





LUCAS KRUITWAGEN

GEOSPATIAL DATA SCIENTIST

 Lucas.Kruitwagen@gmail.com
 +44 754 231 3401
 <https://linkedin.com/in/lkruitwagen>
 <https://github.com/lkruitwagen>

ACADEMIA

- DPhil in Geography and the Environment 2016.10 – Present
University of Oxford
- Title: *Technology, Information, and the Governance of Environmental Risk*
 - Supervisors: Professor Cameron Hepburn, Dr Ben Caldecott
 - SusTec Academy Presenter: Invitational PhD academy hosted by ETH Zurich in Appenzall, CH
 - DescartesLabs* Impact Science Grant
 - Microsoft* AI for Earth Grant
 - Climate Change AI Reviewer and Expert Mentor
- Visiting Scholar, Global Projects Center 2018.01 – Present
Stanford University
- Visiting Researcher, Centre for Environmental Policy 2015.09 – Present
Imperial College London
- MSc, Distinction in Sustainable Energy Futures 2014.10 – 2015.09
Imperial College London
- Title: *Conditions for effective stewardship of companies subject to climate change risk*
 - Climate-KIC Master's Label Programme
- BEng in Mechanical Engineering 2007.08 – 2012.04
McGill University
- LORAN Award – Canada's highest-value undergraduate scholarship

EMPLOYMENT HISTORY

- Oxford Sustainable Finance Programme *Oxford, UK* 2015.09 – 2019.03
Data Lead
- Lead the technical development of *2 Degree Pathways* wargame and decision support tool, allowing finance, NGO, and policy analysts to roleplay energy company decision making through energy transition scenarios
 - Lead the technical development of *Risk, Impact, & Opportunity Tool*, assessing the asset-level exposure of companies in the power, steel and cement value chains to hypotheses of environment-related risk
- Ecosystem Energy Services *Toronto, Canada* 2012.05 – 2014.08
Solutions Engineer
- Developed and implemented customized energy efficiency and renewable energy solutions worth \$5M
 - Lead author on technical sales proposals generating \$18M in revenue
- Environment Canada *Ottawa, Canada* 2010.05 – 2010.09
Student Engineer – Greenhouse Gas Division

SKILLS

- Data: Matlab, Python: Pandas; Tensorflow; Keras
- Geospatial: PostGIS, GDAL/OGR, QGIS/ArcGIS
- Stack: Linux, PostgreSQL, Flask, AWS, Azure, GCP

AWARDS

- | | | |
|------|---------------------------------------|--|
| 2019 | Best Paper Prize - Innovative Methods | GRASFI Conference 2019 |
| 2018 | Best Pedagogical Innovation | UN Principles for Responsible Investment |
| 2018 | Doctoral Fellowship | Social Science & Humanities Research Council |
| 2017 | Visiting Scholar Bursary | Oxford Sustainable Finance Programme |
| 2015 | Research Prize for Best MSc Thesis | Energy Futures Lab, Imperial College London |



SELECT PUBLICATIONS

Kruitwagen, L., Klaas, J., & Lakeh, A. (2020). Asset-level energy and carbon flow in the global coal, oil, and gas supply chains, submitted to *International Conference on Fossil Fuel Supply and Climate Policy*.

Kruitwagen, L., Story, K., Freidrich, J., Skillman, S., & Hepburn, C. (2019). A global inventory of utility-scale solar photovoltaic generating units, accepted to *NeurIPS 2019 Climate Change Workshop*, submitted to *Nature*.

Moore, C., **Kruitwagen, L.,** Mendiola, J., R., Morel, A., & Malhi, Y. (2019). Classifying Land Use in Complex Mosaic Landscapes using Drone Imagery and Machine Learning, submitted to *Remote Sensing of Environment*.

Kruitwagen, L. (2018). Power Sector Asset Networks: determinants of the diffusion of renewables 2007 through 2017, presented at *ETH SusTec Academy*, June 17-22, Appenzell, CH.

Caldecott, B., **Kruitwagen, L.,** McCarten, M., & Zhou, X. (2018). *Climate risk analysis from space: remote sensing, machine learning, and the future of measuring climate-related risk*, Smith School of Enterprise and the Environment, Oxford, UK.

Kruitwagen, L., Collins, S., & Caldecott, B. (2017). 'Thermal Coal Power Stations', in *Coal in the 21 st Century*, ed. R. Hester, Royal Society of Chemistry, Cambridge, UK.

Kruitwagen, L. (2016). 'Financing 1.5 Degrees', Conference Proceedings of 1.5 Degrees: Meeting the challenges of the Paris Agreement, September 20-22, 2016, Environmental Change Institute, Oxford, UK.

Kruitwagen, L., & Holmes, I. (2016). 'Future Pathways to 1.5°C/2°C-Compatible Oil & Gas Majors: Survey of energy outlooks and key uncertainties', Conference Paper presented at *Fossil Fuel Supply and Climate Policy*, September 26-27, 2016, Oxford, UK.

Kruitwagen, L. (2016). 'Decision Making under Risk & Uncertainty', White Paper, Grantham Institute for Climate Change and the Environment, London, UK.

Kruitwagen, L., Madani, K., Caldecott, B., Workman, M. H. W. (2016). Game theory and corporate governance: conditions for effective stewardship of companies subject to climate change risks. *Journal of Sustainable Finance and Investment*, 6(3): 1-23.

Caldecott, B., **Kruitwagen, L.,** & Kok, I. (2016). Carbon Capture and Storage in the thermal coal value chain. *Oxford Energy Forum*, 105: 50-55. Oxford Institute for Energy Studies, University of Oxford, Oxford, UK.

Caldecott, B., **Kruitwagen, L.,** Dericks, G., Tulloch, D. J., Kok, I., Mitchell, J. (2016). *Stranded Assets and Thermal Coal: An analysis of environment-related risks*, Smith School of Enterprise and the Environment. University of Oxford, Oxford, UK.



ENTREPRENEURIAL ACTIVITIES & PROJECTS

Oxford COVID-19 Impact Monitor *Oxford, UK* 2020.03 – Present

- Develop insight for policy makers into the development of COVID-19 in the UK using cellphone user data

Oxford Earth Observation (Cofounder) *Oxford, UK* 2017.08 – Present

- Deliver observational insight into water risk using earth observation
- Selected for European Space Agency's Business Incubation Centre with £40,000 grant funding

OpenWatt (Founder) *London, UK* 2015.02 – 2016.09

- A start-up to enable the rapid integration of legacy equipment into 21st-century electricity systems
- Finalists at *Mayor of London's Low Carbon Entrepreneur 2015*; the *Cleantech Challenge* hosted by UCL and LBS; *Climate Launchpad 2015*

Solar Cargo (Cofounder) *London, UK* 2014.09 – 2016.05

- A start-up to deliver deployable thin-film photovoltaic power from a standard shipping container
- Kick-start funded by the Climate-KIC Greenhouse Programme

