Dr. Stefan Herzog

Senior Research Scientist and
Head of Research Area “Boosting Decision Making” at
Center for Adaptive Rationality (ARC)
Max Planck Institute for Human Development
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Research statement & short bio

I study how to boost human judgment and decision making (scienceofboosting.org) by understanding human and machine behavior. I combine insights and methods from cognitive science, collective intelligence ("wisdom of crowds"), heuristics, and algorithms. I also work on applications in digital environments (sks.to/rao), medical decision making, and meteorology. Furthermore, I am co-leading an initiative on reconfiguring behavioral science for crisis knowledge management in response to COVID-19 and other, future disruptive events (scibeh.org).

I am the head of the research area “boosting decision making” (scienceofboosting.org) and senior researcher at the Center for Adaptive Rationality at the Max Planck Institute for Human Development in Berlin. In 2010 I received the Hillel Einhorn New Investigator Award of the Society for Judgment and Decision Making. My research has been covered in the popular press (e.g., Scientific American) and appears in academic and popular science books (incl. Tetlock and Garner’s “Superforecasting”). I studied psychology, management, and computer science, and received my psychology doctorate in 2009 from the University of Basel.

Five selected recent, peer-reviewed publications


Ten selected all-time, peer-reviewed publications

* equal contribution / shared authorship  |  $ senior authorship


Academic Qualifications

Dr. phil. (summa cum laude/with highest praise), dissertation: „The power of fluency and aggregation: Two case studies in the cognitive science of human judgment“, Department of Psychology, University of Basel, 2005–2009

Master of Science in Psychology (summa cum laude/with highest praise); major in social psychology, consumer and organizational behavior, Department of Psychology, University of Basel, Switzerland, 2003–2005

Subsidiary degree in managerial economics, studies in computer sciences, Wirtschaftswissenschaftliches Zentrum (WWZ), University of Basel, Switzerland, 2001–2005

Bachelor of Science in Psychology (magna cum laude/with great praise), Department of Psychology, University of Basel, Switzerland, 2000–2003

Managerial economics and computer sciences, Wirtschaftswissenschaftliches Zentrum (WWZ), University of Basel, Switzerland, 1999–2000
Positions

Senior Research Scientist and Head of Research Area Boosting Decision Making, Center for Adaptive Rationality (ARC), Max Planck Institute for Human Development, Berlin, 2021–…

Researcher, Center for Adaptive Rationality (ARC), Max Planck Institute for Human Development, Berlin, 2012–2021; since 2019: Head of Research Area Boosting Decision Making

Researcher, Cognitive and Decision Sciences, Department of Psychology, University of Basel, 2009–2012

Graduate student, Cognitive and Decision Sciences, Department of Psychology, University of Basel, Switzerland, 2005–2009

Grants


Awards & Honors

Fellow of the Psychonomic Society (FPsyS)

Hillel Einhorn New Investigator Award 2010 for the paper Herzog & Hertwig (2009), Society for Judgment and Decision Making; see http://www.sjdm.org/history.html

Steven Karger Department of Psychology Award 2009 for dissertation ("The power of fluency and aggregation: Two case studies in the cognitive science of human judgment", Herzog, 2008), CHF 5,000, Department of Psychology, University of Basel.


1st place in The Technion Prediction Tournament, Condition E-sampling: Erev et al., 2008

Preprints

* equal contribution / shared authorship | $ senior authorship


Peer-reviewed publications

* equal contribution / shared authorship | **senior authorship


**Other publications**

* = equal contribution / shared authorship | $ = senior authorship


### Organized workshops, symposia and conferences


*SciBeh 2021 Virtual Workshop on “Science communication as collective intelligence” (co-organizer), November 18th-19th 2020, https://www.scibeh.org/events/workshop2021*


*SciBeh 2020 Virtual Workshop on “Building an online information environment for policy relevant science” (co-organizer), November 9th-10th 2020, https://www.scibeh.org/events/workshop2020*


Workshop “Fitting vs. predicting” held at Summer Institute on Bounded Rationality 2017: Predictions under uncertainty, June 6th–14th 2017, Max-Planck-Institute for Human Development, Berlin, Germany.


Workshop How well can you predict what you don’t yet know? held at 2016 JDMx Meeting for early career researcher, June 8th–11th 2016, University of Basel, Basel, Switzerland.


Workshop Psychologists are open to change and should adopt Bayesian statistics (with Mirjam Jenny). 6th JDM Workshop for Young Researchers, July 17th-19th 2013, Max-Planck-Institute for Human Development, Berlin, Germany.

Workshop Data analysis beyond p-values. Summer Institute on Bounded Rationality: Decision making in a social world, June 17th-25th 2013, Max-Planck-Institute for Human Development, Berlin, Germany.


Co-organizer 3rd Workshop for Judgment and Decision making, University of Basel, Switzerland (September 2010).


Workshop robust statistics. 2nd Workshop for Judgment and Decision making, University of Mannheim, Germany (July 2009).


Co-organizer European Social Cognition Network Transfer of Knowledge Conference 2005, Vitznau, Switzerland.


Teaching, supervision, and mentoring

Training in teaching skills for higher education

Certificate in higher education [Sammelzertifikat Hochschuldidaktik] at the University of Basel (20.11.2011; 2010-2011; total of 66 hours):
- Introduction to higher education didactics [Einführungsmodul Hochschuldidaktik] (2010)
- How to grade [Fair prüfen] (2011)
- Planing, teaching and evaluating courses [Lehrveranstaltungen planen, durchführen und evaluieren] (2010)
- Running meetings and discussions [Diskussionsleitung in der Lehre] (2010)
- Problem-based learning [Problemorientiertes Lernen] (2010)
- Rhetoric [Rhetorische Kommunikation] (2010)
- Rethoric: Explication and narration [Explikation und Narration] (2011)

Graduate and undergraduate courses/lectures taught

The psychology and cognitive science of artificial intelligence
(master seminar; winter semester 2021/22 at Department of Psychology, Humboldt University of Berlin)

Improving judgment and decision making
(master seminar: 2014 at Department of Psychology, University of Basel, Switzerland)

Psychology of forecasting

Applied forecasting
(applied master seminar: 2010, 2011, 2012 at Department of Psychology, University of Basel, Switzerland)
Introduction to psychology, economics and neuroscience 
(master seminar: 2005, 2006, 2007, 2008 at Department of Psychology, University of Basel, Switzerland)

Negotiation 
(applied master seminar: 2008 at Department of Psychology, University of Basel, Switzerland)

Drawing inferences from memory 
(with Lael Schooler; master seminar: 2006 at Department of Psychology, University of Basel, Switzerland)

Decision analysis and decision technology 
(master seminar: 2006 at Department of Psychology, University of Basel, Switzerland)

Evolutionary psychology: Emotion, motivation and evolution 
(bachelor lecture: 2011, 2012 at Department of Psychology, University of Basel, Switzerland)

Managerial decision making 
(bachelor seminar: 2007 at Department of Psychology, University of Basel, Switzerland)

How to write a bachelor thesis 
(bachelor seminar: 2010, 2011 at Department of Psychology, University of Basel, Switzerland)

Supervision/mentoring history
Current supervisees/mentees are marked in bold. Past supervisees/mentees are mentioned with their latest role.

Postdocs: Philipp Lorenz-Spreen

Ph.D. students: Michael Geers, Aleksandra Litvinova, Ezequiel López López (starting 2022), Nathaniel Phillips

Master theses: Alice Atanasiu, Basil Blum, Andrea Hajmer, Greta Kellermann, Isa de Maddelena, Zsofia Oroszlan, Yuliya Romanyuk, Ruxandra Teodoreanu

Master course theses: Gerlinde Amschl, Anaïs Arnoux, Raffaella Arcuri-Tortola, Carola Binder, Lorena Boss, Monica Caprio, Florence Ettlin, Dominic Fischer, Chantal Grüter, Kirsten Hardt, Christina Jans, Sarah Kupper, Andrea Rid, Yuliya Romanyuk, Sabrina Stefanelli, Elena Stolz, Milena Ulrich, Stephanie Zell

Bachelor theses: Béla Ackermann, David Allemann, Alice-Alexandra Atanasiu, Cécile Bucher, Emina Canic, Kim Casagrande, Romain Cottens, Loris Criscione, Sibylle Fluri, Madlen Hoffstadt, Marietta Jäggi, Carmen Kaiser, Miriam Kaufmann, Lea Kilchling, Nadia Kohler, Selina Langenegger, Claudia Lombris, Samir Meier, Eric Neumann, Yuliya Romanyuk, Oliver Schürmann, Alice Seiler, Ariane Senn, Tom Siebenaler, Petra Vonmoos, Sylvia Walukiewicz

Internships/lab rotations: Stephan Bedenk, Eleanor Brewer, Johanna Forbriger, Michael Geers, Christine Heni, Madlen Hoffstadt, Moritz Ketzer, Pietro Nickl, Marlene Wulf, Alexander zur Bonsen

Research assistants: 20+ (not listed individually)

Professional services

Reviewing papers
Behavior Research Methods 
Cognitive Psychology
Cognitive Research: Principles and Implications
Cognitive Science
Computational Brain & Behavior
Decision
Decision Analysis
European Journal of Social Psychology
Experimental Psychology
IEEE Transactions on Human-Machine Systems
Journal of Applied Research in Memory and Cognition
Journal of Behavioral Decision Making
Journal of Business, Economics and Finance
Journal of Experimental Psychology: General
Journal of Experimental Psychology: Human Perception & Performance
Journal of Experimental Psychology: Learning, Memory, and Cognition
Journal of Mathematical Psychology
Journal of Personality and Social Psychology
Judgment and Decision Making
Management Science
Medical Decision Making
Memory & Cognition
Minds and Machines
Nature Human Behavior
Organizational Behavior and Human Decision Processes
Personality and Social Psychology Review
PLOS ONE
Proceedings of the National Academy of Sciences of the United States of America (PNAS)
Psychological Science
Psychonomic Bulletin & Review
Social Cognition
Synthese
Topics in Cognitive Science

Reviewing grant applications
German Science Foundation (Deutsche Forschungsgemeinschaft, DFG)
German-Israeli Foundation for Scientific Research and Development (GIF)
ETH Zürich Research Commission
Israel Science Foundation (ISF)
National Science Foundation (NSF)
United States-Israel Binational Science Foundation (BSF)

Reviewing conference submissions
COGSCI annual meeting of the Cognitive Science Society
SJDM annual conference (Society for Judgment and Decision Making)
Diagnostic Error in Medicine conference (Society to Improve Diagnosis in Medicine)
SPUDM conference (subjective probability, utility, and decision making conference; European Association for Decision Making, EADM)

Consulting and training activities
Berlin University Alliance
International Society for Human Rights (Switzerland) & Swisstransplant
Robert Koch-Institute (Berlin)
swiss re
VolkswagenStiftung

Committee member
Graduate student and post-doc representative, Department of Psychology, University of Basel, Switzerland, 2007–2012
Student representative, Department of Psychology, University of Basel, Switzerland, 2000–2003.

Professional member
Continuing education

Statistical training after PhD

- Data Science specialization, Johns Hopkins University on Coursera
  - Reproducible Research. Certificate earned on August 2nd, 2015
  - Exploratory Data Analysis. Certificate earned on February 2nd, 2015
  - Getting and Cleaning Data. Certificate earned on December 28th, 2014
  - R Programming. Certificate earned on November 4th, 2014
  - The Data Scientist’s Toolbox. Certificate earned on November 4th, 2014

- Bayesian modeling for cognitive science: A WinBUGS workshop, 2011, University of Amsterdam, Netherlands.

Presentation skills

- Presenting at international scientific conferences. 3 day course (30h/1 ECTS) by TRESS&TRESS

Talks and posters

only talks and posters as presenter are listed; no institute-internal talks are listed


Herzog, S. M. (2014). *Signal detection theory in the wild: Reverse-engineering error preferences of decision makers who are unable or reluctant to reveal them*. Paper presented at the 35th Annual Meeting of the Society for Judgment and Decision Making, Long Beach, California, USA.


Herzog, S. M. (2014). *Signal detection in the wild: How to quantify implied cost-benefit tradeoffs of decision makers who are unable or reluctant to reveal them*. Invited talk, presented at the research colloquium at the Department of Psychology, University of Tübingen, Tübingen, Germany.


Herzog, S. M., de Maddalena, I. D., & Osterwalder, U. (2013). Communicating sunscreen effectiveness as "percentage of sunrays blocked" leads laypeople to underestimate the increase in protection when comparing sunscreens. Paper presented at the Research In Medical Education 2013 conference (RIME 2013), Berlin, Germany.


Herzog, S. M. (2012). How to make people underestimate Fukushima: Mismatched rates bias the perception of risk and natural rates eliminate this bias. Poster presented at the 33rd Annual Meeting of the Society for Judgment and Decision Making, Minneapolis, Minnesota, USA.


Herzog, S. M. (2010). *The "wisdom of crowds" in one mind: Dialectical bootstrapping and the benefits of combining different cognitive processes*. Invited talk, Colloquium Behavioral Studies (851-0585-01L), ETH Zürich, Zürich, Switzerland.


Herzog, S. M. (2008) *"The wisdom of the crowd" innerhalb von einzelnen Personen: Wie man mit Widersprüchen gute Vorhersagen machen kann.* ["The wisdom of the crowd" within individuals: How to make...
good forecasts by contradicting yourself. Paper presented at the 50th Tagung experimentell arbeitender Psychologen [Conference of Experimental Psychologists], Marburg, Germany.


