MATTHUS MICHIEL MAAS

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Institute for Law and AI, 6 Liberty Square #6079, Boston, MA 02109, USA

Senior Research Fellow, Institute for Law and AI Research Affiliate, Leverhulme Centre for the Future of Intelligence, University of Cambridge, UK. Non-residential Research Associate, King's College, University of Cambridge, UK.

<u>Awards:</u> Santander-CIDOB Future Leaders Forum '35 under 35' List (<u>link</u>) | 2021 GCRI Fellow (<u>link</u>) | Affiliate, McLaughlin College (York University).

Expert networks engagement: OECD AI Futures workstream (2023); consultative network for the UN Secretary-General's High-Level Advisory Body on Artificial Intelligence (2024).

Research statement: I work on the global governance of AI technology. My aim is to help inform robust and adaptive regulatory strategies for this and other emerging technologies. To that end, my research broadly focuses on (1) the design of adaptive institutions and global regime complexes for AI; (2) the effects of AI systems on the norms and processes of international law itself; and (3) lessons from historical case studies and analogies for crafting and implementing AI regulation that is coherent, effective and resilient.

Academic Experience

08 / 2022 – present | Senior Research Fellow, Institute for Law and AI

Leading research on theories of impact for advanced AI governance; models for international AI institutions.

| Summer Research Fellow, Legal Priorities Project (link) | Postdoctoral Research Associate, Centre for the Study of Existential Risk & Centre for the Future of Intelligence (University of Cambridge—Cambridge, UK)

- Core research projects include: (1) mapping of ways in which military AI systems contribute to global catastrophic risk; (2) exploring 'capability-scalable' institutional and legal mechanisms that enable global AI governance to track the technological trajectory of advanced AI
- Led on Submission of Evidence to the UK Cabinet Office's National Resilience Strategy; coauthored submission to the European Commission's proposed AI Act and the NIST AI Risk Management Framework.

10 / 2020 – 10/2022 | College Research Associate (King's College, University of Cambridge).

10 / 2020 – 10/2022 | College Research Associate (King's College, University of Cambridge).

10 / 2020 – 10/2022 | PhD Fellow, Centre for International Law and Governance (The University of Copenhagen, Faculty of Law—Copenhagen, Denmark)

- PhD Dissertation 'Artificial Intelligence Governance Under Change: Foundations, Facets, Frameworks', under Prof. Hin-Yan Liu and Prof. Kristian Lauta. Defended on 21st of April, 2021, to a panel of Profs. Mikael Rask Madsen, Lyria Bennett Moses, and Ingvild Bode.
- Prepared and taught MA-level courses (see 'Teaching')
- Fall 2018: research stay at Center for the Governance of AI (FHI, University of Oxford).

01 / 2018 – 07 / 2020 | Research Affiliate, Centre for the Governance of AI (University of Oxford).

05 / 2016 – 01 / 2018 | Researcher, Global Politics of Artificial Intelligence (GP-AI) Research Group,
(Yale University & University of Oxford)

- Supported research projects of Dr. Allan Dafoe, including 'AI Governance: a Research Agenda', and syllabus for Yale University course on 'The Global Politics of Artificial Intelligence'.
- Coordinated a network of a dozen research assistants towards conducting diverse research tasks.

05 / 2016 – 08 / 2018 | Junior Associate, Global Catastrophic Risks Institute (GCRI)

Education & Qualifications

| 04 / 2016 – 07 / 2016 | FullStack Web Development Bootcamp, (Le Wagon / B. Startup School |
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| | Amsterdam) |
| 09 / 2012 – 08 / 2013 | MSc in International Relations; graduated With Distinction (The University of |
| | Edinburgh—Edinburgh, UK) |
| 08 / 2009 – 05 / 2012 | BA, Liberal Arts & Sciences; graduated Cum Laude (GPA of 3.6/4.0) |
| | (University College Utrecht—Utrecht, The Netherlands) |

Publication & dissemination profile

As of February 5th, 2024, I have published **19** papers (6 solo, 13 co-authored), and **11** reports and policy submissions. Since 2019, my work has garnered **812** citations (h-index: **13**; i10-index: **16**).

Book projects:

- 1. Maas, Matthijs M. 'Architectures of AI Governance: from change to choice'. Book manuscript. *Oxford University Press.* (final manuscript submitted January 2024; indicative publication date Q4 2024).
- 2. Villalobos, José Jaime, Matthijs Maas & Christoph Winter, 'Seven Principles to Govern Advanced AI'. Draft manuscript, under review at *Oxford University Press*.

Journal articles & chapters:

- 1. Hopster, Jeroen K. G., and Matthijs M. Maas. 'The Technology Triad: Disruptive AI, Regulatory Gaps and Value Change'. *AI and Ethics*, 28 June 2023. (link).
- 2. Maas, Matthijs M., Kayla Matteuci, Di Cooke. 'Military Artificial Intelligence as Contributor to Global Catastrophic Risk'. In: Clarissa Rios Rojas, Catherine Richards, Martin Rees (eds.). *The Era of Global Risk*. OpenBook Publishers. (2023) (publisher link, SSRN link)
- 3. Sundaram, Lalitha, Matthijs M. Maas, SJ Beard. 'Seven Questions for Existential Risk Studies' In: Catherine Rhodes (ed). *Managing Extreme Technological Risk*. World Scientific. (Forthcoming 2023). (SSRN link)
- 4. Maas, Matthijs M. 'Aligning AI Regulation to Sociotechnical Change'. In: Justin Bullock, Baobao Zhang, Yu-Che Chen, Johannes Himmelreich, Matthew Young, Antonin Korinek & Valerie Hudson (eds.). *Oxford Handbook on AI Governance* (Oxford University Press, 2023). (SSRN preprint)
- 5. Stix, Charlotte, and Matthijs M. Maas. "Bridging the Gap: The Case for an 'Incompletely Theorized Agreement' on AI Policy." *AI and Ethics*, January 15, 2021. (link).
- 6. Liu, Hin-Yan, and Matthijs M. Maas. "Solving for X?" Towards a Problem-Finding Framework to Ground Long-Term Governance Strategies for Artificial Intelligence." *Futures* 126 (February 1, 2021): 22. (link).
- 7. Cihon, Peter, Matthijs M. Maas, and Luke Kemp. "Fragmentation and the Future: Investigating Architectures for International AI Governance." *Global Policy* 11, no. 5 (November 2020): 545–56. (link).
- 8. Liu, Hin-Yan, Matthijs Maas, John Danaher, Luisa Scarcella, Michaela Lexer, and Leonard Van Rompaey. "Artificial Intelligence and Legal Disruption: A New Model for Analysis." *Law, Innovation and Technology* (September 16, 2020): 1–54. (link).

- 9. Liu, Hin-Yan, Kristian Cedervall Lauta, and Matthijs M. Maas. "Apocalypse Now? Initial Lessons from COVID-19 for the Governance of Existential and Global Catastrophic Risks" *Journal of International Humanitarian Legal Studies* 11, no.2 (2020): 1-16. (link).
- 10. Levin, John-Clark, and Matthijs M. Maas. "Roadmap to a Roadmap: How Could We Tell When AGI is a 'Manhattan Project' Away?" *Proceedings of ECAI/EPAI 2020*. (PDF, arxiv)
- 11. Hayward, Keith J, and Matthijs M Maas. "Artificial Intelligence and Crime: A Primer for Criminologists." *Crime, Media, Culture*, June 30, 2020, 1741659020917434. (<u>link</u>).
- 12. Cihon, Peter, Matthijs M. Maas, and Luke Kemp. "Should Artificial Intelligence Governance Be Centralised? Design Lessons from History." In *Proceedings of the 2020 AAAI/ACM Conference on AI, Ethics, and Society (AIES '20)*, 228-34. New York, NY, USA: ACM, 2020. (link, arxiv).
- 13. Maas, Matthijs M. "International Law Does Not Compute: Artificial Intelligence and The Development, Displacement or Destruction of the Global Legal Order." *Melbourne Journal of International Law* 20, no. 1 (2019): 29–56. (PDF, link)
- 14. Maas, Matthijs M. "Innovation-Proof Governance for Military AI? How I Learned to Stop Worrying and Love the Bot." *Journal of International Humanitarian Legal Studies* 10, no. 1 (2019): 129–57. (link).
- 15. Maas, Matthijs M. "How Viable Is International Arms Control for Military Artificial Intelligence? Three Lessons from Nuclear Weapons." *Contemporary Security Policy* 40, no. 3 (February 6, 2019): 285–311. (link).
 - a. Paper shortlisted for the <u>2020 Bernard Brodie Prize</u>.
- 16. Baum, Seth D., Stuart Armstrong, Timoteus Ekenstedt, Olle Häggström, Robin Hanson, Karin Kuhlemann, Matthijs M. Maas, et al. "Long-Term Trajectories of Human Civilization." *Foresight* 21, no. 1 (February 11, 2019): 53–83. (link).
 - a. Paper featured in **BBC Future** article on 'The Perils of short-termism' (link).
 - b. Awarded the 2020 Literati Award for 'Outstanding Paper'.
- 17. Liu, Hin-Yan, Kristian Cedervall Lauta, and Matthijs Michiel Maas. "Governing Boring Apocalypses: A New Typology of Existential Vulnerabilities and Exposures for Existential Risk Research." *Futures* 102 (2018): 6–19. (<u>link</u>).
 - a. December 2021: featured in New York Times by Adam Grant (link)
- 18. Maas, Matthijs M. "Two Lessons from Nuclear Arms Control for the Responsible Governance of Military Artificial Intelligence." In *Envisioning Robots in Society Power, Politics, and Public Space*, Vol. 311. Frontiers in Artificial Intelligence and Applications. IOS Press, 2018. (link)
- 19. Maas, Matthijs M. "Regulating for 'Normal AI Accidents'—Operational Lessons for the Responsible Governance of AI Deployment." In *Proceedings of the 2018 AAAI / ACM Conference on Artificial Intelligence, Ethics and Society (AIES'18)*. New Orleans: Association for the Advancement of Artificial Intelligence, 2018. (link)

Manuscripts in preparation or under review:

- 1. Trabucco, Lena, and Matthijs M. Maas. 'Technology Ties: the Rise and Roles of Military AI Strategic Partnerships'. *Under review*. (working paper <u>link</u>)
- 2. Sundaram, Lalitha, Matthijs M. Maas, SJ Beard. 'From Evaluation to Action: ethics, epistemology and extreme technological risk' In: Catherine Rhodes (ed). *Managing Extreme Technological Risk*. World Scientific. (Forthcoming 2024).
- 3. Maas, Matthijs M. 'AI, Governance Displacement, and the (De)Fragmentation of International Law'. (SSRN preprint).

Other publications (reports, policy submissions):

1. Maas, Matthijs M., 'Advanced AI Governance: A Literature Review of Problems, Options, and Proposals' (November 10, 2023). *AI Foundations Report 4*, Legal Priorities Project. (SSRN link).

- 2. Maas, Matthijs M., 'Concepts in Advanced AI Governance: A Literature Review of Key Terms and Definitions' (October 25, 2023). *AI Foundations Report 3*. Legal Priorities Project. (SSRN link).
- 3. Maas, Matthijs M., 'AI is Like... A Literature Review of AI Metaphors and Why They Matter for Policy' (October 25, 2023). *AI Foundations Report 2*, Legal Priorities Project. (SSRN link).
- 4. Maas, Matthijs M. and Villalobos, José Jaime, 'International AI Institutions: A Literature Review of Models, Examples, and Proposals' (September 22, 2023). *AI Foundations Report 1*. Legal Priorities Project. (SSRN link)
- 5. Maas, Matthijs., 'Paths Untaken: The History, Epistemology and Strategy of Technological Restraint, and lessons for AI', *Verfassungsblog*, (August 9, 2022), (<u>link</u>), DOI: 10.17176/20220810-061602-0.
- 6. Belfield, Haydn, Matthijs Maas, Shahar Avin, and Seán Ó hÉigeartaigh (2022) 'Response to NIST AI Risk Management Framework Concept Paper'. *Submission to National Institute of Standards and Technology*. Centre for the Study of Existential Risk. (<u>link</u>)
- 7. Maas, Matthijs M., Diane Cooke, Tom Hobson, Lalitha Sundaram, Haydn Belfield, Lara Mani, Jess Whittlestone, Seán Ó hÉigeartaigh. "Reconfiguring Resilience for Existential Risk: *Submission of Evidence to the Cabinet Office* on the new UK National Resilience Strategy" Centre for the Study of Existential Risk. September 27th, 2021. (Response ID: ANON-7FMB-F6JK-W). (link, PDF).
- 8. Clarke, Sam, Jess Whittlestone, Matthijs Maas, Haydn Belfield, José Hernández-Orallo, Seán Ó hÉigeartaigh. "Submission of Feedback to the European Commission's Proposal for a Regulation laying down harmonised rules on artificial intelligence". Centre for the Study of Existential Risk. 10 August 2021. (link)
- 9. Avin, Shahar, Lalitha Sundaram, Jessica Whittlestone, Matthijs Maas, and Thomas Hobson. "Submission of Evidence to The House of Lords Select Committee on Risk Assessment and Risk Planning." Centre for the Study of Existential Risk, February 3, 2021. (link).
- 10. Belfield, Haydn, José Hernández-Orallo, Seán Ó hÉigeartaigh, Matthijs M. Maas, Alexa Hagerty, and Jess Whittlestone. "Consultation on the White Paper on AI a European Approach". *Submission to European Commission* public consultation. Centre for the Study of Existential Risk. June 15, 2020. (link)
- 11. Kemp, Luke, Peter Cihon, Matthijs Michiel Maas, Haydn Belfield, and Zoe Cremer. "UN High-Level Panel on Digital Cooperation: A Proposal for International AI Governance." *Submission to UN High-Level Panel on Digital Cooperation*, February 26, 2019. (PDF).
- 12. Maas, Matthijs M., Tim Sweijs, and Stephan De Spiegeleire. *Artificial Intelligence and the Future of Defense: Strategic Implications for Small- and Medium-Sized Force Providers*. The Hague, The Netherlands: *The Hague Centre for Strategic Studies*, 2017. (link).

Reviewer

- Academic Publisher (book proposal reviews): *OUP*
- <u>Policy; Security</u>: Global Policy; European Journal of International Security, RUSI Journal; St Antony's International Review; Risk, Hazards & Crisis in Public Policy, Political Studies
- <u>Law</u>: International Review of the Red Cross; Retskraft.
- <u>AI & technology</u>: Journal of Artificial Intelligence Research, Science and Engineering Ethics, Futures; Foresight

Selected Presentations & Speaking Engagements

Since 2016, I have presented at dozens of international conferences, workshops, or public events. This includes invitation-only events; subject area conferences, and public events. A detailed list of presentation subjects and materials is available upon request.

Key: (P) resentation, (K) eynote, (R) oundtable, (W) orkshop participant, (D) ebate, (Pod) cast. No notation indicates a presentation.

- **2024:** (**P**) Ada Lovelace Institute Seminar, *AI Metaphors and how they matter to policy* // (**P**) Centre for the Future of Intelligence, Annual Retreat workshop: *DIY AI Policy: from AI Analogies to Governance Architectures*
- **2023:** (P) ERA Summer Research Fellowship, *The Ethics, History, Epistemology, and Strategy of Technological Restraint* // (Pod) Philosophical Disquisitions, 'Can we pause AI Development? Evidence from the history of technological restraint', by John Danaher (podcast link) // (P) Chalmers AI Research Centre, AI Ethics Seminar: *Pausing AI? The Ethics, History, Epistemology, and Strategy of Technological Restraint* (link) // (P) Asser Institute Winter Academy on Artificial Intelligence and Law 2023. *International Governance of Artificial Intelligence: Charting a Regime Architecture* // (W) Simon Institute for Longterm Governance, Workshop on Future-Proofed UN, Geneva
- **2022:** (**W**) Open World Conference 2022, Copenhagen // (**P,R**) 2022 Multidisciplinary Symposium on Longtermism and the Law, Hamburg // (**P,R**) IACL / CECS conference 'The Impact of Digitalization on Constitutional Law' // (**P**) TU Delft, workshop "Machines of Change: Robots, AI and Value Change" // (**P**) AutoNorms / Center for War Studies (SDU) conference "The Algorithmic Turn in Security and Warfare": *Through the Thick of It: Mapping Military AI Strategic Partnerships*.
- **2021:** (**P,R**) UTokyo-Cambridge Voices Series: "Resilience and Global Risk" (<u>link</u>) // (**P,R**) European Society of International Law (ESIL) Annual Conference (Stockholm 2021), Special Interest Group on International Law and Technology // (**R**) CSER panel 'Doom and Doubt: Uncertain Futures & Open Questions about Existential Risk' (<u>video</u>) // (**P,R**) CHAI Virtual Workshop 'Capability-Scalable AI Governance? Precedent or Adaptability?' // (**P,R**) Gothenburg University Chalmers AI Research Centre event 'Quo Vadis, AI Ethics?': 'Bridging the gap: the case for an 'Incompletely Theorized Agreement' on AI Policy' (<u>video</u>, <u>slides</u>) // (**P,R**) Centre for the Governance of AI, Work-in-Progress presentation // (**W**) University of Edinburgh 'Novel Beings Network' Workshop // (**Pod**) The Leiden Security and Global Affairs podcast, 'Governing AI and Autonomous Weapon Systems' (<u>link</u>) // (**P,R**, **W**) International Studies Association (ISA 2021) FC12: Theoretical Perspectives on International Law, TE39: International Law, Norms, and Arms Control for Emerging Technologies, TD28: Gaming as a Research Method for Foreign Policy and International Politics // (**P**) Law, Technology and Disruption Conference, City University of Hong Kong // (**P**) Asser Institute Winter Academy on Artificial Intelligence and Law 2021. International Governance of Artificial Intelligence: Charting a Regime Architecture.
- **2020:** (D) Mclaughlin College Debate: 'AI as an Existential Risk' // (P) Evaluating Progress in AI (EPAI) 2020, Santiago de Compostela (digital), presentation on 'Roadmap to a Roadmap // (P) AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society 2020. New York, USA. Title: "Should Artificial Intelligence Governance be Centralised? Design Lessons from History"
- **2019:** (P) University of Southern Denmark Centre for War Studies Annual Conference 'Technology & Digitalization as Forces of Change' // (P) TechFestival Copenhagen 2019, on 'Human Rights, Human Values, and Al' // (P, R, W) University of Gothenburg, *AI for Health and Healthy AI* // (P) DwD-GCRF-UKADR-DRG-UKCDR International Conference, 2019 Northumbria University 'New points of departure in transitioning disaster reduction and sustainability challenges' // (W) CIFAR/UNIDIR Workshop Regulating Defense and Security AI Technologies: Options Beyond Traditional Arms Control. Toronto. By invitation // (P, R) TILTing Perspectives conference, Tilburg University // (P, R) 8th Cambridge International Law Journal Conference 2019: (video) / (P) 'Tech&Law Breakfast', Digitalisation Hub, Faculty of Law, University of Copenhagen: 'AI as threat and opportunity for the global legal order'.
- 2018: (Pod) interview with John Danaher Algocracy podcast (link) // (P, R) University of Copenhagen Beyond Killer Robots conference, on 'Innovation-Proof Governance for Military Artificial Intelligence' // (K) Keynote at Copenhagen Common Session Conference on Critical Criminology, on 'AI, Crime, and Policing: Now That We're In The Future, What Does That Look Like?' // (W) Centre for the Study of Existential Risk workshop on 'Plutonium, Silicon & Carbon: cybersecurity risks of nuclear weapons systems' // (P, R) September 8, 2018: Workshop 'AI and Legal Disruption' at Copenhagen TechFestival 2018. // (R, W) Holberg Prize Week, Bergen, Norway: selected to represent Denmark in the Holberg Prize Masterclass 2018 with Prof. Cass Sunstein. Title of talk: "Human Error about-, in-, and with- AI". (link, video) // (W) Cambridge Conference on Catastrophic Risk (CCCR) 2018 organized by Centre for the Study of Existential Risk (CSER). // (P) International Research Conference Robophilosophy 2018 / TRANSOR 2018. Vienna, Austria. (link) // (P) AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society 2018. New Orleans, USA.
- **2017: (W)** University of Gothenburg *Workshop on Existential Risk to Humanity* // **(P, R, W)** Lorentz Center (University of Leiden) Workshop Multilateral Governance of Technological Risk
- **2016:** (P) Cambridge Conference on Catastrophic Risk 2016 (CCCR 2016) "*Insights from Nuclear Weapons Policy for the Governance of Artificial Intelligence Development*". Described by one organizer as 'one of the best-received contributed talks' (link).

Teaching

University of Cambridge (Leverhulme Centre for the Future of Intelligence):

• 2021-2024: Academic Advisor, Master of Studies in AI Ethics and Society (MSt AI Ethics) *University of Copenhagen*:

- 2017-2019: (course instructor) Artificial Intelligence and Legal Disruption (LLM)
- 2018: prepared course 'Law and Policy for Global Catastrophic and Existential Threats' (MA)
- 2017-2021 (Guest lectures) courses on Criminology, International Human Rights Law, Climate and Migration Law (LLM)

Vrije Universiteit Amsterdam

• 2021: (Guest lectures) Big Data, Human Rights, and Human Security (LLM)

Asser Institute

• 2021 & 2022: (Guest lectures) Winter Academy on Artificial Intelligence and International Law (LLM & PhD)

Student Supervision

- June-August 2021: mentor at Cambridge Existential Risk Initiative (CERI) Summer Research Program, coached Arvo Munoz Moran for a game-theoretical approach to Transformative AI deployment scenarios.
- Fall 2020: Suvradip Maitra: independently coached a former student to rewrite an excellent course paper, and submit to AAAI/ACM Conference on *AI*, *Ethics and Society*, where he was consequently accepted as only undergraduate, and where he published in the conference proceedings on "Artificial Intelligence and Indigenous Perspectives: Protecting and Empowering Intelligent Human Beings." (link).
- Summer 2019: (supervision of independent research, organized through FHI). Tobias Pulver: Shaping policy as experts: An epistemic community for (transformative) AI governance?
- Fall 2019: Masters Thesis. Mayra Futema: *Discrimination in the rise of automated decisions A critical appraisal of the GDPR legal responses to protect rights and freedoms*. Grade 12/12.
- Spring 2019: Masters Thesis. Rahman Nayil: From Darkness to Light: An Analysis of Privacy Issues Relating to Algorithmic Black Box Medicine. Grade 12/12.
- Spring 2019: Masters Thesis. Laura Emily Christiansen: *The Patentability of AI-made Inventions*. Grade 12/12.
- Spring 2019: Masters Thesis. Edward St. John Maurice Treacy: *International Law Regulation of Cyber Activities Below the Threshold of 'Force'*. Grade 12/12.

Work Experience

10 / 2016 – 08 / 2017 | Analyst, NewForesight consultancy (Utrecht, The Netherlands)

Worked with diverse industry, civil society and government stakeholders on modelling of agricultural yields and supply chains, ensuring resilience, sustainability, and profitability for farmers.

05 / 2015 – 10 / 2016 | Freelance Analyst, The Hague Centre for Strategic Studies (HCSS)

Invited to contribute to major projects, e.g. (1) evaluation of urban security strategies; (2) scenario analysis of future trends & shocks in global food systems; (3) comparative sentiment analysis of national security & strategy foresight literatures; (4) report on non-kinetic military applications of AI systems.

06 / 2015 – 12 / 2015 | Trainee (Political and Security Affairs), The Netherlands Embassy in Beirut 12 / 2013 – 08 / 2014 | Assistant Strategic Analyst, The Hague Centre for Strategic Studies (HCSS)