Michael C. Castelle

CURRENT POSITION
2024-present Associate Professor, Centre for Interdisciplinary Methodologies
2017-2024 Assistant Professor, Centre for Interdisciplinary Methodologies
University of Warwick, Coventry UK

EDUCATION
2017 (Ph.D) Sociology, University of Chicago
        Dissertation: "Transaction and Message: From Database to Marketplace, 1970-2000"
        Committee: Andrew Abbott (Chair)
                     Adrian Johns (History / Conceptual and Historical Studies of Science)
                     Andreas Glaeser (Sociology)
2010 M.A., Sociology, University of Chicago
2001 Sc.B., Computer Science, Brown University

PUBLICATIONS
In Progress
- 2025 *Social Theory for AI Autumns* — book proposal under development
- 2024-2025 "Contextualizing High-Dimensional Communication: The Relevance of Linguistic Anthropology for Theorizing Large Language Models" — working paper

Published
- 2024 "AI as Super-Controversy: Eliciting AI & Society Controversies with an Extended Peer Community in the UK." With N. Marres, C. Polleti, and B. Gobbo. *Big Data & Society*.
- 2022 "Sapir's Thought-Grooves and Whorf's Tensors: Reconciling Transformer Architectures with Cultural Anthropology", *NeurIPS Cultures in AI/AI in Culture Workshop*.
- 2022 "Using Computational Grounded Theory to Understand Tutors' Experiences in the Gig Economy", *Proceedings of the Workshop on Natural Language Processing for Digital Humanities* (supervisory author with L. Alqazlan and R. Procter).
- 2021 "Toward an End-to-End Sociology of 21st-century Machine Learning" (with J. Roberge) in The Cultural Life of Machine Learning, Palgrave Macmillan.
- 2021 "What Kind of Learning is Machine Learning?" (with T. Reigeluth) in The Cultural Life of Machine Learning, Palgrave Macmillan.
- 2021 The Cultural Life of Machine Learning, edited book (co-edited with J. Roberge), Palgrave Macmillan.
- 2020 "The Social Lives of Generative Adversarial Networks". *ACM Conference on Fairness, Accountability, and Transparency (FAT*)*. Published in edited volume Art and Artificial Intelligence: Be My GAN (2020) (Editor: A. Barale).
- 2019 "Cost-Sensitive BERT for Generalisable Sentence Classification with Imbalanced Data" (with H.T. Madabushi and E. Kochkina). *EMNLP (Empirical Methods in Natural Language Processing), Workshop on NLP for Internet Freedom (NLP4IF): Censorship, Disinformation, and Propaganda*.
- 2019 "Middleware's Message: The Financial Technology of Codata". *Philosophy & Technology*.

- 2018 "The Linguistic Ideology of Deep Abusive Language Classification". 2nd Abusive Language Workshop, *Proceedings of Empirical Methods in Natural Language Processing (EMNLP).*
- 2016 "Marketplace platforms or exchanges? Financial metaphors for regulating the collaborative economy". *Economic Sociology: European Electronic Newsletter*, Vol. 17, No. 3, July 2016.
- 2016 "Where do Electronic Markets Come From? Regulation and the Transformation of Financial Exchanges" (1st/primary author with Y. Millo, D. Beunza, and D. Lubin). *Economy and Society*, *45*(2).
- 2013 "Relational and Non-Relational Models in the Entextualization of Bureaucracy." *Computational Culture* (3).
- 2008 "ECoG gamma activity during a language task: differentiating expressive and receptive speech areas". *Brain*, (131:8). (3rd author with V. Towle, H-A. Yoon, J. Edgar, N. Biassou, D. Frim, J-P. Spire, M. Kohrman)
- 2007 "Frequency domain analysis of human subdural recordings". *Journal of Clinical Neurophysiology*, (24:2). (5th author with V. Towle, J.D. Hunter, J. Edgar, S. Chkhenkeli, D. Frim, M. Kohrman, K. Hecox)

Essays
- 2018 "Social Theory for Generative Networks (and Vice Versa)". https://castelle.org/pages/social-theory-for-generative-networks-and-vice-versa.html
- 2018 "Deep Learning as an Epistemic Ensemble". https://castelle.org/pages/deep-learning-as-an-epistemic-ensemble.html

RESEARCH FUNDING
In Progress
- 2024 Member of Supervisor Pool, *UKRI AI Centre for Doctoral Training (CDT) in Artificial Intelligence for Offshore Renewable Energy and Hydrogen Technologies* (Principal Investigator Xiaowei Zhao, University of Warwick School of Engineering; Outline Proposal Accepted, Full Proposal to be submitted).
- 2024 Co-Applicant, *The Demos in the Data: Experiments with AI and Democracy*, submitted to T-AP Funding Opportunity on Democracy, Governance and Trust (multi-national collaboration with multiple national funders — ESRC, NSF, SSHRC, SNSF, NCN, ANR, FRQSC). Total bid size: approximately £1.4M.
- 2024 Principal Investigator, *(Re)inventing Interaction: Endogenous Theories of the Social in 21st-Century AI Research*, to be submitted as an ESRC Responsive Mode research grant in Summer 2024.

Granted
- 2020-2024 Co-Investigator, *Shaping 21st Century AI. Controversies and Closure in Media, Policy, and Research* (with N. Marres (Warwick), J. Roberge (INRS, Montréal); C. Katzenbach (HIIG, Berlin), D. Ricci (Sciences Po, Paris)). Total awarded £1.5M with £335k to Warwick team.
- 2020-2024 Member, *Language in the Human-Machine Era (LITHME)* funded by EU COST (European Cooperation in Science and Technology) (large grant with 60+ co-proposers).

HONORS, PERSONAL GRANTS AND FELLOWSHIPS
- 2018-2020 Turing Fellow, Alan Turing Institute, London
- 2016 American Journal of Sociology Dissertation Fellowship, University of Chicago
- 2015-2016 Park Lectureship, University of Chicago, Department of Sociology
- 2015 Cambridge University Press Doctoral Colloquium, Business History Conference
- 2014 Arthur L. Norberg Travel Grant, Charles Babbage Institute, University of Minnesota
- 2014 Nicholson Center for British Studies Fellowship, University of Chicago

- 2013 Data Science for Social Good Fellowship, University of Chicago
- 2008 Social Sciences Doctoral Fellowship, University of Chicago

PRESENTATIONS
Invited Keynotes
- 2023 "Text as Task: A Guide to the Transformer Architecture and its Language Ideologies", Technolinguistics in Practice: Socially Situating Language in AI Systems, University of Siegen, 24th-26th May 2023

Conference Presentations
- 2023 "A Feeling for the (Neural) Organism: What's so Statistical About Generative LLMs?", Generative Methods: AI as Collaborator and Companion in the Social Sciences and Humanities, Aalborg University Copenhagen Campus, 8th December 2023.
- 2023 "ChatGPT as an an Epistemic Consumption Object", 3rd International Conference for Language in the Human-Machine Era (LITHME), University of Groningen – Campus Fryslân, 15th-16th May 2023.
- 2022 "Communicating (with) AI? Research controversies and their publics" with N. Marres and C. Poletti, International Communication Association, 27th May 2022.
- 2021 "The Role of Economic Rationality in Artificial Intelligence" presented at Winter Symposium for "Histories of Artificial Intelligence: A Genealogy of Power" at Homerton College, University of Cambridge, 14th-15th December 2021.
- 2021 "The Economic Origins of Connectionist Practice", presented at Society for the Advancement of Socio-Economics (SASE), 2-5 July 2021, online.
- 2020 "Multilingual Transformers: Linguistic Relativity for the 21st Century", Disrupting Digital Monolingualism, King's College London [moved online], 16-17th June 2020. (Publicly available at: https://www.youtube.com/watch?v=97aEvCMWDuE)
- 2020 "The Social Lives of Generative Adversarial Networks". *ACM Conference on Fairness, Accountability, and Transparency (FAT*)*, Barcelona, 29th January 2020. (Publicly available at: https://www.youtube.com/watch?v=NXE9pdQt7ww)
- 2019 "Are Neural Networks Neoclassical? Utility, Loss, and Cost from Wald to TensorFlow", Towards a History of Artificial Intelligence, Workshop at Columbia University, New York, 24th May 2019 (Publicly available at: https://www.youtube.com/watch?v=lKBpOQ3UdGw)
- 2019 "The Architecture of 'Attention': Uncrumpling NLP's Linguistic Ideologies", Society for Social Studies of Science (4S), 5th September 2019.
- 2018 "Middleware's Presentism: Asynchrony, Flow, Finance, and the Enterprise", History and Philosophy of Programming (HaPoP), Oxford UK, 23rd March 2018.
- 2017 "Brokers, Queues, and Flows: Techniques of Financialization and Consolidation, 1985-2005". Presented at the SIGCIS (Special Interest Group on Computers, Information and Society) conference "Command Lines: Software, Power, and Performance", Computer History Museum, Mountain View, CA, March 18-19th 2017.
- 2016 "The Platform as Exchange". Presented at the 2016 biennial Internet, Politics, and Policy (IPP) conference, "The Platform Society", Oxford Internet Institute, September 2016.
- 2016 "Big Data or Big Codata? Flows in Historical and Contemporary Data Practices". Presented at Society for Social Studies of Science (4S)/EASST, Barcelona, September 2016.
- 2016 "Platforms or Exchanges? Financial Metaphors for Regulating the Collaborative Economy". To be presented at Society for the Advancement of Socio-Economics (SASE) Annual Conference, Berkeley, CA, June 2016.

- 2014 "Making Markets Durable: Transaction Processing in Finance and Commerce." SIGCIS (Special Interest Group for Computers, Information and Society) Workshop at SHOT (Society for the History of Technology), Dearborn, MI.
- 2014 "Where do Electronic Markets Come From? Regulation and The Transformation of Financial Exchanges". Society for the Advancement of Socio-Economics (SASE) Annual Conference, Chicago, IL.
- 2014 "Where the 'Robots' Dominate: Lessons from Automated Trading". Autonomy and Automation: Robotics, AI, and the Digital Cultural Future, DCRC/UWE Bristol, UK.
- 2013 "The Transaction Concept: Concurrency and Durability for Financial Markets". Sociology of Market Microstructure Workshop, The New York Stock Exchange, New York NY.
- 2013 "Recontextualization and Rationalization in Open Data". Penser l'écosystème des données: Les enjeux scientifiques et politiques des données numériques. Institut des Sciences de la Communication du CNRS (ISCC), Paris, France.
- 2013 "The Transaction Abstraction: a Prerequisite for Financialization". American Sociological Association Annual Meeting, New York, NY.
- 2012 "Relational and Non-Relational Models in the Virtualization of Bureaucracy". The Lived Logics of Database Machinery: a Workshop Organised by Computational Culture, London UK.

Invited Talks/Panels
- 2023 "Transformer Models and Their Implications" (interactive lecture/workshop), Cambridge AI Ethics and Society MSt Residential Session, Homerton College, 9th January 2023.
- 2022 "The Transformer Architecture and its Implications", Language in the Human-Machine Era (LITHME) Working Group 6, 27th October 2022.
- 2022 "Loss, Agents, and Alignment: Ideologies of Economic Rationality in Artificial Intelligence" at "The Global Politics of Artificial Intelligence: Historical, Comparative, and Critical Perspectives", hosted by the Academy of International Affairs NRW (Bonn, Germany), 23rd June 2022.
- 2021 "21st-Century Artificial Intelligence and the New Ethics of AI" presented at workshop series "Ethics for Computational Research" for N8 Centre of Excellence in Computationally Intensive Research (N8 CIR – research partnership for Durham, Lancaster, Leeds, Liverpool, Manchester, Newcastle, Sheffield, and York), 11th November 2021.
- 2021 "Shaping AI: Who's Afraid of Big Methodological, Historical, Political questions?", panel participant in session at 4S (Society for Social Studies of Science), Oct 6-9th 2021.
- 2020 "A Feeling for the (Neural) Organism: An Interactive History of Connectionism" (interactive lecture/workshop), Histories of AI seminar, 28th October. (https://www.ai.hps.cam.ac.uk/activities/methods-and-critical-issues-training/methods-and-critical-issues-training-feeling-neural)
- 2019 "Experiment, Vector, and Loss: The Epistemic Ensemble of Deep Learning", Alexander von Humboldt Institute for Internet and Society (HIIG), Berlin, 15th May 2019.
- 2019 Paper Presentation at Alan Turing Institute Natural Language Processing (NLP) Reading Group, Alan Turing Institute, London UK, 2nd May 2019
- 2018 "Deep Learning and the Coming Opportunity for Social Theory", The Thinking Machine: Interdisciplinary Perspectives on Neural Networks, Aarhus Institute of Advanced Studies, 22nd August 2018.
- 2018 "Deep Learning and the Coming Crisis for Social Theory", Beyond Code and Craft, Franke Institute for the Humanities, University of Chicago, 28th April 2018.

- 2018 "Deep Learning and the Coming Crisis of Theoretical Social Science", Institut national de la recherche scientifique (INRS), Montreal, Canada, 23rd April 2018.
- 2016 "Distinguishing Big Codata", Centre for Interdisciplinary Methodologies, University of Warwick, March 2nd, 2016.
- 2014 "Data Representation in the 1970s: Consequences for Quantitative Social Science", Centre for Interdisciplinary Methodologies, University of Warwick.
- 2014 "From Do-Undo to Global Finance", Centre for Interdisciplinary Methodologies, University of Warwick.

IMPACT, ORGANIZATION, AND ACTIVITIES
- 2024 Collaboration with UK Financial Conduct Authority (FCA) studying the possibilities and limitations of the use of Large Language Models (LLMs) in consumer financial services (with C. Turkay)
- 2024 Chair for workshop session "Social Science Perspectives on AI and Large Language Models" at "Shifting AI Controversies: Prompts, Provocations, and Problematisations for Society-Centered AI", WZB Berlin Social Science Center and Museum of Communication Berlin, 29-30 January 2024.
- 2023 "Shifting AI Controversies" workshop (as part of Shaping AI project/grant), Friends House, London, 10th March 2023. (Press release: https://warwick.ac.uk/newsandevents/pressreleases/?newsItem=8a1785d88798f5bd0187a4439cbc386d; Primary organizers: N. Marres, C. Poletti, B. Gobbo).
- 2019 Represented Centre for Interdisciplinary Methodologies/Warwick at Greater London Authority (GLA) workshop on "Understanding Social Integration Using Digital and Online Data", 18th January 2019.
- 2018 "The Cultural Life of Machine Learning: An Incursion into Critical AI Studies", Association for Internet Researchers (AoIR) 1-day Preconference, 10th October 2018, *Institut national de la recherche scientifique* (INRS), Montréal, Canada. With J. Roberge and T. Crosbie.
- 2018 "Social Theory for Generative Networks", Creative AI Meetup, Photographer's Gallery, London, 2nd July 2018

TEACHING EXPERIENCE
Instructor

Generative AI: Histories, Techniques, Cultures, and Impacts, Univ. of Warwick	Winter 2024-present
Scaling Data & Societies, University of Warwick	Winter 2023-present
Interdisciplinary Machine Learning, University of Warwick	Spring 2019-present
Big Data Research: Hype or Revolution?, University of Warwick	Fall 2017-2020
Computing and Society, University of Chicago	Spring 2016
Computing for the Social Sciences, University of Chicago	Spring 2011-2015
Transformative Technologies: Computing, Illinois Institute of Technology	Spring 2012

Teaching Assistant

Teaching Assistant to Dr. Andreas Glaeser, Sociological Theory	Spring 2012, 2014
Teaching Assistant to Dr. Karin Knorr Cetina, Global Society & Global Culture	Fall 2011, 2013
Teaching Assistant to Dr. Karin Knorr Cetina, Consumption	Spring 2010
Teaching Assistant to Dr. James Evans, Science, Culture and Society III	Spring 2010
Teaching Assistant to Dr. James Evans, Content Analysis	Winter 2010

POSTGRADUATE RESEARCH SUPERVISION
- **2021-present** L. Alqazlan (Computer Science) "A Novel, Human-in-the-Loop Framework for Big Social Data" (expected graduation date: 2024; with R. Procter, Dept. of Computer Science)
- **2021-present** A. Sonea (Centre for Interdisciplinary Methodologies) "Everyday Banking – a Critical National Infrastructure in Transition: The Case of Access to Banking in the UK" (expected graduation date: 2024; with E. Uprichard)
- **2020-present** Z. Zhao (Centre for Interdisciplinary Methodologies) "Domain Experience and Expertise in Explainable AI Applications" (expected graduation date: 2024; with C. Turkay)

SERVICE
University and Professional Service
- **2017-present** Course Convenor for MSc Big Data and Digital Futures, Centre for Interdisciplinary Methodologies (CIM)
- **2017-present** Member of CIM Department Education Committee
- **2017-present** Member of CIM Department SSLC (Student-Staff Liaison Committee)
- **2021** Member of CIM Department Decolonising and Diversifying the Curriculum Group
- **2021-2022** Member of CIM Department Athena Swan SAT (Self-Assessment Team)
- **2019-2020** Member of REF Reading Group for Warwick Department of Sociology
- **2018** Helped draft ESPRC CDT proposal in Computer Science for "Systems-Centric Artificial Intelligence"
- **2018** Represented CIM at Board of the Faculty of Social Sciences meeting
- **2010-2011** Manuscript Board, *American Journal of Sociology*

Reviewer
- *Big Data & Society*
- Ethics Reviewer for NeurIPS
- *Workshop on Online Abuse and Harms* (formerly Abusive Language Workshop) at Association for Computational Linguistics (ACL)
- *University of Chicago Press*
- Peer Review Pool Member for *UKRI-JST Joint Call on Artificial Intelligence and Society* (2019)
- *American Journal of Sociology*

Professional Memberships 2017-2024
Society for Social Studies of Science (4S)
Association for Computational Linguistics (ACL)
Association for Computational Machinery (ACM)
Society for the Advancement of Socio-Economics (SASE)
SIGCIS (Special Interest Group for Computers, Information and Society)
Society for the History of Technology (SHOT)
American Sociological Association (ASA)

Technical Skills
Programming Languages: Python, R, SQL, Haskell, C/C++.
Cloud Platforms: Azure.
Operating Systems: MacOS, Linux.

Software Tools/Libraries: PostgreSQL/MySQL, ArcGIS, scipy, matplotlib, Django, NLTK, HTML/CSS, GTK+ 2, VTK/ITK, Matlab, SPSS, LaTeX, OpenGL.

Languages Read
French (fair), Spanish (fair)

Revised 4th February, 2024