

Curriculum Vitae

Personal Data

Name: Bühlmann, Peter Lukas.
Born: April 12, 1965 in Zürich, Switzerland.
Citizenship: Switzerland.
Family status: Married, four children.

Education

1990–1993: PhD studies at ETH Zürich, Switzerland.
1985–1990: Studies in mathematics at ETH Zürich, Switzerland.

Positions

2013–2017: Chair of the Department of Mathematics, ETH Zürich, Switzerland.
2004–present: Full Professor, Department of Mathematics, ETH Zürich, Switzerland.
2001–2004: Associate Professor, Department of Mathematics, ETH Zürich, Switzerland.
1997–2001: Assistant Professor, Department of Mathematics, ETH Zürich, Switzerland.
1995–1997: Neyman Assistant Professor, Department of Statistics, University of California, Berkeley.
1994–1995: Postdoctoral Research Fellow at University of California, Berkeley. Supported by the Swiss National Science Foundation.

Affiliations

2019–current: Director of ETH Foundations of Data Science (ETH Zürich).
2014–current: Member of Competence Center for Personalized Medicine (University of Zürich and ETH Zürich).
2012–current: Founding member of the Max Planck ETH Center for Learning Systems.
2005–2013: Group Leader in Competence Center for Systems Physiology and Metabolic Diseases (ETH Zürich and University of Zürich).

Awards and Honours

2020: Plenary speaker at the 8th European Congress of Mathematics. Portoroz, Slovenia. (Forthcoming).
2019: Highly Cited Researcher 2019 (in mathematics) by Clarivate Analytics. <https://recognition.webofsciencegroup.com/awards/highly-cited/2019/>.
2019: Invited semi-plenary speaker at the International Congress on Industrial and Applied Mathematics 2019. Valencia.
2019: Challis Lectures. University of Florida (Gainesville).
2018: Highly Cited Researcher 2018 (in mathematics) by Clarivate Analytics. See <https://clarivate.com/hcr/>.
2018: Hartigan Lecture. Yale University.
2018: Guy Medal in Silver from the Royal Statistical Society.
2018: Invited speaker at the International Congress of Mathematicians 2018. Rio de Janeiro.

2018: Neyman Lecturer. Annual Meeting of the Institute of Mathematical Statistics & 12th Intern. Vilnius Conference. Vilnius.

2018: Rothschild Distinguished Visiting Fellow. Isaac Newton Institute. Cambridge.

2018: ERC Advanced Grant from European Research Council.

2017: Highly Cited Researcher 2017 (in mathematics and in computer science) by Clarivate Analytics. See <https://clarivate.com/hcr/>.

2017: Miller Visiting Professor, UC Berkeley.

2017: Doctor Honoris Causa. Université Catholique de Louvain.

2016: James Francis Hannan Visiting Scholar. Michigan State University.

2016: Highly Cited Researcher 2016 (in mathematics) by Clarivate Analytics. See <https://clarivate.com/hcr/>.

2016: Fellow of the American Statistical Association.

2016: IAS Senior Scholar-in-Residence 2016, Institute for Advanced Studies/
Park City Mathematics Institute.

2016: Read paper to the Royal Statistical Society, London ('Causal inference using invariant prediction: identification and confidence intervals'). Joint with J. Peters and N. Meinshausen.

2015: Highly Cited Researcher 2015 (in mathematics) by Thomson Reuters. See <http://highlycited.com/>.

2015: Forum Lectures, European Meeting of Statisticians 2015, Amsterdam.

2014: Highly Cited Researcher 2014 (in mathematics) by Thomson Reuters. See <http://highlycited.com/>.

2014: Distinguished Lecturer at the Chinese Academy of Sciences, Beijing.

2013: Winton Research Prize, London.

2012: Golden Tricycle Award (for most family-friendly supervisor), ETH Zürich.

2012: 14th Bahadur Memorial Lecture, University of Chicago.

2012: 5th Woodroffe Lecture, University of Michigan, Ann Arbor.

2011: 5th Pao-Lu Hsu Lecture, sponsored by Peking University and Microsoft Research Asia. Peking.

2010: Read paper to the Royal Statistical Society, London ('Stability Selection'). Joint with N. Meinshausen.

2010–2012: Co-Editor of the *Annals of Statistics*.

2009: Medallion Lecture, sponsored by the Institute of Mathematical Statistics; Joint Statistical Meetings, Washington.

2006: Fellow of the Institute of Mathematical Statistics (IMS).

1993: Award for Excellent Young Scientists from ETH Zürich.

1990: Pólya Prize: Best 'diploma' in mathematics from ETH Zürich.

Research interests

Statistics, Machine Learning, Computational Biology
(ranging from methodology and mathematical theory to interdisciplinary research in biology and bio-medicine)

PhD students (main advisor)

1. 2002: Fiorenzo Ferrari, ETH Zürich.
2. 2002: Francesco Audrino, ETH Zürich.
3. 2004: Marcel Dettling, ETH Zürich.
4. 2006: Roman Lutz, ETH Zürich.
5. 2006: Nicolai Meinshausen, ETH Zürich.
6. 2008: Markus Kalisch, ETH Zürich.
7. 2008: Lukas Meier, ETH Zürich.
8. 2009: Corinne Dahinden, ETH Zürich.
9. 2010: Nicolas Städler, ETH Zürich.
10. 2011: Jürg Schelldorfer, ETH Zürich.
11. 2012: Bernd Fellinghauer, ETH Zürich.
12. 2012: Daniel Stekhoven, ETH Zürich.
13. 2012: Philipp Rütimann, ETH Zürich.
14. 2012: Sarah Gerster, ETH Zürich.
15. 2012: Jonas Peters, ETH Zürich.
16. 2013: Manuel Koller, ETH Zürich.
17. 2013: Alain Hauser, ETH Zürich.
18. 2015: Jacopo Mandozzi, ETH Zürich.
19. 2015: Christopher Nowzohour, ETH Zürich.
20. 2015: Anna Drewek, ETH Zürich.
21. 2016: Chenchen Zhu, ETH Zürich and EMBL Heidelberg.
22. 2016: Ruben Dezeure, ETH Zürich.
23. 2016: Jan Ernest, ETH Zürich.
24. 2016: Laura Buzdugan, ETH Zürich.
25. 2017: Sylvain Robert, ETH Zürich.
26. 2018: Shu Li, ETH Zürich.
27. 2019: Britta Velten, ETH Zürich and EMBL Heidelberg.
28. 2019: Niklas Pfister, ETH Zürich.
29. ongoing: Nicolas Bennett, ETH Zürich.
30. ongoing: Solt Kovács, ETH Zürich.
31. ongoing: Claude Renaux. ETH Zürich.
32. ongoing: Domagoj Čevič. ETH Zürich.
33. ongoing: Corinne Emmenegger. ETH Zürich.

Supervision of postdoctoral researchers

1. 2002–2005: Anja Wille
2. 2006–2009: Juliane Schäfer
3. 2008–2011: Nicole Bruni
4. 2012: Caroline Uhler
5. 2013–2014: Ewa Szczurek (joint with Niko Beerenwinkel)
6. 2013–2014: Jonas Peters
7. 2019–current: Yuansi Chen
8. 2019–current: Armeen Taeb

Selected keynote or special talks at Conferences

2019: Semi-plenary Lecture. International Congress on Industrial and

- Applied Mathematics 2019. Valencia.
- 2018: Neyman Lecture. IMS-Vilnius meeting. Vilnius.
- 2018: Rothschild Lecture. Isaac Newton Institute. Cambridge.
- 2018: Keynote talk at 9th International Purdue Symposium on Statistics. Purdue University.
- 2017: Opening Lecture. International Meeting of the Psychometric Society (IMPS 2017). Zurich.
- 2017: Distinguished Speaker. IMS-China International Conference on Statistics and Probability 2017, Nanning, China.
- 2016: International Conference on Robust Statistics (ICORS 2016), Geneva, Switzerland.
- 2016: Distinguished Lecturer. 4th IMS-Asian Pacific Rim Meeting, Hong Kong.
- 2016: Minitutorial at SIAM Conference on Uncertainty Quantification (UQ16), Lausanne, Switzerland.
- 2016: 2nd UCL Workshop on the Theory of Big Data, London, UK.
- 2015: 31st Conference on Uncertainty in Artificial Intelligence (UAI), Amsterdam, Netherlands.
- 2015: Forum Lectures, European Meeting of Statisticians 2015, Amsterdam, Netherlands.
- 2015: Sackler Colloquium “Drawing Causal Inference from Big Data”, National Academy of Sciences (USA), Washington DC, USA.
- 2014: Statistische Woche 2014, Hannover, Germany.
- 2014: 21st CompStat conference, Geneva, Switzerland
- 2014: 2nd ISNPS conference, Cadiz, Spain.
- 2014: 8th PLS 2014 conference, Paris, France.
- 2014: ENBIS-SFdS spring meeting, Paris, France.
- 2014: 17th International Conference on Artificial Intelligence and Statistics (AISTATS), Reykjavik, Iceland.
- 2013: 5th SPARS conference, Lausanne, Switzerland.
- 2013: 2nd WIPFOR conference, Paris, France.
- 2012: 5th ERCIM conference, Oviedo, Spain.
- 2011: Distinguished Speaker. IMS-China International Conference on Statistics and Probability 2011, Xian, China.
- 2010: Tutorial Lecture at 24th NIPS conference, Vancouver, Canada.
- 2010: 39th Lunteren Stochastics Meeting, Lunteren, Netherlands.
- 2010: 23rd NORDSTAT, Voss, Norway.
- 2009: XI CLAPEM conference, Caracas, Venezuela.
- 2009: Medallion Lecture (IMS) at JSM, Washington DC., USA.
- 2008: useR 2008, Dortmund, Germany.

Scientific advisory board committees

- 2019 – current: Center for Statistical Science, Peking University.
- 2018 – current: MATRIX, international research institute in the mathematical sciences, Australia.
- 2018 – current: FMJH, Fondation Mathématique Jacques Hadamard, Paris.

2009 – current: Centro Stefano Franscini, conference center of ETH Zürich,
Ascona, Switzerland.

2011: “Bioinformatics & Exploratory Biostatistics group” at Roche, Basel.

Publications

Complete list at: <http://stat.ethz.ch/~buhlmann/publications/>

See also Google Scholar at: <http://scholar.google.com/citations?user=3r-fWJwAAAAJ&hl=en>

Selected publications in statistical methodology and theory:

1. P. Bühlmann (1997). Sieve Bootstrap for time series. *Bernoulli* 3, 123–148.
2. P. Bühlmann and A.J. Wyner, A.J. (1999). Variable length Markov chains. *Annals of Statistics* 27, 480–513.
3. P. Bühlmann and B. Yu (2002). Analyzing bagging. *Annals of Statistics* 30, 927–961.
4. P. Bühlmann and B. Yu (2003). Boosting with the L_2 loss: regression and classification. *Journal of the American Statistical Association* 98, 324–339.
5. N. Meinshausen and P. Bühlmann (2006). High-dimensional graphs and variable selection with the Lasso. *Annals of Statistics* 34, 1436–1462. Appeared as “New Hot Paper” in Essential Science Indicators (cited among the top one-tenth of one percent (0.1%) in a bimonthly period)*.
6. L. Meier, S. van de Geer and P. Bühlmann, P. (2008). The Group Lasso for logistic regression. *Journal of the Royal Statistical Society: Series B*, 70, 53–71.
7. M.H. Maathuis, M. Kalisch and P. Bühlmann (2009). Estimating high-dimensional intervention effects from observational data. *Annals of Statistics* 37, 3133–3164.
8. N. Meinshausen and P. Bühlmann (2010). Stability selection. *Journal of the Royal Statistical Society: Series B (discussion paper)* 72, 417–473.
9. C. Uhler, G. Raskutti, P. Bühlmann and B. Yu (2013). Geometry of faithfulness assumption in causal inference. *Annals of Statistics* 41, 436–463.
10. S. van de Geer and P. Bühlmann (2013). l_0 -penalized maximum likelihood for sparse directed acyclic graphs. *Annals of Statistics* 41, 536–567.
11. P. Bühlmann (2013). Statistical significance in high-dimensional linear models. *Bernoulli* 19, 1212–1242.

*See <http://www.esi-topics.com/nhp/>

12. S. van de Geer, S., P. Bühlmann, Y. Ritov and R. Dezeure (2014). On asymptotically optimal confidence regions and tests for high-dimensional models. *Annals of Statistics* 42, 1166–1202.
13. N. Meinshausen and P. Bühlmann (2015). Maximin effects in inhomogeneous large-scale data. *Annals of Statistics* 43, 1801–1830.
14. J. Peters, P. Bühlmann and N. Meinshausen (2016). Causal inference using invariant prediction: identification and confidence intervals. *Journal of the Royal Statistical Society: Series B (discussion paper)* 78, 947–1012.
15. P. Bühlmann and S. van de Geer (2011). Statistics for High-Dimensional Data: Methods, Theory and Applications. *Springer Series in Statistics*. Springer. (556 pages).

Selected publications in interdisciplinary applications:

1. A. Wille, P. Zimmermann, E. Vranova, A. Fürholz, O. Laule, S. Bleuler, L. Hennig, A. Prelic, P. von Rohr, L. Thiele, E. Zitzler, W. Gruissem and P. Bühlmann (2004). Sparse graphical Gaussian modeling of the isoprenoid gene network in *Arabidopsis thaliana*. *Genome Biology* 5(11) R92, 1-13.
2. J.J. Goeman and P. Bühlmann (2007). Analyzing gene expression data in terms of gene sets: methodological issues. *Bioinformatics* 23, 980–987.
3. M.H. Maathuis, D. Colombo, M. Kalisch and P. Bühlmann (2010). Predicting causal effects in large-scale systems from observational data. *Nature Methods* 7, 247–248.
4. S. Gerster, E. Qeli, C.H. Ahrens and P. Bühlmann (2010). Protein and gene model inference based on statistical modeling in k-partite graphs. *Proceedings of the National Academy of Sciences* 107, 12101–12106.
5. S. Gerster, T. Kwon, C. Ludwig, M. Matondo, C. Vogel, E. Marcotte, R. Aebersold and P. Bühlmann (2014). Statistical approach to protein quantification. *Molecular and Cellular Proteomics* 13, 666–677.
6. L. Buzdugan, M. Kalisch, A. Navarro, D. Schunk, E. Fehr, E. and P. Bühlmann (2016). Assessing statistical significance in multivariable genome wide association analysis. *Bioinformatics* 32, 1990–2000.
7. N. Meinshausen, A. Hauser, J.M. Mooij, J. Peters, P. Versteeg and P. Bühlmann (2016). Methods for causal inference from gene perturbation experiments and validation. *Proceedings of the National Academy of Sciences* 113, 7361–7368.