

Konstantin Klemmer
PhD student in Urban Informatics & Data Science
University of Warwick & New York University

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Education

Machine Learning for Good (ML4G) Lab, New York University, Brooklyn, NY, USA	07/2018 – present
<ul style="list-style-type: none">▪ Visiting PhD student▪ Emphasis: Novel methods for identification of and learning from spatial patterns in urban data▪ Supervision: Professor Daniel Neill	
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AI4EO Lab, Technical University of Munich & DLR, Munich, Germany	11/2020 – 04/2021
<ul style="list-style-type: none">▪ Beyond Fellow▪ Emphasis: Geo-spatial machine learning and remote sensing▪ Supervision: Xiaoxiang Zhu	
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Alan Turing Institute, London, United Kingdom	10/2018 – 09/2019
<ul style="list-style-type: none">▪ Enrichment Student (Visiting PhD student)	
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EPSRC Centre for Doctoral Training – Urban Science & Department of Computer Science, University of Warwick, Coventry, United Kingdom	10/2017 – 09/2021
<ul style="list-style-type: none">▪ Urban Science, MPhil/PhD▪ Emphasis: Geo-spatial machine learning for urban decision and policy making▪ Supervision: Stephen Jarvis (U Birmingham, UK), Daniel Neill (NYU, US), Hongkai Wen (U Warwick, Samsung AI, UK)	
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Imperial College London and University College London, London, United Kingdom	10/2016 – 09/2017
<ul style="list-style-type: none">▪ Transport and Business Management, MSc with Distinction (grade: 72/100)▪ Emphasis: Quantitative methods and statistics, transport modelling▪ Thesis: <i>Isolating the effect of cycling on local business environments in cities (74/100)</i>	
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Albert-Ludwigs-University, Freiburg, Germany	10/2012 – 02/2016
<ul style="list-style-type: none">▪ Economics, BSc (grade: 1.6, ranked 4th out of 74 in class)▪ Emphasis: Empirical economics, information systems, economic policy▪ Thesis: <i>Exploring the spatio-temporal dynamics of carsharing utilization: A case study from Amsterdam (1.0)</i>	
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Gymnasium Grafing (secondary school), Grafing, Germany	09/2003 – 07/2011
<ul style="list-style-type: none">▪ GCE / Abitur▪ Intensive courses: German, Mathematics, English, French, Geography	

Work experience

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Bonn, Germany 11/2021 – present

- Expert consultant
- Responsibilities: AI expert consultant on the appraisal mission of the “Fair Forward” initiative, providing feedback on a large funding scheme for the use of AI for sustainability and development causes in low-income countries

Department of Computer Science, University of Warwick, Coventry, UK 10/2017 – present

- Teaching assistant
- Responsibilities: teaching and group supervision of classes in basic computing, software engineering and data mining

Geospin GmbH, geospatial data analytics startup, Freiburg, Germany 05/2016 – 12/2019

- Student fellow
- Responsibilities: Data science and machine learning research, developing and implementing a social media strategy, market research and preparation of sales pitches, business development

Chair of Economic Policy and Constitutional Economics (Prof. Dr. Lars P. Feld), University of Freiburg, Germany 05/2014 – 09/2016

- Student assistant
- Responsibilities: Research assistance (*econometric modelling, data preparation*), administration of the Chair’s website and e-learning modules, event management

Chair of Information Systems Research (Prof. Dr. Dirk Neumann), University of Freiburg, Germany 03/2013 – 04/2016

- Student assistant and tutor
- Responsibilities: Research assistance (*data preparation and statistical analysis, data visualization*), teaching programming classes for undergraduate students, administration of e-learning modules

Walter-Eucken-Institute, Freiburg, Germany 03/2014 – 05/2014

- Intern
- Responsibilities: Analysis of scientific articles, data processing, preparation of scientific presentations

EVBZ, care centre for people with disabilities, Steinhöring, Germany 09/2011 – 08/2012

- Voluntary service
- Responsibilities: Assistance and care for multiply disabled people, carpool supervision, warehousing

Extracurricular activities

Climate Change AI (<https://www.climatechange.ai/>) 08/2020 – present

- Member of the Board of Directors
- Chair of the Communications Committee

<ul style="list-style-type: none"> Responsibilities: Social media, academia outreach, event organization, research coordination 	
<hr/> <p>Applied Machine Learning Days (AMLD) 2019, Lausanne, Switzerland</p> <ul style="list-style-type: none"> Co-organizer of the "AI & Cities" track Responsibilities: organising a full day conference track on the impacts of AI on urban living and governance. The programme included speakers and experts from the Harvard Kennedy School, MIT Media Lab, DeepMind, EPFL Lausanne, ETH Zurich and more. 	<p>10/2018 – 01/2019 10/2019 – 01/2020 10/2020 – 12/2021</p>
<hr/> <p>Imperial College Data Science Society (ICDSS)</p> <ul style="list-style-type: none"> Team Talent Development Responsibilities: organising and teaching machine learning workshops in R and Python, arrange academic and industry talks, promote data science and its social impacts 	<p>11/2016 – 09/2017</p>
<hr/> <p>Aktionskreis Freiburger Schule (Freiburg school association)</p> <ul style="list-style-type: none"> Honorary staff member Responsibilities: public relations, social media, event management 	<p>09/2015 – 09/2017</p>
<hr/> <p>Student's Union of the Economics Department, University of Freiburg</p> <ul style="list-style-type: none"> Elected student representative in various committees such as faculty council or student parliament Co-president of the Economics Student Union (10/2013-10/2015) Responsibilities: University level politics, leading multiple project groups, organising several events, budget planning, public relations 	<p>10/2012 – 09/2016</p>
<hr/> <p>Mentoring programme of the Economics Department, University of Freiburg</p> <ul style="list-style-type: none"> Mentor Responsibilities: Group supervision for first-semester undergraduate students 	<p>10/2014 – 03/2015</p>
<hr/> <p>Awards and scholarships</p> <hr/>	
<p>Technical University of Munich & DLR, Beyond fellowship</p> <ul style="list-style-type: none"> Value: € 6,000 + travel expenses 	<p>11/2020 – 04/2021</p>
<hr/> <p>Alan Turing Institute, Enrichment scheme</p> <ul style="list-style-type: none"> Top-up scholarship for visiting students Value: £ 5,000 pa. 	<p>10/2018 – 09/2019</p>
<hr/> <p>EPSRC scholarship</p> <ul style="list-style-type: none"> PhD studentship from the Engineering and Physical Sciences Research Council (https://www.epsrc.ac.uk/) Value: covers PhD programme fees 	<p>10/2017 – 09/2021</p>
<hr/> <p>University of Warwick scholarship</p> <ul style="list-style-type: none"> Stipend from the University to cover living costs and research Value: £ 14,553 pa. + research allowance 	<p>10/2017 – 09/2021</p>
<hr/> <p>e-fellows.net scholarship</p>	<p>09/2014 – 02/2019</p>

- Awarded for outstanding results in studies and extracurricular activities

Publications

Under submission

- **Klemmer K**, Safir N, Neill D B: *Positional Encoder Graph Neural Networks for Geographic Data* 2021. (submitted). <https://arxiv.org/abs/2111.10144>

2022

- **Klemmer K***, Xu T*, Acciaio B, Neill D B: *SPATE-GAN: Improved Generative Modeling of Dynamic Spatio-Temporal Patterns with an Autoregressive Embedding Loss* 2021. (accepted at AAAI 2022). <https://arxiv.org/abs/2109.15044>
- Reiersen, G, Dao D, Lütjens, B, **Klemmer K**, Amara K, Steinegger A, Zhang C, Zhu X: *Reforestree: A Dataset for Estimating Tropical Forest Carbon Stock with Deep Learning and Aerial Imagery* 2021. (accepted at AAAI 2022).
- Luo M, Du B, **Klemmer K**, Zhu H, Wen H: *Deployment Optimization for Shared e-Mobility Systems With Multi-Agent Deep Neural Search* 2022. IEEE Transactions on Intelligent Transportation Systems. <https://doi.org/10.1109/TITS.2021.3125745>

2021

- Reiersen, G, Dao D, Lütjens B, **Klemmer K**, Zhu X, Zhang C: *Tackling the Overestimation of Forest Carbon with Deep Learning and Aerial Imagery* 2021. Tackling Climate Change with Machine Learning workshop, International Conference on Machine Learning (ICML 2021). <https://www.climatechange.ai/papers/icml2021/79>
- **Klemmer K**, Saha S, Kahl M, Xu T, Zhu X: *Generative modeling of spatio-temporal weather patterns with extreme event conditioning* 2021. AIMOCC workshop, International Conference on Learning Representations (ICLR 2021). <https://arxiv.org/abs/2104.12469>
- **Klemmer K**, Neill D B: *Auxiliary-task learning for geographic data with autoregressive embeddings* 2020. 29th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2021). <https://arxiv.org/abs/2006.10461>
- Koshiyama A, Kazim E, Treleaven P, Rai P, Szpruch L, Pavey G, Ahamat G, Leutner F, Goebel R, Knight A, Adams J, Hitrova C, Barnett J, Nachev P, Barber D, Chamorro-Premuzic T, **Klemmer K**, Gregorovic M, Khan S, Lomas E: *Towards Algorithm Auditing: A Survey on Managing Legal, Ethical and Technological Risks of AI, ML and Associated Algorithms*. 2021. SSRN Preprint. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3778998
- **Klemmer K**, Neill D B, Jarvis S A: *Understanding Spatial Patterns in Rape Reporting Delays* 2021. *Royal Society Open Science*. <https://doi.org/10.1098/rsos.201795>

2020

- **Klemmer K**, Yeboah G, Porto de Albuquerque J, Jarvis S A: *Population Mapping in Informal Settlements with High-Resolution Satellite Imagery and Equitable Ground-Truth* 2020. ML-IRL Workshop. ICLR 2020, Addis Ababa, Ethiopia. <http://wrap.warwick.ac.uk/135570/>
- Luo M, Du B, **Klemmer K**, Zhu H, Ferhatosmanoglu H, Wen H: *D3P: Data-driven Demand Prediction for Fast Expanding Electric Vehicle Sharing Systems* 2020. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (ACM IMMUT) <https://dl.acm.org/doi/abs/10.1145/3381005>

2019

- **Klemmer K**, Koshiyama A, Flennerhag S: *Augmenting Correlation Structures in Spatial Data Using Deep Generative Models* 2019. arXiv Preprint. <https://arxiv.org/abs/1905.09796>

2018

- **Klemmer K**, Brandt T, Jarvis S A: *Isolating the Effect of Cycling on Local Business Environments in London* 2018. PLOS ONE. <https://doi.org/10.1371/journal.pone.0209090>
- **Klemmer K**, Neill D B, Jarvis S A: *Modeling Rape Reporting Delays Using Spatial, Temporal and Social Features* 2018. NeurIPS Workshop on Decision-Making in the Spatiotemporal Domain. 32nd Conference on Neural Information Processing Systems (NeurIPS 2018), Montreal, Canada. <https://arxiv.org/abs/1811.03939>
- Munoz-Mendez F*, **Klemmer K***, Han K, Jarvis S A: *Community structures, interactions and dynamics in London's bicycle sharing network* 2018. *7th International Workshop on Pervasive Urban Applications, UbiComp '18 ACM International Joint Conference on Pervasive and Ubiquitous Computing*. Association for Computing Machinery (ACM). <https://doi.org/10.1145/3267305.3274156>.

2017

- Willing C, **Klemmer K**, Brandt T, Neumann D: *Moving in Time and Space - Location Intelligence for Carsharing Decision Support* 2017. *Decision Support Systems*. <https://doi.org/10.1016/j.dss.2017.05.005>.

2016

- **Klemmer K**, Willing C, Wagner S, Brandt T: *Explaining Spatio-Temporal Dynamics in Carsharing: A Case Study of Amsterdam* 2016. 22nd Americas Conference on Information Systems (AMCIS 2016), San Diego, CA. <https://doi.org/10.13140/RG.2.1.3510.8721>

* denotes equal contribution

Talks

- GISRUK 2017 – CDRC Data Challenge, Leicester, UK, April 2018 (*contributed talk*)
- Data Natives 2018, London, UK, April 2018 (*contributed talk*)
- WPCCS 2018, Coventry, UK, June 2018 (*contributed talk*)
- UbiComp 2018 - Workshop "Pervasive Urban Applications", Singapore, October 2018 (*contributed talk*)
- NeurIPS 2018 – Workshop on Modeling and decision-making in the spatiotemporal domain, Montreal, Canada, December 2018 (*contributed talk*)
- A blueprint for urban analytics research, The Alan Turing Institute, Newcastle, April 2019 (*invited talk*)
- ML4SEP Seminar, University of Zurich, January 2020 (*invited talk*)
- ICLR 2020 – Workshop "Machine Learning in Real Life" (ML-IRL), Addis Ababa, Ethiopia, April 2020 (*contributed short talk*)
- ICLR 2020 – Workshop "Climate Change AI" – Energy Day, Addis Ababa, Ethiopia, April 2020 (*invited short talk*)
- AI4EO seminar series, Munich, Germany, November 2020 (*invited talk*)
- AI4EO seminar series, Munich, Germany, July 2021 (*invited talk*)
- Royal Geographical Society – Annual Conference, London, September 2021 (*contributed talk*)

Academic Services

Reviewing

- Journals: PLOS ONE, Public Transport – Planning and Operations, Computer Vision and Image Understanding
- Conferences: IEEE ITSC, WI, KDD, AAAI

Programme Committee

- NeurIPS'19 Workshop "Machine Learning for the Developing World"
- ICLR'20 Workshop "Climate Change AI"
- NeurIPS'20 Workshop "Climate Change AI"
- ICLR'21 Workshop "Climate Change AI"
- NeurIPS'21 Workshop "Climate Change AI"

Organisation

- AMLD – AI & Cities track, 2019 & 2020 (Co-organizer) <https://appliedmldays.org/tracks/1>
- ICLR'20 Workshop "Climate Change AI" – Energy day (Co-organizer) <https://www.climatechange.ai/events/iclr2020.html>
- NeurIPS'20 Workshop "Machine Learning for the Developing World" – Co-organizer and submissions chair <https://sites.google.com/view/ml4d/>
- NeurIPS'21 Workshop "Machine Learning for the Developing World" – Co-organizer and submissions chair <https://sites.google.com/view/ml4d/>

Languages

- German (*native language*)
- English (*fluent, IELTS academic: 8.0*)
- French (*advanced*)
- Spanish (*basic*)

Technical skills

Operating Systems:

Windows OS (**a**), Linux OS (**a**)

Statistics & Machine Learning:

R (h2o, mlr) (**a**), Python (PyTorch, scikit-learn) (**a**), Biogeme (**b**), SPSS (**b**)

Others:

QGIS (**a**), Microsoft Office (**a**), LaTeX (**a**), PHP (**b**), PostgreSQL (**b**), HTML (**a**), CSS (**b**), PostGIS (**b**), JavaScript (**b**), Git (**a**), Docker (**a**)

b = basic, **a** = advanced