EBERHARD KARLS
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machine learning
new perspectives
for science

Machine Learning meets
Quantitative Social Science
Workshop, 8 February 2023

Venue: AI Research Building, Lecture Hall (Ground Floor)
Maria-von-Linden-Straße 6, Tübingen

8:00 – 8:25	**Arrival and Check-in with Coffee**
8:25 – 8:30	**Welcome** Augustin Kelava (Methods Center), Dominik Papies (Department of Economics)
8:30 – 8:45	**Estimating causal effects with double/debiased machine learning - a method evaluation** Jonathan Fuhr (School of Business and Economics), Dominik Papies, Philipp Berens
8:45 – 9:00	**Machine learning meets causal inference: An econometric perspective** Michael Knaus (School of Business and Economics)
9:00 – 9:15	**Random forests and double machine learning: Applications and extensions in labour economics** Martin Biewen (School of Business and Economics), Philipp Kugler, Pascal Erhardt
9:15 – 9:30	**The use of machine learning techniques in Psychometrics: A necessary transition for modern data designs** Holger Brandt (Methods Center), Roberto Faleh, Patrick Schmidt, Zachary Roman
9:30 – 9:45	**Optimized estimation of nonparametric causal mediation models via machine learning procedures** Roberto Faleh (Methods Center), Holger Brandt
9:45 – 10:00	**Discussion and Wrap-up 1**
10:00 – 10:25	**Coffee Break**
10:25 – 10:40	**Generalized Mincer-Zarnowitz regressions** Patrick Schmidt (Methods Center), Holger Brandt
10:40 – 10:55	**Efficient estimation and forecasting of heterogeneous latent variable models for intensive longitudinal data** Augustin Kelava (Methods Center)

10:55 – 11:10	**Data-driven performance analysis utilizing machine learning techniques: identifying and improving players' key performance factors in elite soccer** Oliver Höner (Institute of Sports Science), Gabriel Anzer, Pascal Bauer, Benedikt Hosp, Augustin Kelava, Pascal Kilian, Daniel Leyhr, Florian Schultz
11:10 – 11:25	**The Dirichlet-Horseshoe - A new shrinkage prior for both dense and sparse signal detection** Lukas Fischer (Methods Center), Michael Nagel, Tim Pawlowski, Augustin Kelava
11:25 – 11:40	**A deep learning model for complex interpretable and identified factor analysis – Evaluation on talent structure of youth soccer players** Pascal Kilian (Methods Center), Daniel Leyhr, Oliver Höner, Augustin Kelava
11:40 – 11:55	**Discussion and Wrap-up 2**
11:55 – 12:40	**Lunch**
12:40 – 12:55	**Identifying distinct subgroups of suicidal ideations: A pre-registered ecological momentary assessment study in psychiatric patients** Roman Zachary (Methods Center)
12:55 – 13:10	**Explaining relationships between academic documents using generative transformer models** Aseem Behl (School of Business and Economics)
13:10 – 13:25	**The face of trustworthiness: Can a machine detect valid cues of trustworthy behavior in human faces?** Stefan Mayer (School of Business and Economics), Agnes Bäker, Jan Landwehr, Martin Natter
13:25 – 13:40	**Analysing structures of the scientific discourse with NLP tools** Steffen Hillmert (Institute of Sociology), Fabian Stöhr
13:40 – 13:55	**Discussion and Wrap-up 3**
13:55 – 14:15	**Coffee Break**
14:15 – 14:30	**Sports as a behavioral (economics) lab** Tim Pawlowski (Institute of Sports Science)
14:30 – 14:45	**Machine learning methods for large survey data in social sciences: Challenges, solutions, and future directions** Kou Murayama (Hector Research Institute of Education Sciences and Psychology), Rosa Lavelle-Hill
14:45 – 15:00	**Machine learning for modelling, assessing and supporting educational processes** Thorsten Bohl (Tübingen School of Education), Xiaobin Chen, Ulrike Cress, Peter Gerjets, Andreas Lachner, Detmar Meurers, Kou Murayama, Ulrich Trautwein

15:00 – 15:15	**Quantification of stock risk premia using theory-based/option-implied methods and machine learning approaches, and testing conditional factor asset pricing models with the help of ML-methods** Joachim Grammig (School of Business and Economics), Constantin Hanenberg, Christian Schlag, Jantje Sönksen
15:15 – 15:30	**Combining ML and psychometrics is a two-way street – Example for mixed effects in machine learning** Pascal Kilian (Methods Center), Sangbeak Ye, Augustin Kelava
15:30 – 15:45	**Discussion and Wrap-up 4**
15:45 – 16:00	**What follows next**
16:00 –	**Snacks and Refreshments**

Please indicate your interest for participation via e-mail to sebastian.schwenk@uni-tuebingen.de until Friday, 3 February 2023.

The workshop is organized by Dominik Papies (Department of Economics) and Augustin Kelava (Methods Center) in collaboration with the Excellence Cluster ML for Science, University of Tübingen.