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Sune Lehmann

Profile

A physicist by training, I work on the quantitative understanding of social systems from massive behavioural datasets – drawing on complex-systems thinking, machine learning, and statistical analysis, applied to networks, human mobility, attention, sleep, and the spread of information and disease. I co-lead the *Social Complexity Lab*, named Best Danish Research Environment in 2023. Inspired by the *life2vec* line of research (*Nat Comput Sci* 2024), I've become particularly interested in how AI methods – sequence models and graph representation learning – can help us make sense of social data. I served on the Danish government's COVID-19 modelling task force (2020–2022), co-lead the *Networks and Graphs* collaboratory at the Pioneer Center for AI, am a Chief Scientist of the Danish National Centre for AI in Society, and a member of the Royal Danish Academy of Sciences and Letters.

Employment

- 2019– *Professor of Networks and Complexity Science*, DTU Compute, Technical University of Denmark.
- 2020– *Professor of Social Data Science*, Center for Social Data Science (SODAS), University of Copenhagen.
- 2017–22 *Adjunct Professor of Social Network Science*, Department of Sociology, University of Copenhagen.
- 2013–18 *Adjunct Associate Professor of Statistical Mechanics of Complex Networks*, Niels Bohr Institute, University of Copenhagen.
- 2012–19 *Associate Professor*, DTU Compute.
- 2010–12 *Assistant Professor*, DTU Informatics.
- 2009–10 *Postdoctoral Fellow*, Institute for Quantitative Social Science, Harvard University, and Northeastern University.
- 2007–09 *Postdoctoral Fellow*, Center for Complex Network Research, Northeastern University, and Dana-Farber Cancer Institute, Harvard University.

Education

- 2007 *Ph.D., Computer Science*, DTU Informatics. Dissertation: *The Structure of Complex Networks*. Advisor: Lars Kai Hansen.
- 2003 *M.Sc., Physics*, Niels Bohr Institute, University of Copenhagen. Advisor: Benny Lautrup.
- 2000 *B.Sc., Physics*, Niels Bohr Institute, University of Copenhagen.

Selected funding

More than DKK 100M secured as PI or co-PI across major awards (2007–2025); ~DKK 33M as sole PI.

- 2020–25 *Nation-scale Social Networks* (PI). Villum Synergy Grant. DKK 19.7M.
- 2020–23 *HOPE: How Democracies Cope with Covid-19* (co-PI). Carlsberg Semper Ardens. DKK 30.3M total.
- 2020–24 *DISTRACT: The Political Economy of Distraction in Digitized Denmark* (co-PI). ERC Advanced Grant. ~DKK 18M.
- 2015–18 *Microdynamics of Influence in Social Systems* (PI). Sapere Aude Research Leader, DFF. DKK 6M.
- 2013–17 *Social Fabric* (co-PI). UCPH Programme of Excellence. DKK 16M.
- 2012–17 *High Resolution Networks* (PI). Villum Young Investigator. DKK 7M. Funded SensibleDTU.

Selected talks

I've given more than 238 talks since late 2011 – here is a small subset of recent ones:

- 2026 *Science and Cocktails* (public lecture), Amsterdam.
- 2025 *Hamlet-Physics 2025* (keynote), Copenhagen.
- 2025 *ICSSI 2025* (keynote), International Conference on the Science of Science and Innovation, Copenhagen.
- 2025 *Royal Danish Academy of Sciences and Letters* (public lecture), on life2vec.
- 2024 *Digital Tech Summit* (keynote), Copenhagen.
- 2022 *NetSciX 2022* (invited talk), University of Porto.
- 2021 *IC2S2 2021* (keynote), ETH Zurich – the leading conference in computational social science.

Positions of trust

- 2025– *Chief Scientist*, Danish National Centre for AI in Society (CAISA).
- 2025– *Efor*, Valkendorfs Kollegium.
- 2024– Member, *Royal Danish Academy of Sciences and Letters*.
- 2022– *Collaboratory Co-Lead*, Networks and Graphs, Pioneer Center for AI.
- 2022–24 Member, Danish government's *Expert Group on Tech Giants*.
- 2021– Member, *Akademiet for de Tekniske Videnskaber* (ATV).
- 2020–22 Member, *Danish COVID-19 Modelling Task Force*.
- Guest Editor, *PNAS*; Academic Editor, *PLOS One*; Executive Board, Network Science Society.

Honors & prizes

- 2023 *Best Danish Research Environment*. Awarded to the Social Complexity Lab by the Young Academy under the Royal Danish Academy.
- 2022 *DFF EliteForsk Senior Prize*. The Danish Ministry's flagship research prize (DKK 1.2M).
- 2021 *Columbus Prize* (co-recipient, for the HOPE project).
- 2018 *Best Paper Award*, IC2S2 2018, for *Evidence of Complex Contagion of Information in Social Media*.
- 2011 *Reinholdt W. Jorck's Prize* (DKK 200,000).
- Nominated four times for best teacher at DTU; nominated for best PhD advisor at DTU.

Teaching

I've taught two MSc-level courses at DTU every year since 2010: *Social Graphs and Interactions* (02805, autumn) covering networks and NLP, and *Social Data Analysis and Visualization* (02806, spring) covering real-data analysis and visualization. Recent enrollment averages 146 students per year for 02805 and 187 for 02806, totalling about 1,700 students across the past five offerings.

Supervision

PhDs and postdocs. 13 PhDs as primary supervisor, plus 12 co-supervised, and 14 postdocs.
Master's. 170 Master's thesis projects since 2011, almost entirely at DTU Compute.
Alumni outcomes. Faculty positions at IT University of Copenhagen, Northeastern, DTU Compute, SODAS, and Università del Piemonte Orientale; others have moved into roles at Google/Waymo, UNICEF, Danmarks Nationalbank, and founder roles at startups (Peergrade). **Recognition.** The lab won *Årets Forskningsmiljøpris* (Best Danish Research Environment) in 2023.

Science communication

Science communication is important to me. I host *Too Lazy to Read the Paper*, a podcast where authors of recent network- and data-science papers explain them to me conversationally – twenty episodes across two seasons (2021–22). My research has produced two long international press waves: the 2010 *TwitterMood* sentiment work (CBS Evening News, *NYT*, BBC, *TIME*, *WSJ*, NPR, *Scientific American*) and the 2024 *life2vec* paper (*Science*, *Washington Post*, AFP-syndicated). I also give regular Danish-language public lectures, including three at the Royal Academy.

Academic service

Conference organization. General Chair, *NetSci 2013* (~400 participants), Copenhagen – awarded the Copenhagen Kongres & Event Award. Senior Program Committee / PC member at WWW, ICWSM, IC2S2, and ECML PKDD workshops.
Funding-agency reviewing. European Commission, NSF (USA), ANR (France), U.S.–Israel Binational Science Foundation, US Air Force Office of Scientific Research, Volkswagen Stiftung.
Journal reviewing. Selected: *Science*, *Nature*, *Nature Communications*, *Nature Human Behaviour*, *PNAS*, *Physical Review Letters*, *Physical Review E*, *PLOS One*, *EPJ Data Science*.

Selected publications

- Boucherie, L., Maier, B. F., & Lehmann, S. (2025). Decoupling geographical constraints from human mobility. *Nature Human Behaviour*, 9, 2564–2575.
- Savcisens, G., Eliassi-Rad, T., Hansen, L. K., Mortensen, L. H., Lilleholt, L., Rogers, A., Zettler, I., & Lehmann, S. (2024). Using sequences of life-events to predict human lives. *Nature Computational Science*, 4, 43–56.
- Jonasdottir, S. S., Bagrow, J. P., & Lehmann, S. (2022). Sleep during travel balances individual sleep needs. *Nature Human Behaviour*, 6, 691–699.
- Bjerre-Nielsen, A., Kassarnig, V., Lassen, D. D., & Lehmann, S. (2021). Task-specific information outperforms surveillance-style big data in predictive analytics. *Proceedings of the National Academy of Sciences*, 118, e2020258118.
- Juul, J. L., Græsbøll, K., Christiansen, L. E., & Lehmann, S. (2021). Fixed-time descriptive statistics underestimate extremes of epidemic curve ensembles. *Nature Physics*, 17, 5–8.
- Alessandretti, L., Aslak, U., & Lehmann, S. (2020). The scales of human mobility. *Nature*, 587, 402–407.
- Lorenz-Spreen, P., Mønsted, B., Hövel, P., & Lehmann, S. (2019). Accelerating dynamics of collective attention. *Nature Communications*, 10, 1759.