election System. "The Punchscan Voting System." University Voting Systems Competition (VoComp). 2007

# Publications

## Summary

Unlike other fields, the most active venues for security research are **refereed conferences**, as opposed to refereed journals. Given the competitive nature of the top tier conferences, mid-tier venues are often called **workshops**. Unlike in other fields, these are also rigorously peer reviewed venues for completed technical papers and are typically competitive. In our field, the term workshop denotes a venue that is specific to a narrow domain, as opposed to conferences and symposiums, which tend to accept a broad range of papers.

As one illustrative example, our well-publicized work on the Scantegrity voting system (see media below) appeared initially at a **workshop** (USENIX EVT/WOTE which is co-located with USENIX Security; a top-4). The following year, we published a fuller version of the paper in a **journal** (IEEE Transactions on Information Forensics and Security). The workshop version has been cited 206 times, while the journal version has been cited only 114 times.

## Statistics

| Type                             | Lifetime | Concordia |
|----------------------------------|----------|-----------|
| Journals & Periodicals           | 11       | 9         |
| Refereed Conferences & Workshops | 49       | 29        |
| Book Chapters                    | 5        | 2         |

Citations, h-index and i10 index is based on Google Scholar. Google Scholar is automated and not necessarily fully accurate; however it gives representative results.

| Updated Fall 2023 | Lifetime |
|-------------------|----------|
| Citations         | 8810     |
| h-index           | 30       |

## Abbreviations

\**Supervised student*                      *AR = Acceptance rate*                      *Rank = Core2021*  
*LNCS XXXX = Volume XXXX of Springer's Lecture Notes in Computer Science*

## Refereed conference publications

|     |  |
|-----|--|
| C49 | M. Moosavi*, M. Salehi*, D. Goldman, J. Clark. Fast and Furious Withdrawals from Optimistic Rollups. <i>Advances in Financial Technology</i> , 2023.   |
| C48 | A. Arun, J. Bonneau, J. Clark. Short-lived zero-knowledge proofs and signatures. <i>28th Annual International Conference on the Theory and Application of Cryptology and Information Security (ASIACRYPT)</i> , 2022. [Rank: A]  |
| C47 | D. Demirag*, M. Namazi, E. Ayday, J. Clark. Privacy-Preserving Link Prediction. <i>17th DPM International Workshop on Data Privacy Management</i> , 2022.  |
| C46 | D. Chaum, R.T. Carback, J. Clark, C. Liu, M. Nejadgholi*, B. Preneel, A.T. Sherman, M. Yaksetig, F. Zagorski, B. Zhang. VoteXX: A Solution to Improper Influence in Voter-Verifiable Elections. <i>Seventh International Joint Conference on Electronic Voting (E-VOTE-ID)</i> , 2022. |
| C45 | M. Salehi*, J. Clark, M. Mannan. Not so immutable: Upgradeability of Smart Contracts on Ethereum. <i>WTSC, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2022.   |
| C44 | M. Moosavi*, J. Clark. Lissy: Experimenting with on-chain order books. <i>WTSC, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2022.  |
| C43 | D. Demirag*, J. Clark. Opening sentences in academic writing: How security researchers defeat the blinking cursor. <i>ACM Technical Symposium on Computer Science Education (SIGCSE TS)</i> , 2022. [Rank: A]  |
| C42 | S. Eskandari*, M. Salehi*, W. C. Gu, J. Clark. SoK: Oracles from the Ground Truth to Market Manipulation. <i>ACM Advances in Financial Technology</i> , 2021   |
| C41 | M. Salehi*, J. Clark, M. Mannan. Red-Black Coins. <i>DeFi, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2021.   |
| C40 | D. Demirag*, J. Clark. Absentia: secure function evaluation on Ethereum. <i>WTSC, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2021.  |
| C39 | M. Nejadgholi*, N. Yang*, J. Clark. Ballot secrecy for liquid democracy. <i>VOTING, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2021.  |
| C38 | J. Clark, P.C. van Oorschot, S. Ruoti, K. Seamons, D. Zappala. Securing Email. <i>Proceedings of Financial Cryptography and Data Security (FC)</i> , 2021. [Rank: A]   |
| C37 | M Rahimian*, S Eskandari*, J. Clark. Resolving the Multiple Withdrawal Attack in ERC20 Tokens. <i>2019 IEEE Workshop on Security &amp; Blockchains (IEEE S&amp;B)</i> .  |
| C36 | E. Mangipudi, K. Rao, J. Clark, A. Kate. Automated Penalization of Data Leakage using Crypto-augmented Smart Contracts. <i>2019 IEEE Workshop on Security &amp; Blockchains (IEEE S&amp;B)</i> .   |
| C35 | S. Eskandari*, M. Moosavi*, J. Clark. Transparent Dishonesty: front-running attacks on Blockchain. <i>Trusted Smart Contracts, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2019. LNCS 11599.   |

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| C34 | M. Elsheikh, J. Clark, A. Youssef. Deploying PayWord on Ethereum. <i>Trusted Smart Contracts, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2019. LNCS 11599.  |
| C33 | V. Zhao, J. Choi, D. Demirag*, M. Mannan, K. Butler, E. Ayday, J. Clark. One-time programs made practical. <i>Proceedings of Financial Cryptography and Data Security (FC)</i> , 2019. LNCS 11598. [Rank: A]   |
| C32 | S. Eskandari*, A. Leoutsarakosg, T. Mursch, J. Clark. A first look a browser-based cryptojacking. <i>2018 IEEE Workshop on Security &amp; Blockchains (IEEE S&amp;B)</i> .   |
| C31 | C. Okoye*, J. Clark. Toward Cryptocurrency Lending. <i>Trusted Smart Contracts, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2018. LNCS 10958.  |
| C30 | M. Moosavi*, J. Clark. Ghazal: toward truly authoritative web certificates using Ethereum. <i>Trusted Smart Contracts, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2018. LNCS 10958.   |
| C29 | S. Eskandari*, J. Clark, M. Adham, V. Sundaresan. On the feasibility of decentralized derivatives markets. <i>Trusted Smart Contracts, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2017. LNCS 10323.   |
| C28 | N. Yang* and J. Clark. Practical Governmental Voting with Unconditional Integrity and Privacy. <i>VOTING, Proceedings of Financial Cryptography and Data Security: FC Workshops</i> , 2017. LNCS 10323.  |
| C27 | S. Eskandari*, J. Clark, A. Hamou-Lhadj. "Buy your Coffee with Bitcoin: Real-World Deployment of a Bitcoin Point of Sale Terminal." <i>Proceedings of the 13th IEEE International Conference on Advanced and Trusted Computing (Bitcoin Track)</i> , 2016.   |
| C26 | G. Dagher*, B. Bünz, J. Bonneau, J. Clark, D. Boneh. Provisions: Privacy-preserving proofs of solvency for Bitcoin exchanges. <i>Proceedings of the 22nd ACM Conference on Computer and Communications Security (CCS)</i> , 2015. [Rank: A+] AR: 19%   |
| C25 | J. Bonneau, A. Miller, J. Clark, A. Narayanan, J. Kroll, E. W. Felten. Research Perspectives and Challenges for Bitcoin and Cryptocurrencies. <i>Proceedings of the 34th IEEE Symposium on Security and Privacy (IEEE SSP)</i> , 2015. [Rank: A+] AR: 14%.<br><a href="#">3rd highest cited security paper from 2015</a> |
| C24 | S. Eskandari*, D. Barrera, E. Stobert, J. Clark. A First Look at the Usability of Bitcoin Key Management. <i>Proceedings of the NDSS Workshop on Usable Security (USEC)</i> , 2015.  |
| C23 | D. Barrera, D. McCarney, J. Clark, P. C. van Oorschot. Baton: Certificate Agility for Android's Decentralized Signing Infrastructure. <i>Proceedings of the 7th ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec)</i> , 2014.   |
| C22 | J. Bonneau, J. Clark, E. W. Felten, J. A. Kroll, A. Miller, A. Narayanan. On Decentralizing Prediction Markets and Order Books. <i>Proceedings of the 13th Annual Workshop on the Economic of Information Security (WEIS)</i> , 2014.  |

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| C21 | M. Backes, J. Clark, P. Druschel, A. Kate, M. Simeonovski. Back-Ref: Accountability in Anonymous Communication Networks. <i>Proceedings of the 12th International Conference on Applied Cryptography and Network Security (ACNS)</i> , 2014. LNCS 8479. AR: 22%.   |
| C20 | J. Bonneau, A. Narayanan, A. Miller, J. Clark, J. A. Kroll, E. W. Felten. Mixcoin: Anonymity for Bitcoin with Accountable Mixes. <i>Proceedings of the 18th Conference on Financial Cryptography and Data Security (FC)</i> , 2014. LNCS 8437. [Rank: A] AR: 22%   |
| C19 | F. Zagorski, R. Carback, D. Chaum, J. Clark, A. Essex, P. Vora. Remotegrity: Design and Use of an End-to-End Verifiable Remote Voting System. <i>Proceedings of the 11th International Conference on Applied Cryptography and Network Security (ACNS)</i> , 2013. AR: 23%.   |
| C18 | J. Clark and P. C. van Oorschot. SSL and HTTPS: Revisiting past challenges and evaluating certificate trust model enhancements. <i>Proceedings of the 34th IEEE Symposium on Security and Privacy (IEEE SSP)</i> , 2013. [Rank: A+] AR: 12%.   |
| C17 | D. McCarney, D. Barrera, J. Clark, S. Chiasson, and P. C. van Oorschot. Tapas: Design, implementation, and usability evaluation of a password manager. <i>Proceedings of the 2012 Annual Computer Security Applications Conference (ACSAC)</i> , 2012. AR: 19%.  |
| C16 | D. Barrera, J. Clark, D. McCarney, P. C. van Oorschot. Understanding and improving app installation security mechanisms through empirical analysis of Android. <i>Proceedings of the 2nd Annual ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM)</i> , 2012. AR: 37%.   |
| C15 | A. Essex, J. Clark, and U. Hengartner. Cobra: Toward concurrent ballot authorization for internet voting. <i>Proceedings of the 2012 USENIX Electronic Voting Technology Workshop/Workshop on Trustworthy Elections (EVT/WOTE)</i> , 2012. AR: 35%.  |
| C14 | J. Clark and A. Essex. CommitCoin: Carbon dating commitments with Bit-coin. <i>Proceedings of the 16th Conference on Financial Cryptography and Data Security (FC)</i> , 2012. LNCS 7397. [Rank: A]  |
| C13 | J. Clark and U. Hengartner. Selections: an internet voting system with over-the-shoulder coercion-resistance. <i>Proceedings of the 15th Conference on Financial Cryptography and Data Security (FC)</i> , 2011. LNCS 7035. [Rank: A]  |
| C12 | R. Carback, D. Chaum, J. Clark, J. Conway, A. Essex, P. S. Herrnson, T. Mayberry, S. Popoveniuc, R. L. Rivest, E. Shen, A. T. Sherman, P. L. Vora. Scantegrity II Municipal Election at Takoma Park: The First E2E Binding Governmental Election with Ballot Privacy. <i>Proceedings of the 19th USENIX Security Symposium</i> , 2010. [Rank: A+] AR: 15%. |
| C11 | A. Essex, J. Clark, U. Hengartner, C. Adams. Eperio: Mitigating Technical Complexity in Cryptographic Election Verification. <i>Proceedings of the 2010 USENIX Electronic Voting Technology Workshop/Workshop on Trustworthy Elections (EVT/WOTE)</i> , 2010.  |
| C10 | J. Clark, U. Hengartner. On the Use of Financial Data as a Random Beacon. <i>Proceedings of the 2010 USENIX Electronic Voting Technology Workshop/Workshop on Trustworthy Elections (EVT/WOTE)</i> , 2010.   |



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| C09 | A. T. Sherman, R. Carback, D. Chaum, J. Clark, A. Essex, P. S. Herrnson, T. Mayberry, S. Popoveniuc, R. L. Rivest, E. Shen, B. Sinha, P. L. Vora. Scantegrity Mock Election at Takoma Park. <i>Proceedings of the 4th International Conference on Electronic Voting (EVOTE)</i> , 2010.                                   |
| C08 | J. Clark, U. Hengartner, K. Larson. Not-So Hidden Information: Optimal Contracts for Undue Influence in E2E Voting Systems. <i>Proceedings of the Second IAVoSS International Conference on E-voting and Identity (Vote-ID)</i> , 2009, LNCS 5767.  |
| C07 | A. Essex, J. Clark, U. Hengartner, C. Adams. How to Print a Secret. <i>Proceedings of the 4th USENIX Workshop on Hot Topics in Security (HotSec)</i> , 2009. AR: 28%.   |
| C06 | D. Chaum, R. Carback, J. Clark, A. Essex, S. Popoveniuc, R. L. Rivest, P. Y. A. Ryan, E. Shen A. T. Sherman. Scantegrity II: End-to-end verifiability for optical scan election systems using invisible ink confirmation codes. <i>Proceedings of the 2008 USENIX Electronic Voting Technology Workshop (EVT)</i> , 2008. |
| C05 | J. Clark, U. Hengartner. Panic passwords: Authenticating under duress. <i>Proceedings of the 3rd USENIX Workshop on Hot Topics in Security (HotSec)</i> , 2008. AR: 32%.  |
| C04 | A. Essex, J. Clark, C. Adams. Aperio: High integrity elections for developing countries. <i>Proceedings of the IAVoSS Workshop on Trustworthy Elections (WOTE)</i> , 2008.  |
| C03 | J. Clark, P.C. van Oorschot, C. Adams. Usability of anonymous web browsing: An examination of Tor interfaces and deployability. <i>Proceedings of the Third Symposium On Usable Privacy and Security (SOUPS)</i> . ACM International Conference Proceedings Series, vol 229, 2007, pp. 41–51. AR: 31%.                    |
| C02 | J. Clark, A. Essex, C. Adams. On the security of ballot receipts in E2E voting systems. <i>Proceedings of the IAVoSS Workshop on Trustworthy Elections (WOTE)</i> , 2007.   |
| C01 | A. Essex, J. Clark, R. T. Carback III, S. Popoveniuc. Punchscan in practice: An E2E election case study. <i>Proceedings of the IAVoSS Workshop on Trustworthy Elections (WOTE)</i> , 2007.  |

## Articles in journals & periodicals

\*Supervised student

JIF = 2021 Journal Impact Factor, Journal Citation Reports, Web of Science / Clarivate

|     |   |
|-----|---|
| J11 | E.V. Mangipudi, K. Rao, J. Clark, A. Kate. Pepal: Penalizing multimedia breaches and partial leakages. <i>International Journal of Information Security</i> , September 2023. |
| J10 | Raphael Auer, Rainer Böhme, Jeremy Clark, Didem Demirag*. Mapping the Privacy Landscape for Central Bank Digital Currencies. <i>ACM Queue</i> , June/July 2022.               |
| J09 | E. Pimentel, E. Boulianne, S. Eskandari,* J. Clark. Systemizing the Challenges of Auditing Blockchain-Based Assets. <i>Journal of Information Systems</i> , Summer 2021.      |
| J08 | J. Clark, D. Demirag*, S. Moosavi*. Demystifying Stablecoins. <i>Communications of the ACM</i> . 63(7):40-46. July 2020. [JIF: 14.065]  |

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| J07 | S. Ruoti, B. Kaiser, A. Yerukhimovich, J. Clark, R. Cunningham. Blockchain Technology: What is it good for? <i>Communications of the ACM</i> . 63(1):46-53. January 2020. [JIF: 14.065]  |
| J06 | G. Dagher*, B. Fung, N. Mohammad, J. Clark. SecDM: Privacy-preserving Data Outsourcing Framework with Differential Privacy. <i>Knowledge and Information Systems</i> . 62:1923–1960, 2020.   |
| J05 | A. Narayanan, J. Clark. Bitcoin's Academic Pedigree. <i>Communications of the ACM</i> . 60(12):36-45. 2017. [JIF: 14.065]  |
| J04 | E. Moher, J. Clark, A. Essex. Diffusion of voter responsibility: potential failings in E2E receipt checking. <i>USENIX Journal of Election Technology and Systems</i> . 3(1):1-17. 2014.   |
| J03 | J. Clark. Enhancing Anonymity: Cryptographic and statistical approaches for shredding our digital dossiers. <i>ACM Computing Reviews</i> , 2014. Invited.  |
| J02 | D. Chaum, R. Carback, J. Clark, A. Essex, S. Popoveniuc, R. L. Rivest, P. Y. A. Ryan, E. Shen, A. T. Sherman, P. L. Vora. Scantegrity II: End-to-End Verifiability by Voters of Optical Scan Elections Through Confirmation Codes. <i>IEEE Transactions on Information Forensics and Security</i> , 4(4):611-627, 2009. [JIF: 7.231] |
| J01 | D. Chaum, A. Essex, R. T. Carback III, J. Clark, S. Popoveniuc and A. T. Sherman, P. Vora. Scantegrity: end-to-end voter verifiable optical-scan voting. <i>IEEE Security &amp; Privacy</i> , vol. 6, no. 3, pp. 40–46, May/June 2008. [JIF: 3.105]  |

## Book chapters

|     |   |
|-----|---|
| B05 | J. Clark. The Long Road to Bitcoin. Foreword to: “Bitcoin and Cryptocurrency Technologies.” <i>Princeton University Press</i> , 2016.   |
| B04 | R. Carback, D. Chaum, J. Clark, J. Conway, A. Essex, P. S. Herrnson, T. Mayberry, S. Popoveniuc, R. L. Rivest, E. Shen, A. T. Sherman, P. L. Vora. The Scantegrity Voting System and its Use in the Takoma Park Elections. Chapter 10 in: “Real-World Electronic Voting: Design, Analysis and Deployment.” <i>CRC Press</i> , 2016. |
| B03 | S. Popoveniuc, J. Clark, R. Carback, A. Essex, D. Chaum. Securing Optical-Scan Voting. Chapter in: “Toward Trustworthy Elections: New Directions in Electronic Voting.” <i>State of the Art Survey Series</i> , Springer, 357–369. 2010.  |
| B02 | A. Essex, J. Clark, C. Adams. Aperio: High Integrity Elections for Developing Countries. Chapter in: “Toward Trustworthy Elections: New Directions in Electronic Voting.” <i>State of the Art Survey Series</i> , Springer, 388–401. 2010.  |
| B01 | J. Clark, P. Gauvin, C. Adams. Exit Node Repudiation for Anonymity Networks. Chapter 22 in: “Lessons from the Identity Trail: Anonymity, Privacy and Identity in a Networked Society.” <i>Oxford University Press</i> . 399-415, 2009.  |

## Editorial activities

|     |   |
|-----|---|
| E03 | Bracciali, A., Clark, J., Pintore, F., Roenne, P., Sala, M. (Editors). "Financial Cryptography and Data Security: FC Workshops 2019." Lecture Notes in Computer Science (LNCS) 11599. <i>Springer</i> , 2020.               |
| E02 | A. Zohar, I. Eyal, V. Teague, J. Clark, A. Bracciali, F. Pintore, M. Sala (Editors). "Financial Cryptography and Data Security: FC Workshops 2018." Lecture Notes in Computer Science (LNCS) 10958. <i>Springer</i> , 2019. |
| E01 | J. Clark, S. Meiklejohn, P.Y.A.Ryan, D. Wallach, M. Brenner, K. Rohloff (Editors). "Financial Cryptography and Data Security: FC Workshops 2016." Lecture Notes in Computer Science (LNCS) 9604. <i>Springer</i> , 2016.    |

# Funding

## External Funding

| Year | Title, Program, Agency   | Amount                                      | PI | Co-Applicants                 |
|------|--|---|----|-------------------------------|
| 2023 | "Understanding Blockchains through Experimentation,"<br>Extension to previous project, Autorité des marchés financiers (AMF)   | \$200,000 over<br>3 years<br>Share: 50%     | Y  | Emilio<br>Boulianne<br>(JMSB) |
| 2021 | "Privacy Design Landscape for Central Bank Digital<br>Currencies," Contributions Program, Office of the Privacy<br>Commissioner of Canada (OPC)  | \$26,450 once<br>Share: 100%                | Y  |                               |
| 2021 | "Understanding Blockchains through Experimentation,"<br>Extension to previous project, Autorité des marchés<br>financiers (AMF)  | \$100,000<br>once<br>Share: 50%             | Y  | Emilio<br>Boulianne<br>(JMSB) |
| 2021 | "Enhancing transparency, inclusion, and privacy for financial<br>and democratic technologies," Discovery Grant (DG), Natural<br>Sciences and Engineering Research Council of Canada<br>(NSERC) | \$35,000/year<br>for 5 years<br>Share: 100% | Y  |                               |
| 2020 | "The Human-Centric Cybersecurity Partnership (HC2P),"<br>Partnership Grant, Social Sciences and Humanities<br>Research Council (SSHRC)   | \$2,434,323<br>over 5 years<br>Share: TBD   | N  | Benoit Dupont<br>+ 32 others  |
| 2020 | "Toward Scalable Systems for Securities on Blockchains,"<br>Fintech Chaire, Autorité des marchés financiers (AMF) and<br>Finance Montreal  | \$50,000 once<br>Share: 50%                 | N  | Kaiwen Zhang<br>(ETS)         |
| 2019 | "NSERC / Raymond Chabot Grant Thornton / Catalaxy<br>Industrial Research Chair on Blockchain Technologies,"<br>Natural Sciences and Engineering Research Council of<br>Canada (NSERC)          | \$1,380,000<br>over 5 years<br>Share: 100%  | Y  |                               |
| 2017 | "Understanding Blockchains through Experimentation,"<br>Education and Good Governance Fund (EGGF), Autorité des<br>marchés financiers (AMF)  | \$100,000/year<br>for 2 years<br>Share: 50% | Y  | Emilio<br>Boulianne<br>(JMSB) |
| 2016 | "One Person, One Vote? Blockchain Technologies and<br>Experiments in Voting and Party Governance," Seed Grant,<br>Centre for the Study of Democratic Citizenship (CSDC)                        | \$6831 once<br>Share: 50%                   | N  | Fenwick<br>Mckelvey<br>(Comm) |
| 2015 | "Certificate Authority Report Card: Examining the Root of<br>Data Protection on the Web," Contributions Program, Office<br>of the Privacy Commissioner of Canada (OPC)                         | \$50,000/year<br>for 1 year<br>Share: 50%   | Y  | Mohammad<br>Mannan<br>(CIISE) |

| Year | Title, Program, Agency  | Amount                                   | PI | Co-Applicants |
|------|---|--|----|---------------|
| 2015 | “Vote par Internet : des technologies favorisant la démocratie,” Programme Établissement de nouveaux chercheurs universitaires, Fonds de recherche du Québec - Nature et technologies (FRQNT) | \$19,000/year for 2 years<br>Share: 100% | Y  |               |
| 2014 | “Secure online services for private user data,” Discovery Grant (DG), Natural Sciences and Engineering Research Council of Canada (NSERC)   | \$24,000/year for 5 years<br>Share: 100% | Y  |               |

## Internal Funding

| Year | Program   | Amount     | PI | Co-Applicants |
|------|---|------------|----|---------------|
| 2023 | Aid to Research Related Events, Exhibition, Publication and Dissemination Activities (ARRE) Program | \$5K once  | Y  |               |
| 2020 | Aid to Research Related Events, Exhibition, Publication and Dissemination Activities (ARRE) Program | \$5K once  | Y  |               |
| 2015 | Aid to Research Related Events, Exhibition, Publication and Dissemination Activities (ARRE) Program | \$5K once  | Y  |               |
| 2015 | Individual Seed Program   | \$7K once  | Y  |               |
| 2013 | Start-Up Grant  | \$50K once | Y  |               |

## Research Centres/Networks

- Human-Centric Cybersecurity Partnership (HC2P). Co-Investigator, 2020—present.
- Centre for the Study of Democratic Citizenship (CSDC). Member, 2016—present. Advisory Board, 2022—present.
- Smart Cybersecurity Network (SERENE-RISC). Knowledge Mobilization Network, Networks of Centres of Excellence of Canada (NCE). Co-Investigator, 2016—2021.

# Evidence of Impact

## Invited Talks and Seminars

- CSNet 2023, "Privacy Options for Central Bank Digital Currencies (CBDCs)." Keynote, October 17, 2023.
- Cyberjustice Laboratory, University of Montreal, "Web3: Landscape and Future Directions." Keynote, October 16, 2023.
- Cybersecurity and Privacy Institute (CPI) Annual Conference, University of Waterloo. "Transparent Dishonesty: front-running attacks on Blockchain." Invited Talk, October 12, 2023.
- UMBC Cyber Defense Lab Seminar, "Fast Withdrawals from Optimistic Rollups." September 8, 2021.
- a16z crypto, "Fast Withdrawals from Optimistic Rollups," June 27, 2023.
- MIT Digital Currency Initiative (DCI), "Privacy Options for Central Bank Digital Currencies (CBDCs)," May 23, 2023.
- Berkman-Klein Center for Internet & Society (Harvard), "Privacy Options for Central Bank Digital Currencies (CBDCs)," Blockchain and Privacy Workshop, May 22, 2023.
- Digital Economy Taxation Network / Revenu Québec, DET 2023, "Going Digital: Tax Systems and Emerging Technology," June 18, 2023.
- C-Dem/CSDC Forum, "Roundtable: Electoral Integrity," Panel, June 4, 2023.
- CIADI/GCS Aerospace Meets Cybersecurity Forum, "Cybersecurity challenges in aerospace," Moderator, April 17, 2023.
- Financial Management Institute of Canada, PD Week. "Blockchain and DeFi: Landscape," November 24, 2022.
- FIC, International Cybersecurity Forum, November 1-2, 2022.
- MTL Connect, "MTL Inspire." Panel, October 19, 2022.
- ACT International Midterm Conference, "Policing Blockchain." Panel, October 6, 2022.
- Fintech Cadence | Fintech Drinks, "Fintech & DeFi: How is fintech DeFi-ing the traditional banking system?" Panel, July 12, 2022.
- Blockchain Technology Symposium. "Blockchain Culture, Leisure and Luxury." Panel, June 10, 2022.
- Quartier de l'innovation de Montréal. "Entre Terre et techno, ça clique ?" Panel, May 26, 2022.
- Fintech Cadence Certificate Program. "Understanding blockchain and its uses in the financial sector." February 22, 2022.
- Autorité des marchés financiers. "Finance décentralisée et crypto : état de la situation, nouveaux risques et points de vigilance." Panel, October 26, 2021.
- Smith School of Business, Queen's University. "New Frontiers in Auditing: Risk and Opportunities in the Blockchain Sector." Panel, October 7, 2021.

- Vancouver International Privacy & Security Summit (VIPSS). "Banking on the Future: How the Digital Surge Will Reshape How We Do Business." Panel, May 6, 2021.
- CyberEco Cyber Conference. "Technology & blockchain." May 5, 2021.
- Quartier de l'innovation de Montréal. "Blockchain - multiples usages." Panel, April 28, 2021.
- Holt Accelerator, "[I AM PROTECTED]." Panel, April 21, 2021.
- UMBC Cyber Defense Lab Seminar. "Transparent Dishonesty: front-running attacks on Blockchain." March 26, 2021.
- 1st Annual Lecture on Computer Science and Society. "The Blockchain and Cryptocurrency Landscape." Carleton University. March 10, 2021
- Workshop on The State of Canadian Cybersecurity Conference: Human-Centric Cybersecurity. "Decentralized Finance: Landscape and Future Directions." SERENE-RISC, February 18, 2021.
- Fintech Cadence Certificate Program. "Understanding blockchain and its uses in the financial sector." January 30, 2021.
- Montreal Lakeshore University Women's Club. "Bitcoins: What, why and how..." February 10, 2020.
- Elections Quebec. "Internet Voting." November 2, 2019.
- Blockchain at McGill. "Introduction to Blockchain for Non-Profits," Social Innovation: Int'l Development and Blockchain. 29 March 2019.
- Canada Mortgage and Housing Corporation (CMHC). "Blockchain Technologies: Landscape and Future Directions." 26 February 2019.
- CFA Montreal FinTech Rendez-vous. "Blockchain Technologies: Landscape and Future Directions." 7 February 2019.
- Loto-Quebec. "Lunch and learn." 22 January 2019.
- RISQ Colloquium. "Blockchain Technologies: Landscape and Future Directions." 29 November 2018.
- TriPAC Pension Advisory Committees. "Blockchain Technologies: Landscape and Future Directions." Treasury Board Secretariat. 21 November 2018.
- Defending Democracy: Confronting Cyber-Threats At Home And Abroad. "Liquid Democracy and Blockchains." October 26, 2018.
- Blockchain and National Security. "Blockchain Technology: National Security Use-Cases." Public Safety Canada, October 18, 2018.
- Montreal Police Pension Fund (ABRPPVM). "Blockchain Technology: Landscape & Future Directions." Invited speaker, September 22, 2018.
- BMO 13th Annual Real Estate Conference. "Blockchain Applications & Real-Estate." Panel, BMO Capital Markets. September 20, 2018.
- Blockchain Technology Symposium (BTS). "Blockchain Nuances: Lessons from Fintech use-cases." Invited talk, Fields Institute. September 18, 2018.
- GoSec. "Blockchain Technologies: Landscape and Future Directions." August 29, 2018.
- StartupFest. "Democracy Enhancing Technologies." CryptoFest. July 10, 2018.

- FinteQC. "Blockchain Nuances" Keynote, Desjardins Labs & UQAR, June 20, 2018.
- The Walrus LIVE. "The Future of Money" Panel Discussion with David Tax (TD) and Susan Prince (CBC). June 14, 2018.
- BMO ThinkSeries. "Blockchain Technologies: Landscape and Future Directions." June 12, 2018.
- Autorite des marches financiers (AMF). "Crypto Primer II." June 11, 2018.
- Canada Pension Plan Investment Board (CPPIB). "Blockchain Technologies." June 1, 2018.
- Security Revolution. "Blockchain Primer." SERENE-RISC, May 31, 2018.
- "Blockchain Technologies: Landscape and Future Directions." True North Science Bootcamp. May 25, 2018.
- Anticipating Future Trends and Managing Risks Program. "Blockchain Technologies: Landscape and Future Directions," HEC Paris and Concordia. May 10, 2018.
- Autorite des marches financiers (AMF). "Crypto Primer I." May 1, 2018.
- GC Blockchain Day. "Ledgers Past, Present and Future." Treasury Board Secretariat of Canada. April 23, 2018.
- "Workplace 2020." Management Consulting Club, Concordia. Panel. April 8, 2018.
- "Blockchain Technologies: Landscape and Future Directions." Canadian National Railway (CN). February 8, 2018.
- Kenneth Woods Portfolio Management Program. "Cryptocurrencies: An Investable Asset?" John Molson School of Business. January 23, 2018.
- "Provisions: Privacy-Preserving Proofs of Solvency." Newcastle University. December 7, 2017.
- "Democracy Enhancing Technologies: From Theory to Practice." CSDC Speaker Series. McGill, September 15, 2017.
- Hydro-Québec Symposium 3i. "Bitcoin & Blockchains: Landscape and Future Directions." Invited Speaker, Montreal,
- Privacy, Security and Trust (PST). "Bitcoin & Blockchains: Landscape and Future Directions." Keynote, Calgary, August 28, 2017.
- Metropolis 2017. "The Bitcoin & Blockchain Technology Landscape." June 28, 2017.
- Blockchain Meetup. "Zero Knowledge." District 3. May 4, 2017.
- Canada Music Week. "Blockchains: Smart Contracts and Media-Driven Crypto Currencies" Panel discussion, April 19, 2017.
- District 3. "The Future of Blockchain." Panel discussion, December 8, 2016.
- Symposium on Foundations & Practice of Security. "The Bitcoin & Blockchain Technology Landscape." Keynote presentation. Université Laval, October 26, 2016.
- Online Voting Roundtable: Electoral Futures in Canada. "Blockchain and Voting: Assessment & Critique." Invited Speaker, University of Ottawa. September 26, 2016.
- P2P Financial Systems Workshop. "Blockchain nuances." Keynote presentation. UCL, September 8, 2016.
- Bank of Canada. "Bitcoin & Blockchains: Part 2." July 14, 2016.



- Anti-phishing working group (APWG) eCrime 2016. "Bitcoin: an impartial assessment of its use and potential for cybercrime." May 31, 2016.
- C.D. Howe. "Blockchain Technologies and the Future of Finance." May 30, 2016.
- ASIMM Colloque RSI. "Bitcoin & Blockchains: Tutorial," May 12, 2016.
- Bank of Canada. "Bitcoin & Blockchains: Landscape and Future Directions," May 11, 2016.
- National Research Council (NRC), "Security Training Course," March 22, 2016.
- MIT Bitcoin Expo. "Blockchain-based voting: potential and limitations," MIT, March 6, 2016.
- Bitcoin and Cryptocurrency Research Conference. "Altcoins," Center for Information Technology Policy (CITP), Princeton University, March 27, 2014.
- USENIX Summit on Hot Topics in Security (HotSec 2013). "Eroding Trust and the CA Debacle," August 13, 2013.
- CIISE Distinguished Seminar. "How to Carbon Date Digital Information," Concordia University, March 8, 2012.
- MITACS Digital Security Seminar Series. "Panic Passwords and their Applications," Carleton University, January 27, 2011.
- CACR Cryptography Seminar. "The First Governmental Election with a Voter Verifiable Tally: Experiences using Scantegrity II at Takoma Park," University of Waterloo, February 5, 2010.
- CACR Cryptography Seminar. "Selections: An Internet Voting System with Over-the-shoulder Coercion Resistance," University of Waterloo, December 3, 2010
- Information Technology and Innovation Foundation (ITIF) Forum: Future of Voting. "Panel Discussion," Longworth House Office Building, Washington, D.C. March 6, 2008.
- CACR Cryptography Seminar. "Combating Adverse Selection in Anonymity Networks," University of Waterloo, October 17, 2007.

## Expert Testimony & Public Interest Consultations

- Elections Quebec. "Internet Voting," Citizen Jury. November 2, 2019.
- House of Commons, Standing Committee on Finance. Testimony: Statutory Review of the Proceeds of Crime and Terrorist Financing Act. March 27, 2018.
- Investissement Quebec. Bitcoin & Blockchains: Landscape and Future Directions. January 15, 2018.
- Government of Canada (GC) Digital Target State Architecture and Direction. Blockchain working group. August 2017 – April 2018.
- Karina Gould, Minister of Democratic Institutions (House of Commons, Canada). CSDC roundtable. August 30, 2017.
- Autorité des marchés financiers (AMF). "Blockchain nuances." March 29, 2017.
- Royal Canadian Mounted Police (RCMP). Bitcoin brainstorming session (#2). Participant in roundtable. September 28, 2016.
- Royal Canadian Mounted Police (RCMP). Bitcoin brainstorming session. Participant in roundtable. July 5, 2016.

- Formation régionale de la Cour du Québec. "Bitcoin: Introduction & Implications," May 9, 2015.
- 2013–2014 City of Toronto. Subject Matter Expert on Internet Voting Security and Cryptography (RFP No. 3405-13-3197).
- Senate of Canada, Standing Committee on Banking, Trade and Commerce. Testimony: Study on the use of digital currency. April 3, 2014.
- City of Edmonton: Citizen Jury on Internet Voting. "Security Risks Related to Internet Voting," Centre for Public Involvement/University of Alberta, November 23–25, 2012.

## Press & Media (Selected)

- "Bridging traditional investment with cryptocurrencies? One Canadian miner tried it," *CBC News*, January 24, 2024.
- "Two years after peak crypto, Bitcoin has faded from the political conversation," *CBC News*, November 3, 2023.
- "Are Quebec's Crypto Mines Here to Stay?" *The Rover*, June 16, 2023.
- "What is Worldcoin and what does it mean for our privacy?" *Context.news (Thomson Reuters Foundation)*, June 7, 2023.
- "Clarity, please." *CBA/ABC National*, November 14, 2022
- "Deception, exploited workers, and cash handouts: How Worldcoin recruited its first half a million test users." *MIT Technology Review*, April 6, 2022.
- "It's a first, Bitcoin is now legal tender in one country." *CBC Radio*, September 23, 2021.
- "New kid on the blockchain: the young people using crypto for good." *DAZED*, July 22, 2021.
- "Digital currencies bring new options for financial privacy." *Hill Times*, May 5, 2021.
- "Satoshi & Company: The 10 Most Important Scientific White Papers In Development Of Cryptocurrencies." *Forbes*, February 13, 2021.
- "Contact tracing segment." *The Aaron Rand Show, CJAD 800*, May 26, 2020.
- "Are we ready for an app that trades privacy for more freedom?" *Montreal Gazette*, May 25, 2020.
- "Chaînes de blocs: dompter la décentralisation de l'informatique." *Le Devoir*, March 2, 2020.
- "Academic: All Undergrads Should Learn About Bitcoin & Blockchain." *Cryptonews*, December 22, 2019.
- "Why Quebec is betting big on Bitcoin." *Pivot Magazine (CPA Canada)*, January 8, 2019.
- "Banks Claim They're Building Blockchains. They're Not." *Investopedia*, July 13, 2018.
- "The evolution of cryptojacking." *CryptoInsider*, March 20, 2018.
- "The Ethics Of Cryptojacking: Rampant Malware Or Ad-Free Internet?" *CoinTelegraph*, March 16, 2018.
- "One of the Biggest Coinhive Users Made \$7.69 In 3 Months." *Motherboard*, March 14, 2018.
- "Attack Or Business Opportunity?: Academics Question Ethics Of Coinhive Cryptojacking." *CoinTelegraph*, March 10, 2018.

- “How much should I regret not buying Bitcoin?” Gizmodo, January 29, 2018.
- Interview on Bitcoin regulation. *CBC Radio One*, December 5, 2017.
- “How blockchain-based payment is changing the cannabis industry,” *IBM thinkLeaders*, June 21, 2017.
- “Ottawa explores potential of ‘blockchain,’ billed as next-generation Internet tech.” *Toronto Star*, February 28, 2017.
- “Block the vote: Could Blockchain Technology Cybersecure Elections?” *Forbes*, August 30, 2016.
- “He’s Bitcoin’s Creator, He Says, but Skeptics Pounce on His Claim,” *New York Times*, May 2, 2016.
- “Logged out, but still out there,” *Globe and Mail*, February 19, 2016.
- “Princeton University releases first draft of bitcoin textbook,” *CoinDesk*, February 10, 2016.
- “The top 10 cryptocurrency research papers of 2015,” *CoinDesk*, December 27, 2015.
- “Canada’s Internet Voting Problem,” *SC Magazine*, February 2015 issue.
- “Latest Internet voting reports show failures across the board,” *Al Jazeera America*, February 8, 2015
- “How Block Chain Technology Could Usher in Digital Democracy,” *CoinDesk*, June 16, 2014.
- “Can Bitcoin Help Predict the Future?,” *CoinDesk*, May 24, 2014.
- “Heartbleed and sentinels of the net,” *Montreal Gazette*, Apr 21, 2014.
- “PROFESSOR: There Is A Big, Gaping Flaw In The New Satoshi Study,” *Business Insider*, March 28, 2014.
- “2014 Federal Budget Calls Bitcoin A Terrorist, Crime ‘Risk’ ,” *Huffington Post*, February 12, 2014.
- “Bitcoin: How its core technology will change the world,” *New Scientist*, February 5, 2014.
- “More than money, bitcoin’s real value lies in its algorithms,” *InfoWorld*, January 12, 2014.
- “U. researchers develop Bitcoin prediction market,” *Daily Princetonian*, January 5, 2014.
- “This Princeton professor is building a Bitcoin-inspired prediction market,” *The Verge*, November 29, 2013
- “Montreal’s Bitcoin Embassy bridges gap between digital currency and real world,” *Montreal Gazette*, November 29, 2013.
- “Bitcoin online currency gets new job in web security,” *New Scientist*, January 11, 2012.
- “Secure, verifiable voting: Cryptography, invisible ink, and other voting magic,” *Imprint*, November 6, 2009.
- “Scantegrity: Voters Test New Transparent Voting System,” *Huffington Post*, November 5, 2009.
- “Maryland Voters Test New Cryptographic Voting System,” *Wired News*, November 4, 2009.
- “Voters try out new security system,” *UW Daily Bulletin*, November 3, 2009.

- “E-voting system lets voters verify their ballots are counted,” *Computerworld*, November 3, 2009.
- “First Test for Election Cryptography,” *Technology Review*, November 2, 2009.
- “Mock election tests new voting system,” *Gazette.net*, April 15, 2009.
- “Geek the Vote 2012: What Election Tech Will Look like 4 Years From Now,” *Popular Mechanics*, November 4, 2008.
- “Canadian voting machine technology enters American political scene,” *CBC.ca*, October 28, 2008.
- “New Voter Counter System Uses Encrypted Codes, Invisible Ink,” *Voice of America*, October 24, 2008.
- “A Really Secret Ballot,” *The Economist*, October 22, 2008.
- “Class voting hacks prompt call for better audits,” *MSNBC*, October 20, 2008.
- “Clean Elections,” *Communications of the ACM*, October 2008.
- “Protecting Your Vote With Invisible Ink,” *Discover Magazine*, October 2008.
- “Flawless Vote Counts,” *Technology Review*, September/October 2008.
- “Shift Back to Paper Ballots Sparks Disagreement,” *Morning Edition*, March 7, 2008.
- “Down for the Count,” *ACM netWorker*, March 2008.
- “The future of voting IT,” *Government Computer News*, March 10, 2008.
- “A Damaging Paper Chase In Voting,” *Washington Post*, September 8, 2007.
- “Punchscan Wins VoComp 2007,” *As It Happens (CBC)*, August 23, 2007.
- “US/Canada Team Wins Voting Competition,” *Threat Level (Wired)*, July 19, 2007.
- “Electronic Democracy,” *Digital Planet (BBC)*, January 29, 2007.
- “Making Every E-vote Count,” *IEEE Spectrum*, January 2007.

## Concordia Promotional Activities

- Thinking Out Loud. “Bitcoin & Cryptocurrency,” Podcast, Episode 14. 27 February 2018.
- “Back to the future — reclaiming the internet” Distinguished Alumni Speaker Series with Fay Arjomandi. September 22, 2018.
- This is Concordia. Now. “Bitcoin and cryptocurrency.” Conversation with Alan Shepherd. April 11, 2018.
- “X EXPLAINED: What you need to know about internet cookies.” Concordia Video. March 29, 2018.
- This Is Concordia. Now. “Jeremy Clark talks Bitcoin and cryptocurrency.” Conversation with Sudha Krishnan (CBC Montreal). February 22, 2018.
- Next-Gen. Now. “The Campaign for Concordia.” Promotional video with on-screen interview. November 24, 2017.
- Capstone Magazine. “Cyberattacks: everything you need to know.” Fall 2016.

- Concordia Alumni Association. “Everyone knows your birthday: How secure is your password Hint: not very!” New York City, May 16, 2017.
- Thinking Out Loud. “One Vote,” The Futurecast podcast, Episode 4. April 12, 2017.
- Next-gen. Now. “My Name is Jeremy Clark.” Website feature. March 1, 2017.
- Concordia University Magazine. “Guardians of the IT galaxy.” February 9, 2017.
- Thinking Out Loud. “Connecting your tech future,” conversation with Nora Young (CBC), Concordia University. March 1, 2016.
- Breakfast Talk. “Heartbleed & other CIISE Research,” Concordia University. May 6, 2014.

# Highly Qualified Personnel

## HQP Job Placement

| Sector              | Organization  |
|---------------------|---|
| Blockchain Industry | ConsenSys Diligence, Offchain Labs, Trail of Bits, Quantstamp, BitAccess, Ether Capital |
| Faculty             | Carleton University, Boise State University   |
| Post-Doctoral       | UQAM  |
| General Industry    | KPMG, Deloitte, Morgan Stanley  |
| Government          | National Defence  |

*Includes jobs while in program and first job after graduation*

## Post-Doctoral (Completed)

| Name              | Dates         | Research Topic  | Papers | Co-Supervisor |
|-------------------|---------------|-----------------|--------|---------------|
| Elizabeth Stobert | 2018/W-2018/F | Usable security | C24    |               |

*/F (Fall term), /W (Winter term), /S (Summer term)*

## PhD (Completed)

| Name          | Dates           | Research Topic  | Papers                       | Co-Supervisor       |
|---------------|-----------------|---|------------------------------|---------------------|
| Didem Demirag | 2018/W-2022/F   | “Moving Multiparty Computation Forward for the Real World”          | C33, J08, C40, C43, C47, J10 |                     |
| Nan Yang      | 2014/S-2020/F   | “Non-Local Contamination in Cryptography”                           | C28, C39                     | C. Crépeau (McGill) |
| Gaby Dagher   | 2013/F - 2015/F | “Toward secure and privacy-preserving data sharing and integration” | C26, J06                     | B. Fung (McGill)    |

## PhD (In Progress)

| Name          | Dates   | Research Topic       | Papers | Co-Supervisor |
|---------------|---------|----------------------|--------|---------------|
| Reza Rahimian | 2018/F- | Financial technology | C37    |               |

| Name                   | Dates   | Research Topic                | Papers                                 | Co-Supervisor      |
|------------------------|---------|-------------------------------|--|--------------------|
| Mahsa Moosavi          | 2018/S- | Layer-2 blockchain technology | C30, C35, J08, C44, C49                |                    |
| Shayan Eskandari       | 2017/F- | Blockchain technology         | C24, C27, C29, C32, C35, C37, C42, J09 |                    |
| Pratyusha Bhattacharya | 2017/S- | Smart Grid Security           |  | M. Debbabi (CIISE) |

### Masters (Completed)

| Name               | Dates           | Research Topic   | Papers                                 | Co-Supervisor                                       |
|--------------------|-----------------|--|--|---|
| Sina Pilehchiha    | 2021/S-2022/F   | “Improving Reproducibility in Smart Contract Research”                                   |  | A.G. Aghdam (ECE)                                   |
| Mahdi Nejadgholi   | 2019/F-2022/S   | “Nullification, a coercion-resistance add-on for e-voting protocols”                     | C39, C46                               |   |
| Mehdi Salehi       | 2020/W-2022/W   | “An Analysis of Upgradeability, Oracles, and Stablecoins in the Ethereum Blockchain”     | C41, C42, C45, C49                     | M. Mannan (CIISE)                                   |
| Corentin Thomasset | 2019/F-2020/S   | “SERENIoT : Politiques de sécurité collaboratives pour maisons connectées”               |  | D. Barrera (Carleton), J. Fernandez (Polytechnique) |
| Chidinma Okoye     | 2016/S - 2017/F | “New applications of blockchain technology to voting and lending”                        | C31                                    |   |
| Mahsa Moosavi      | 2015/F - 2018/W | “Rethinking Certificate Authorities: Understanding and decentralizing domain validation” | C30, C35, J08, C44, C49                |   |
| Michael Colburn    | 2014/F - 2018/S | “Short-Lived Signatures”   |  |   |
| Abhimanyu Khanna   | 2014/F - 2017/S | “Towards Usable and Fine-grained Security for HTTPS with Middleboxes”                    |  | M. Mannan (CIISE)                                   |
| Shayan Eskandari   | 2013/F - 2016/W | “Real world deployability and usability of Bitcoin”                                      | C24, C27, C29, C32, C35, C37, C42, J09 | W. Hamou-Lhadj (ECE)                                |

## Masters (In Progress)

| Name        | Dates   | Research Topic        | Papers | Co-Supervisor |
|-------------|---------|-----------------------|--------|---------------|
| Youwei Deng | 2023/W- | Zero Knowledge Proofs |        |               |

## Supervised Graduate Projects (ENGR 6991)

| Year | Students  |
|------|---|
| 2023 | Mohammad Zawad Tahmeed  |
| 2019 | Abhinav Kumar   |
| 2018 | Jinumol James, Laleh Alimadadi, Rupesh Gawde, Brindha Shree, Isreal Tei, Saad Ahmen (MIAE: ENGR 6971) |
| 2017 | Temitiope Adetula, Shahab Odagar  |
| 2016 | Ejiro Mary, Ogor Umukoro, Omoye Obazele   |
| 2015 | S. Sandisha   |
| 2014 | Paemka-Ojugbana Judah Chukwuma, Manish Megnath  |



# Teaching

## Courses Taught

| Year/Term | Course   | Class Size | Evaluation                   |
|-----------|--|------------|------------------------------|
| 2022/4    | INSE 6615: Blockchain Technology                         | 69         | 1.30                         |
| 2022/4    | INSE 6150: Security Evaluation Methodologies             | 100        | 1.48                         |
| 2022/2    | INSE 6150: Security Evaluation Methodologies             | 70         | 1.72                         |
| 2021/4    | INSE 6630: Recent Developments in Info. Systems Security | 67         | <i>Evaluations suspended</i> |
| 2021/4    | INSE 6150: Security Evaluation Methodologies             | 68         |                              |
| 2021/2    | INSE 6150: Security Evaluation Methodologies             | 49         |                              |
| 2020/1    | INSE 6150: Security Evaluation Methodologies             | 78         |                              |
| 2018/4    | INSE 6150: Security Evaluation Methodologies             | 92         |                              |
| 2018/4    | COMP 249: Object Oriented Programming II                 | 109        | 1.73                         |
| 2018/2    | INSE 6630: Recent Developments in Info. Systems Security | 53         | 1.19                         |
| 2018/2    | COMP 352: Algorithms and Data Structures                 | 68         | 1.57                         |
| 2017/4    | INSE 6150: Security Evaluation Methodologies             | 88         | 1.69                         |
| 2017/2    | INSE 6110: Foundations of Cryptography                   | 79         | 1.22                         |
| 2017/2    | INSE 6630: Recent Developments in Info. Systems Security | 35         | 1.71                         |
| 2016/4    | INSE 6150: Security Evaluation Methodologies             | 59         | 1.13                         |
| 2016/2    | INSE 6150: Security Evaluation Methodologies             | 63         | 1.09                         |
| 2016/2    | INSE 6110: Foundations of Cryptography                   | 79         | 1.32                         |
| 2015/4    | COMP 249: Object Oriented Programming II                 | 50         | 1.44                         |
| 2015/4    | INSE 6150: Security Evaluation Methodologies             | 86         | 1.15                         |
| 2015/2    | INSE 6110: Foundations of Cryptography                   | 76         | 1.24                         |
| 2014/4    | COMP 249: Object Oriented Programming II                 | 93         | 1.81                         |
| 2014/4    | INSE 6150: Security Evaluation Methodologies             | 86         | 1.41                         |
| 2014/2    | INSE 6110: Foundations of Cryptography                   | 69         | 1.55                         |
| 2013/4    | INSE 6150: Security Evaluation Methodologies             | 46         | 1.73                         |
| 2013/2    | INSE 6110: Foundations of Cryptography                   | 21         | 1.11                         |

- *Evaluation is for Question 20: "Overall, the professor is an effective teacher." Score is from 1.00 (best) to 5.00 (worst).*
- */1 means summer term, /2 means fall term, /4 means winter term (of the following calendar year)*

## Teaching Awards

- Teaching Excellence Award, Junior Faculty, ENCS, Concordia University, 2017.

## External Lectures

- "Decentralized finance (DeFi)," Faculty of Law, University of Ottawa. 22 March 2021.
- "Improving usability and trust for moving Bitcoin adoption forward," MAS.S65 - Blockchain Technologies, Massachusetts Institute of Technology (MIT). Guest lecture, 4 November 2015.
- "History of cryptocurrencies," Bitcoin and Cryptocurrency Technologies, Princeton University. Guest lecture, Online: Coursera, recorded in September 2015.
- COMP 4109: Applied Cryptography, Carleton University. Course, Winter 2013.

# Service to University

## University Committees

*Leaves: Parental 2019-2020; Sabbatical 2020-2021*

| Year      | Committee   |
|-----------|---|
| 2023-     | GCS Faculty Personnel and Tenure Committee (FPTC) |
| 2023-     | CIISE Curriculum Committee                        |
| 2022-     | GCS Elections Committee (Chair)                   |
| 2021-2023 | Concordia University Faculty Tribunal Pool        |
| 2021-2023 | GCS Faculty Council                               |
| 2018-2019 | Concordia University Faculty Tribunal Pool        |
| 2018-2019 | ENCS Blended/Online Pedagogy Committee            |
| 2017-2019 | ENCS Elections Committee                          |
| 2013-2019 | CIISE Seminar Committee                           |
| 2014–2016 | Concordia University Faculty Tribunal Pool        |

## Graduate Student Committees (Concordia)

| Year      | Occurrences  |           |              |             |             | Total |
|-----------|--------------|-----------|--------------|-------------|-------------|-------|
|           | MASc Defence | PhD Comp. | PhD Proposal | PhD Seminar | PhD Defence |       |
| 2023      | 5            | 1         | 2            | 1           |             | 9     |
| 2022      | 1            | 2         | 1            | 3           | 1           | 8     |
| 2021      | 3            | 1         | 1            | 1           | 1           | 7     |
| 2020      | 4            | 1         |              | 1           | 1           | 7     |
| 2019      |              |           | 2            | 3           | 3           | 8     |
| 2018      |              | 3         | 1            |             | 2           | 6     |
| 2013-2017 | 6            | 6         | 3            | 4           | 2           | 21    |

## Graduate Student Committees (External)

- Ghassan Al-Sumaidae, McGill, 2024
- Alireza Arjmand Shakouri, Masters, University of Alberta, 14 Dec 2023
- Md Mamunur Rashid Akand, PhD, University of Calgary, 2023
- Farimah Ramezan Poursafaei, PhD, McGill, 2022
- Patrick McCorry, PhD, Newcastle University, UK, 2017
- Giulia Alberini, PhD, McGill, 2015
- Jérôme Dossogne, PhD, Université libre de Bruxelles, Belgium, 2015

# Service to Academia

## Program (Co-)Chairs of Conferences

| Year | Conference  |
|------|---|
| 2024 | Financial Cryptography and Data Security 2024 (FC)                  |
| 2022 | Blockchain Technology Symposium (BTS)                               |
| 2019 | FC Workshop on Advances in Secure Electronic Voting (VOTING)        |
| 2018 | FC Workshop on Advances in Secure Electronic Voting (VOTING)        |
| 2017 | The Smart Cybersecurity Network: Spring 2017 Workshop (SERENE-RISC) |
| 2016 | FC Workshop on Bitcoin and Blockchain Research (BITCOIN)            |

## General (Co-)Chairs of Conferences

| Year | Conference                                      |
|------|---|
| 2024 | Blockchain Technology Symposium (BTS)           |
| 2023 | Blockchain Technology Symposium (BTS)           |
| 2020 | Privacy Enhancing Technologies Symposium (PETS) |

## Advisory Boards for Conferences

| Year  | Journal   |
|-------|---|
| 2019— | Privacy Enhancing Technologies Symposium (PETS) |

## Editorial Boards for Journals

| Year      | Journal   |
|-----------|---|
| 2013—2015 | USENIX Journal of Election Technologies (USENIX JETS) |

## Program Committees for Conferences

| Year(s)   | Conference  |
|-----------|---|
| 2023—     | ACM Computer and Communications Security (CCS): Blockchain Track                  |
| 2016—     | Financial Cryptography and Data Security (FC)                                     |
| 2023—     | ACM Advances in Financial Technology (AFT)  |
| 2021—     | International Joint Conference on Electronic Voting (E-VOTE-ID)                   |
| 2022—     | FC Workshop on Decentralized Finance (DeFi)                                       |
| 2021—     | ACM CCS Workshop on Decentralized Finance and Security (DeFiSec)                  |
| 2017—     | ESORICS Workshop on Cryptocurrencies and Blockchain Technology (CBT)              |
| 2023—     | Science of Blockchain Conference (SBC)  |
| 2022      | Workshop on Privacy in the Electronic Society (WPES)                              |
| 2018—2021 | IEEE Security & Privacy on the Blockchain (IEEE S&B)                              |
| 2013—2018 | FC Workshop on Bitcoin Research (BITCOIN)   |
| 2017—2018 | APWG Symposium on Electronic Crime Research (eCrime)                              |
| 2018      | Symposium on Usable Privacy & Security (SOUPS)                                    |
| 2016      | RSA Conference: Cryptographer's Track (CT-RSA)                                    |
| 2016      | ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices (SPSM) |
| 2014      | Annual Computer Security Applications Conference (ACSAC)                          |

## Reviews for Journals (Most Recent Year)

| Most Recent Year | Journal / Conference   |
|------------------|--|
| 2024             | IEEE Transactions on Parallel and Distributed Systems (TPDS)   |
| 2023             | IEEE Security and Privacy Magazine                             |
| 2022             | IEEE Transactions on Information Forensics and Security (TIFS) |
| 2021             | Bank for International Settlements (BIS) Working Paper Series  |
| 2021             | IEEE Transactions on Dependable Secure Computing (TDSC)        |
| 2021             | Communications of the ACM (CACM)                               |

## Reviews for Funding Agencies (Most Recent Year)

| <b>Most Recent Year</b> | <b>Agency</b>   |
|-------------------------|---|
| 2024                    | MITACS  |
| 2024                    | Social Sciences and Humanities Research Council of Canada (SSHRC)   |
| 2024                    | Natural Sciences and Engineering Research Council of Canada (NSERC) |
| 2023                    | Israel Science Foundation (ISF)                                     |
| 2023                    | Luxembourg National Research Fund (FNR)                             |
| 2019                    | Fonds de Recherche du Québec – Nature et technologies (FRQNT)       |
| 2019                    | Alberta Innovates   |
| 2017                    | Office of the Privacy Commissioner of Canada (OPC)                  |