Curriculum Vitae

Jonas Peters

Personal Information

born on 28. May 1984 in Nordhorn, Germany

MPI for Intelligent Systems
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Education and Professional Experience

Jun 2015 -	Fellow of the Max Planck ETH Center for Learning Systems
Mar 2015 -	Group Leader at Max Planck Institute for Intelligent Systems, Tübingen
Dec 2012 - Feb 2015	PostDoc (Marie Curie Intra-European-Fellowship) at ETH Zurich
May 2014 - July 2014	Visiting resarcher at CMU, Pittsburgh, USA (host: P. Spirtes)
Sep 2013 - Dec 2013	Visiting resarcher at UC Berkeley, USA (host: M. Wainwright)
Feb 2012 - Dec 2012	PhD at ETH Zürich, Switzerland, ETH Medal for an outstanding PhD thesis (supervisor: P. Bühlmann)
Aug 2011 - Oct 2011	Internship at Microsoft Research, Redmond, USA (host: L. Bottou)
Jan 2009 - Feb 2012	PhD at Max Planck Institute for Biological Cybernetics, Tübingen (supervisor: D. Janzing, B. Schölkopf)
Jan 2009	Diploma in Mathematics (minor: physics), University of Heidelberg, "with distinction"
Jun 2007	Master of Advanced Study in Mathematics (Part III), University of Cambridge, United Kingdom, "with distinction"
Jun 2002 - May 2003	Civilian Service (administration of a children's home)
Jun 2002	Abitur at Burg-Gymnasium Bad Bentheim, one year skipped

Scholarships and Awards

ETH Medal for an outstanding PhD thesis (2013), Scholarship of the Max Planck Society (2009-2012), Studienstiftung des deutschen Volkes (2004-2008), UNWIN prize and election to scholar (Downing College, Cambridge) (2007), European Excellence Programme (DAAD), Kurt-Hahn-Trust, Hölderlin Programme (Allianz) (all 2006-2007), participant pupils academy (2001)

External Funding

Marie Curie Fellowship (IEF) (2013-2015): 184,709.40€

Teaching (university lecturer)

summer 2016	seminar: Learning Blackjack (ETH Zurich)
summer 2015	lecture: Intelligent Systems I - Empirical Inference (University of Tübingen)
spring 2015	lecture: Causality (ETH Zurich)
spring 2014	seminar: Functional Data Analysis (ETH Zurich)
spring 2013	seminar: Causal Inference with Observational Data (ETH Zurich)
students	completed: R. Tanase, D. Bürge (master theses), J. Gleixner, I. Ustyuzhaninov, F. Gieringer, S. Bauer (interns); ongoing: N. Pfister (master thesis), C. Simon-Gabriel, M. Rojas-Carulla (PhD)

Teaching (other)

2015	causality course at summer academy for German scholars (Sommerakademie, two weeks)
2012	teaching assistant (Computational Statistics, Mathematical Statistics, ETH Zurich)
2009 - 2014	lecturer and head of pupils' academy (Deutsche SchülerAkademie, two weeks)
2005 - 2006	scientific assistant (Analysis I, Analysis II and Introduction to Statistics, Univ. of Heidelberg)

Invited talks at conferences and workshops

Nov 2015:	Talk at Workshop "Exploring the earth system data cube", Jena.
Oct 2015:	Tutorial at the German Conference on Pattern Recognition (GCPR), Aachen.
Sep 2015:	Talk at Conf. of the German Math. Society (DMV): Statistics on complex structures, Hamburg.
Jul 2015:	Talk at 60th World Statistics Congress - ISI, Rio de Janeiro.
Apr 2015:	Talk at Causal Path, Heraklion.
Mar 2015:	Talk at Workshop on Big Data in Health Policy, Toronto (remote).
Mar 2015:	Tutorial at a Workshop organized by the Junge Akademie, Ohlstadt.
Dec 2014:	Talk at ERCIM, Pisa.
Jul 2014:	Talk at IMS Annual Meeting, Sydney.
Jun 2014:	Talk at Workshop on Simplicity and Causal Discovery, Pittsburgh.
Sep 2012:	Talk at Workshop on Networks: Processes and Causality, Menorca.
Sep 2010:	Talk at International Symposium on Quantum Thermodynamics, Stuttgart.
Oct 2009:	Talk at Causality Workshop, Schloss Dagstuhl.
Apr 2009:	Talk at Causality tele-conference.

Short-term visits

Jan 2015:	DPMMS, Cambridge University
Jan 2015:	Microsoft Research, Cambridge
Jan 2015:	Weierstrass Institute, Berlin
July 2014:	Caltech, Pasedena
Mar 2014:	Institute of Functional Genomics, University or Regensburg
Feb 2014:	Informatics Institute, University of Amsterdam
Jan 2014:	Institute for Computing and Information Sciences, University of Nijmegen
Dec 2012:	IST Austria, Vienna
Nov 2012:	Max Planck Institute for Dynamics and Self-Organization, Göttingen
Jun 2011:	Seminar for Statistics, ETH Zurich
Jun 2010:	Max Planck Institute for Biogeochemistry, Jena

Reviewing

Journals:	Annals of Statistics, Bernoulli Journal, Biometrika, IEEE Transactions of Pattern Analysis and Machine Intelligence, IEEE Transactions on Information Theory, Journal of the American Statistical Association, Journal of Machine Learning Research, Journal of the Royal Statistical Society, Neurocomputing, NeuroImage, Statistics and Computing, Transactions on Intelligent Systems and Technology
Conferences:	ICONIP 2011, NIPS 2011, ICML 2012, UAI 2012, ICML 2013, UAI 2013, ICML 2014, UAI 2014, UAI 2015, COLT 2015, NIPS 2015
Area Chair / AE:	AISTATS 2016

(Co-)organized workshops

Jul 2015:	UAI - Workshop: Advances in Causal Inference
Mar 2015:	DALI - Workshop: Networks: Causality and Processes
Jul 2014:	UAI - Workshop: Causal Inference: Learning and Prediction

Additional Skills

Languages:	English (fluent), Latin (advanced), Dutch (intermediate), French (beginner)
Computer:	R, Matlab, C#, Linux, LaTeX, Excel, Subversion, Visual Basic, Delphi, Turbo Pascal
Other interests:	Playing the Cello, hiking, cycling, climate change

Publications

Preprints

S. Bauer, B. Schölkopf, **J. Peters**: Identifying the Direction of Multivariate Time Series, in preparation

N. Meinshausen, A. Hauser, J. Mooij, **J. Peters**, P. Versteeg and P. Bühlmann: Causal inference from gene perturbation experiments: methods, software and validation, under review

M. Rojas-Carulla, B. Schölkopf, R. Turner, **J. Peters**: A Causal Perspective on Domain Adaptation, arXiv:1507.05333

J. Mooij, **J. Peters**, D. Janzing, J. Zscheischler, B. Schölkopf: Distinguishing cause from effect using observational data: methods and benchmarks, arXiv:1412.3773, under review

B. Schölkopf, D. Wang, D. Hogg, D. Foreman-Mackey, D. Janzing, C.-J. Simon-Gabriel, **J. Peters**: Modeling Confounding by Half-Sibling Regression, under review

2016

J. Peters, P. Bühlmann, N. Meinshausen: Causal inference using invariant prediction: identification and confidence intervals, arXiv:1501.01332, to appear in Journal of the Royal Statistical Society - Series B (with discussion)

2015

D. Rothenhäusler, C. Heinze, **J. Peters**, N. Meinshausen: backShift: Learning causal cyclic graphs from unknown shift interventions, NIPS 2015 (accepted)

B. Schölkopf, D. Wang, D. Hogg, D. Foreman-Mackey, D. Janzing, C.-J. Simon-Gabriel, **J. Peters**: Removing systematic errors for exoplanet search via latent causes, ICML 2015, 32nd International Conference on Machine Learning, ACM Press, New York, NY, USA, 2218-2226.

B. Schölkopf, K. Muandet, K. Fukumizu, S. Harmeling, **J. Peters**: Computing Functions of Random Variables via Reproducing Kernel Hilbert Space Representations, Statistics and Computing 25:755-766.

J. Peters, P. Bühlmann: Structural Intervention Distance (SID) for Evaluating Causal Graphs, Neural Computation, 27:771-799.

2014

J. Peters: On the Intersection Property of Conditional Independence and its Application to Causal Discovery, Journal of Causal Inference, 3:97-108.

P. Bühlmann, **J. Peters**, J. Ernest: CAM: Causal Additive Models, high-dimensional order search and penalized regression, Annals of Statistics, 42:2526-2556.

J. Peters, J.M. Mooij, D. Janzing, B. Schölkopf: Causal Discovery with Continuous Additive Noise Models, Journal of Machine Learning Research (JMLR), 15:2009-2053.

J. Peters, P. Bühlmann: Identifiability of Gaussian Structural Equation Models with Equal Error Variances, Biometrika, 101:219-228.

2013

L. Bottou, **J. Peters**, J. Quiñonero-Candela, D. X. Charles, D. M. Chickering, E. Portugaly, D. Ray, P. Simard, E. Snelson: Counterfactual Reasoning and Learning Systems: The Example of Computational Advertising, Journal of Machine Learning Research (JMLR), 14:3207-3260

J. Peters, D. Janzing, B. Schölkopf: Causal Inference on Time Series using Structural Equation Models, NIPS 2013, MIT Press, USA, 585-592.

E. Sgouritsa, D. Janzing, **J. Peters**, B. Schölkopf: Identifying Finite Mixtures of Nonparametric Product Distributions and Causal Inference of Confounders, UAI 2013, 29th Conference on Uncertainty in Artificial Intelligence, AUAI Press, USA, 556-565.

2012

B. Schölkopf, D. Janzing, **J. Peters**, E.Sgouritsa, K.Zhang, J. M. Mooij: On causal and anticausal learning ICML 2012, 29th International Conference on Machine Learning, Omnipress, USA, 1255-1262.

2011

J. Peters, J.M. Mooij, D. Janzing, B. Schölkopf: Identifiability of Causal Graphs using Functional Models **(selected as talk)** UAI 2011, 27th Conference on Uncertainty in Artificial Intelligence, AUAI Press, USA, 589-598.

D. Janzing, E. Sgouritsa, O. Stegle, **J. Peters**, B. Schölkopf: Detecting low-complexity unobserved causes UAI 2011, 27th Conference on Uncertainty in Artificial Intelligence, AUAI Press, USA, 383-391.

K. Zhang, **J. Peters**, D. Janzing, B. Schölkopf: Kernel-based Cond. Independence Test and Application in Causal Discovery UAI 2011, 27th Conference on Uncertainty in Artificial Intelligence, AUAI Press, USA, 804-813.

J. Peters, D. Janzing, B. Schölkopf: Causal Inference on Discrete Data using Additive Noise Models. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 33:2436-2450.

2010

J. Peters, D. Janzing, B. Schölkopf: Identifying Cause and Effect on Discrete Data using Additive Noise Models. JMLR Workshop and Conference Proceedings Volume 9: AISTATS 2010, 13th International Conference on Artificial Intelligence and Statistics, MIT Press, Cambridge, MA, USA, 597-604.

2009

D. Janzing, **J. Peters**, J.M. Mooij, B. Schölkopf: Identifying Confounders Using Additive Noise Models. UAI 2009, 25th Conference on Uncertainty in Artificial Intelligence, AUAI Press, USA, 249-257.

J. M. Mooij, D. Janzing, **J. Peters**, B. Schölkopf: Regression by Dependence Minimization and its Application to Causal Inference in ANMs. ICML 2009, 26th International Conference on Machine Learning, ACM Press, New York, NY, USA, 801-808.

J. Peters, D. Janzing, A. Gretton, B. Schölkopf: Detecting the Direction of Causal Time Series ICML 2009, 26th International Conference on Machine Learning, ACM Press, New York, NY, USA, 801-808.

2008

J. Peters, D. Janzing, A. Gretton, B. Schölkopf: Kernel Methods for Detecting the Direction of Time Series. GfKl 2008, 32nd Annual Conference of the German Classification Society, Springer, Berlin, Germany, 57-66.

P. Hoyer, D. Janzing, J.M. Mooij, **J. Peters**, B. Schölkopf: Nonlinear Causal Discovery with Additive Noise Models. Advances in Neural Information Processing Systems 21, 22nd Annual Conference on Neural Information Processing Systems (NIPS 2008), Curran, Red Hook, NY, USA, 689-696.

PhD Thesis

J. Peters: Restricted Structural Equation Models for Causal Inference, ETH Zurich, 2012.

Diploma Thesis

J. Peters: Asymmetries of Time Series under Inverting their Direction, University of Heidelberg, 2008.