

Rui Zhao

rui.zhao@cs.ox.ac.uk <https://me.ryey.icu/>

My research focuses on data flow governance, data usage control and privacy protection, in decentralized / multi-stakeholder contexts. (Neural-)Symbolic AI / Logic and Privacy-Enhancing Technology are the main methods.

Currently, I am in Prof. Sir Nigel Shadbolt and Prof. Sir Tim Berners-Lee's group, working on improving data control mechanisms while supporting user's autonomy, especially through Data Terms of Use and MPC.

Education

Ph.D in Informatics	University of Edinburgh	2018 – 2022
Thesis: <i>Dr.Aid: A formal framework assisting compliance with data governance rules</i> Supervisor: Prof. Malcolm Atkinson, Dr. Petros Papapanagiotou and Prof. Jacques Fleuriot		
MSc in Computer Science	University of Edinburgh	2016 – 2017
Thesis: <i>Making dispel4py dynamic – on-demand dispel4py workflow deployment scaling-up and dynamic workflow structure updates</i> Supervisor: Prof. Malcolm Atkinson and Dr. Rosa Filgueira		
B.Eng. in Software Engineering	Northwest A&F University	2012 – 2016
Thesis: <i>Design and implementation of a 3-d dynamic solar systems viewing system – a distributed exploration system</i> Supervisor: Prof. Hongming Zhang		

Employment

Postdoctoral Researcher	Department of Computer Science, University of Oxford	2022 – now
Project: <i>Ethical Web And Data Architecture in the Age of AI (EWADA)</i> Led by Prof. Sir Nigel Shadbolt, and Prof. Sir Tim Berners-Lee Topics: <ul style="list-style-type: none">• User-autonomous privacy-preserving computation in decentralized contexts, especially in SoLiD (Social Linked Data)• <i>Data Terms of Use: data usage control and automated reasoning for data governance in decentralized contexts</i>• <i>AI Governance; User factors</i> Teaching & Supervision: <ul style="list-style-type: none">• <i>Supervisor of Master & Bachelor students' theses; Supervisor of interns; Teaching assistant</i>		
Research Fellow	Oxford Martin School	2022 – now
Research Assistant (part-time)	School of Informatics, University of Edinburgh	2020 – 2020
Project: <i>Delivering Agile Research Excellence on European e-Infrastructures (DARE)</i> Design and Develop Dare Knowledge Base (DKB), a contextual decentralized knowledge infrastructure for e-Science		
Research Assistant (part-time)	School of Informatics, University of Edinburgh	2018 - 2021
Tutor and Demonstrator of multiple courses, e.g. MLP, ANLP, IPPO		

Credit

Associate Fellowship of <i>Higher Education Academy</i> (AFHEA)	01/2021
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Talk & Outreach

Talk at <i>Solid Symposium 2025 in Leiden</i> <i>Maintaining privacy and control, for Information Retrival in the context of Solid-like decentralized ecosystem</i>	04/2025
Talk at <i>GOSIM 2024 in Beijing</i> <i>Building for a User-Centred Internet</i>	10/2024
Talk at <i>ESPRESSO Workshop on Decentralized Search in London</i> <i>Exploring Bless and Curse of User Autonomy, in the Context of Solid-like Decentralized Web Ecosystem</i>	06/2024
Seminar at <i>Northwest A&F University</i>	05/2024
Seminar at <i>Zhejiang University</i>	05/2024

Talk at <i>WebEvolve -- SOLID: Technologies, Standards and Ecosystem</i> (W3C China’s event series) <i>On the Social Aspect of SoLiD</i>	01/2024
Talk at <i>Solid World 2022</i> <i>Recent Advances of EWADA Team’s Solid Exploration</i>	12/2022
Seminar at <i>ALAI, School of Informatics, University of Edinburgh</i>	05/2021 02/2020

Other Roles

Member of <i>W3C LWS Working Group</i>	2024 – now
Lead Developer of <i>Easer</i> An open-source, user-programmable explicit automation assistant app for Android	2017 – 2023
PhD Student Representative School of Informatics, University of Edinburgh	2019 – 2021
MSc Class Representative School of Informatics, University of Edinburgh	2016 – 2017
Leader of <i>Linux User Group</i> Northwest A&F University	2014 – 2016

Publication (rev. chronological)

- **R. Zhao**, N. Goel, N. Agrawal, J. Zhao, J. Stein, R. Verborgh, R. Binns, T. Berners-Lee, and N. Shadbolt, ‘Libertas: Privacy-Preserving Computation for Decentralised Personal Data Stores’, (accepted by) *ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2025)*, (to appear in) Nov. 2025, available on <https://arxiv.org/abs/2309.16365>.
- M. Duan, M. Du, **R. Zhao**, M. Wang, Y. Wu, N. Shadbolt, B. He, ‘Position: Current Model Licensing Practices are Dragging Us into a Quagmire of Legal Noncompliance’, the *42nd International Conference on Machine Learning (ICML 2025)*, Jul 2025.
- Z. Zhang, J. Zhao, G. Wang, S. Johnston, G. Chalhoub, T.J. Ross, D. Liu, C. Tinsman, **R. Zhao**, M.V. Kleek, N. Shadbolt. ‘Trouble in Paradise? Understanding Mastodon Admin’s Motivations, Experiences, and Challenges Running Decentralised Social Media’, in *27th ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2024)*, Nov 2024.
- **R. Zhao**, J. Zhao, ‘Perennial Semantic Data Terms of Use for Decentralized Web’, in *Proceedings of the ACM on Web Conference 2024 (WWW 2024)*, May 2024.
- V. Vizgirda, **R. Zhao** & N. Goel, ‘SocialGenPod: Privacy-Friendly Generative AI Social Web Applications with Decentralised Personal Data Stores’, in *Companion Proceedings of the ACM on Web Conference 2024 (WWW 2024)*, May 2024.
- J.M.L. Stein, V. Vizgirda, M. Van Kleek, R. Binns, J. Zhao, **R. Zhao**, N. Goel, G. Chalhoub, W.S. Albayaydh, N. Shadbolt, “You are you and the app. There’s nobody else.’: Building Worker-Designed Data Institutions within Platform Hegemony’, in *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI 2023)*, Apr. 2023.
- **R. Zhao**, M. Atkinson, P. Papapanagiotou, F. Magnoni, and J. Fleuriot, ‘Dr.Aid: supporting data-governance rule compliance for decentralized collaboration in an automated way’, in *24th ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2021)*, Oct. 2021.
- **R. Zhao**, ‘An Automated Framework for Supporting Data-Governance Rule Compliance in Decentralized MIMO Contexts’, in *Proceedings of the Thirtieth International Joint Conference on Artificial Intelligence (IJCAI 2021, Doctoral Consortium)*, Aug. 2021.
- **R. Zhao** and M. Atkinson, ‘Towards a Computer-Interpretable Actionable Formal Model to Encode Data Governance Rules’, in *Proceedings of 2019 15th International Conference on eScience (eScience 2019)*, Sep. 2019.

CEUR (Workshop) (rev. chronological)

- **R. Zhao** and J. Wright, ‘Introduce an Auditing Layer to Web Science’, (to appear) in *Proceedings of the 17th ACM Web Science Conference Companion 2025*, May 2025.
- J. Wright, B. Esteves, and **R. Zhao**. ‘Me Want Cookie! Towards Automated and Transparent Data Governance on the Web’, in *NXDG, 20th International Conference on Semantic Systems (SEMANTiCS 2024)*, Sept. 2024.
- **R. Zhao**, J. Zhao, and Z. Zhou, ‘Long-living Service for Cooperative Knowledge Use in Decentralized Data Stores’, in *TrusDeKW, Extended Semantic Web Conference 2023 (ESWC 2023)*, May 2023.

- **R. Zhao**, M. Atkinson, P. Papapanagiotou, J. Fleuriot, and C. Pagé, ‘Computer-supported ethical rules for collaboratively sharing data’, in *Ethics in Design, The 23rd ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2020)*, Oct. 2020.

Preprint (rev. chronological)

- **R. Zhao**, V. Melnychuk, J. Zhao, J. Wright and N. Shadbolt, ‘An LLM-enabled semantic-centric framework to consume privacy policies’, 2025.
- **R. Zhao**, J. Zhao, V. Melnychuk and N. Shadbolt, ‘Let’s Measure the Elephant in the Room: Facilitating Personalized Automated Analysis of Privacy Policies at Scale’, 2024.
- M. Duan, **R. Zhao**, L. Jiang, N. Shadbolt, B. He “‘They’ve Stolen My GPL-Licensed Model!’: Toward Standardized and Transparent Model Licensing’, 2024.
- V. Ramesh, **R. Zhao** and N. Goel, ‘Decentralised, Scalable and Privacy-Preserving Synthetic Data Generation’, *arXiv*, 2023, doi: 10.48550/arXiv.2310.20062.
- **R. Zhao**, M. Atkinson, P. Papapanagiotou and J. Fleuriot, ‘A Logical Formalization of a Data-Use Policy Language for Data-Flow Graphs’, *preprint*, 2023.