Nikola Milojevic-Dupont

CONTACT INFORMATION

EUREF-Campus,
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RESEARCH FOCUS

Topics: Climate change mitigation; Urban sustainability, planning & morphology; Buildings & mobility sectors; Open data

Methods: Machine learning; Geographical information system; Energy modelling

EDUCATION

Technische Universität Berlin, Berlin, Germany
PhD candidate, 2018–2022 (expected)
Thesis advisor: Prof. Dr. Felix Creutzig

AgroParisTech, Ecole des Ponts ParisTech, School for Advanced Studies in the Social Sciences (EHESS), Paris Nanterre University, Paris, France
M.S. in Environmental Economonics, 2016–2017
Major in Integrated Assessment Modelling, at CIRED

University of Paris 1 Pantheon-Sorbonne, Paris, France
M.S. in International Economics, 2015–2016
Best of class

University of Paris 1 Pantheon-Sorbonne, Paris, France
B.S. in Economics, 2011–2015

PROFESSIONAL EXPERIENCE

Mercator Research Institute on Global Commons and Climate Change (MCC), Berlin, Germany
PhD student researcher, 2018–Present

Potsdam Institute on Climate Impact Research (PIK), Potsdam, Germany
Guest researcher, 2017(Aug.)–2017(Oct.)

Potsdam Institute on Climate Impact Research (PIK), Potsdam, Germany
Research assistant to Dr. Nico Bauer, 2017(Mar.)–2017(Aug.)

PEER-REVIEWED JOURNAL PUBLICATIONS

4. Tackling climate change with machine learning. Rolnick, D., Donti, P. L., Kaack, L. H., Kochanski, K., Lacoste, A., Sankaran, K., Ross AS, Milojevic-Dupont, N., Jaques, N., Waldman-Brown, A. Luccioni, A., Maharaj, T., Sherwin, E. D., Mukkavilli, S. K., Kording, K. P., Gomes, C., Ng, A. Y., Hassabis, D., Platt, J. C., Creutzig, F., Chayes. F. & Bengio, Y. (2022) ACM *Computing Surveys* (In press)

3. Learning from urban form to predict building heights. Milojevic-Dupont, N., Hans, N., Kaack, L. H., Zumwald, M, Andrieux, F., de Barros Soares, D., Lohrey, S., Pichler, P.P. & Creutzig, F. (2020) *PLoS ONE* 15(12): e0242010

2. Machine learning for geographically differentiated climate change mitigation in urban areas. Milojevic-Dupont, N., & Creutzig, F. (2020). *Sustainable Cities and Society*, 102526.

1. Fair street space allocation: ethical principles and empirical insights. Creutzig, F., Javaid, A., Soomauroo, Z., Lohrey, S., Milojevic-Dupont, N., Ramakrishnan, A., ... & Weddige, U. (2020). *Transport Reviews*, 1-23

Peer-reviewed conference proceedings

3. Understanding the impact of the built environment on travelled vehicle kilometres in Berlin, Felix Wagner, Milojevic-Dupont, N., Franken L., Zekar, A., Thies, B., Koch, N., and Creutzig, F. (2021) *The 28th International Seminar of Urban Form (ISUF)*

2. Estimating energy demand of buildings . . . by learning their heights, Milojevic-Dupont, N., Pichler, P.P., Kaack, L. H., Lohrey, S., & Creutzig, F. (2019) *OpenStreetMap State Of The Map*

1. Low-carbon urban planning with machine learning, Milojevic-Dupont, N., & Creutzig, F. (2019) *Climate Change AI workshop at the International Conference on Machine Learning (ICML)*

Manuscripts under review

A novel machine learning framework to identify location-specific relevance of built environment for urban motorised travel. Wagner, F., Milojevic-Dupont, N., Franken, L., Zekar, A., Thies, B., Koch, N., Creutzig, F. (2021)

Digitalization and the Anthropocene. Creutzig, F., Acemoglu, D., Bai, X., Edwards, P.N., Hintz, M.J, Kaack, L.H., Kilkis, S., Kunkel, S., Luers, L., Milojevic-Dupont, N., Rejeski, D., Renn, J., Rolnick, D., Rosol, C., Russ, D., Turnbull, T., Verdolini, E., Wagner, F., Wilson, C., Zekar, A., Zumwald, M. (2021)

Open government geospatial data on buildings for planning sustainable and resilient cities. Biljecki, F., Chew, L. Z. X., Milojevic-Dupont, N., Creutzig, F. (2021) Preprint: *arXiv:2107.04023*.

Conference presentations

Mapping 200 million European buildings in 2.5D to support policy-making, Data for Policy conference, 2021

Estimating energy requirements for thermal comfort in the European Union at individual building level, International Energy Workshop, 2021

Estimating energy demand of buildings . . . by learning their heights, OpenStreetMap State Of The Map, 2019

Estimating latent energy demand of buildings with open data, 13th Conference of the International Society for Industrial Ecology (ISIE) - Socio-Economic Metabolism Section, 2019

Low-carbon urban planning with machine learning, Spotlight presentation, Climate Change AI workshop at the International Conference on Machine Learning (ICML), 2019

Other presentations

A user-driven data space: is INSPIRE ready?, Presentation and panel discussion, INSPIRE Conference, session "Modernising INSPIRE within the European Green Deal data space", 2021

Machine Learning for low-carbon urban planning, AI for Sustainable Finance Seminar, The Alan Turing Institute / Oxford University, 2021

Tackling climate change with machine learning, Panel discussion at the United Nations Environment Programme's Digital Transformation Conference for Environmental Sustainability, 2021

Data-driven policy making for sustainable cities, Panel discussion at Artificial Intelligence for Sustainable Cities Network Malaysia, 2021

Tackling climate change with machine learning, Keynote presentation at Machine Learning Week Europe, Predictive Analytics World, 2021

Tackling climate change with machine learning (in urban areas), Guest lecture at the Lee Kuan Yew Center for Innovative Cities Singapore, 2021

Tackling climate change with machine learning, German AI Association (KI Bundesverband), 2020

AI for sustainable urban planning (in French), Week on Cities and AI, University of Paris 1 Pantheon-Sorbonne, Chair Entrepreneurship, Territory, Innovation, 2020

Summary of the Tackling Climate Change with Machine Learning paper (with the CCAI team), TEDx Countdown Climate Change AI, 2020

Sustainable urban planning with machine learning, Cimpatico Studios, 2020

Can machine learning help the transition to low-carbon mobility?, AGYA Workshop Governance of Smart Mobility Data, Reiner Lemoine Institute, 2019

Deploying artificial intelligence to climate change mitigation semantics: a systematic review, Berlin International Graduate School in Model and Simulation based Research (BIMoS) PhD seminar, 2019

Upscaling urban climate solutions with ML approaches (with Felix Creutzig), TU Berlin Machine Learning group PhD seminar, 2018

Program organization

Women in Data Science Conference, Stanford University
WiDS Datathon (committee member), 2021

International Conference on Learning Representations (ICLR)
Energy day of the Climate Change AI workshop (co-organizer), 2019

Applied Machine Learning Days, EPFL
Climate Change AI track (lead organizer), 2019

Professional service

Climate Change AI
Climate Change AI is a global organization aiming facilitate meaningful work in machine learning for tackling climate change.

Founding member (2019)
Member of the Board of Directors (2021–present)
Chair of the Content Committee (2021–present)
Community Lead for Buildings and Transportation (2020–present)

Assessment reports: Contributing Author of the IPCC 6th Assessment Report, Working Group III, Chapter 16: Innovation, technology development and transfer

Journals (Reviewer): Applied Energy, Journal of Industrial Ecology, PeerJ Computer Science

Conferences (Meta-Reviewer): Climate Change AI workshop at the Conference on Neural Information Processing Systems (NeurIPS), Climate Change AI workshop at the International Conference on Machine Learning (ICML)

Conferences (Reviewer): Climate Change AI workshop at the Conference on Neural Information Processing Systems (NeurIPS), Climate Change AI workshop at the International Conference on Machine Learning (ICML), Climate Change AI workshop at the International Conference on Learning Representations (ICLR)

Grants (Reviewer, Meta-Reviewer): AI4CITIES (public procurement), Climate Change AI Innovation Grants program

Supervision experience

Theses

Andreas Meyer, M.S thesis, 2020–2021
Title: *Building Height Prediction using Convolutional Neural Networks*
Day-to-day supervisor, main supervisor: Felix Creutzig

Other

Paul Monat, Internship, 2021(June)-2021(Sep.)

Marvin Bensch, Research Assistant, 2021(Jan.)-2021(June)

Nicolai Hans, Internship, 2020(Feb.)–2020(Aug.)
Currently PhD candidate at Humbold Universität zu Berlin in Statistics
Published together **3.**

Selected publicity

TU Berlin (in German), press release, *KI hebt Nachhaltigkeitspotenzial im Städtebau*, 2020

MIT Tech Review, article, *Here are 10 ways AI could help fight climate change*, 2019

National Geographic, article, *How artificial intelligence can tackle climate change*, 2019

The Verge, article, *Here's how AI can help fight climate change according to the field's top thinkers*, 2019

MCC Berlin, press release, *Tackling climate change with artificial intelligence*, 2019

Computer skills	Programming languages: `Python` (proficient), `R` (knowledgeable)
	High-performance computing: `SLURM` (proficient)
	Machine learning software: `Keras`, `Scikit-learn`, `XGBoost` (proficient)
	Geographical information software: geospatial `Python` stack, `QGIS` (proficient), `ArcGIS` (knowledgeable)
	Databases: `SQL`, `Postgres`, `PostGIS` (knowledgeable)
Other information	Spoken languages: English (proficient), French (mother tongue), German (basic)
	Citizenship: France
	Last updated: November 14, 2021