

CURRICULUM VITAE

Name	Nikolas “Niki” Popper
Research	TU Wien, Research Unit Information and Software Engineering & COCOS “Centre for Computational Complex Systems”, Wiedner Hauptstraße 8-10, 1040 Vienna, Austria, +43 1 58801 194104, nikolas.popper@tuwien.ac.at
Company	dwh GmbH / DEXHELPP Association Neustiftgasse 57-59, 1070 Vienna, Austria +43 1 526 5 526, niki.popper@dwh.at
Citizenship	Austrian
Date and Place of birth	27.02.1974, Vienna
Languages	German, English, (Spanish)



Nikolas “Niki” Popper studied Mathematics/Computer Science in Vienna, Barcelona, Catalonia (Spain) and Moscow, Idaho (US) and received his ScD (Dr.techn.) in Mathematics at TU Wien. Niki Popper published and presented about 150 articles and talks in journals and presentations at international conferences. He is coordinator of COCOS “Centre for Computational Complex Systems” at TU Wien as well as chairman of DEXHELPP, the former COMET K-Project (Decision Support for Health Policy and Planning), which is dedicated to the development models and to efficient and safe use of data for decision making in health systems.

His main research interests are theory and applications of modelling & simulation of dynamic and complex systems, especially: comparative modelling & simulation; coupling and comparison of mathematical model approaches; implementation, parametrization, calibration and validation concepts and domain and application integration of simulation models and Health Outcome Research.

Niki Popper is founding president of ISPOR Austria Chapter, member of the ASIM Board, Secretary of EUROSIM and member of SMDM. He is reviewer and member of IPCs of various Journals and Conferences (e.g. European Journal of Epidemiology, Winter Simulation Conference, Mathmod). He was guest researcher at the University of Stuttgart and the University for Health Sciences, Medical Informatics and Technology, Hall i.T. He co-invented the award winning Master College for Applied Modelling, Simulation and Decision Making at TU Wien and the award winning blended learning courses in basic maths at the same university. In 2020 he is member of the COVID19 Advisory Board to the Austrian Federal Ministry of Social Affairs, Health, Care and Consumer Protection, Member of the Austrian COVID19 Prognosis Consortium. Recent keynotes include the Wittgenstein Centre Conference at the Austrian Academy of Sciences 2020, the ASIM 2020 @ Fraunhofer IAIS or ETFA 2020 - IEEE International Conference on Emerging Technologies and Factory Automation. He worked as science editor and journalist for ORF and 3sat and co-founded two successful companies, the production company drahtwarenhandlung for scientific films, data journalism and computer animation and the R&D company dwh GmbH for technical solutions and simulation services, dedicated to develop new and innovative pipelines from the basic idea for a data driven analysis up to a ready for market solution. Niki Popper is married and father of two children.

Education and employment		
From (year)	to (year)	
Since 2015		Coordinator TU Wien Interf. Centre “Computational Complex Systems”
Since 2014		Director DEXHELPP (former COMET K-Project) (“Decision Support for Health Policy and Planning”)
Since 2017		CSO “dwh GmbH” simulation services&technical solutions
Since 2017		Associate Researcher UMIT - Private University for Health Sciences, Medical Informatics and Technology, Hall i. Tyrol
		Guest Researcher (recent) Collaborative Research Center SFB-TRR 161, Quantitative Methods for Visual Computing, Univ. Stuttgart, 2019; Department of Public Health, Health Services Research and Health Technology Assessment, UMIT/Hall, 2017); Guest Lecturer (recent) Institute for Visual and Analytic Computing, Univ. Rostock, 2018; Faculty of Electrical Engineering, Univ. Ljubljana, 2017)
2011	2015	PhD “Comparative Modelling & Simulation” at TU Wien
2010	2017	CEO “dwh GmbH” simulation services&technical solutions, INITS funded
2007	2008	Parental Leave
2004	2014	Landsiedl, Popper OG science film production “die drahtwarenhandlung“
1999	2003	ORF Department “Bildung & Zeitgeschehen” (FI2), Position: journalist & science editor, director for 3D event recreation
1993	2001	Studies in Technical Mathematics at TU Wien, (Diplomstudium techn. Mathematik), Univ. of Idaho (US) and Universitat Politècnica de Catalunya (Spain), Studies in Philosophy at University Vienna and University of Appl Arts Vienna (no graduation), Studies in Jazz Theory and Arrangement at the Music and Arts University of the City of Vienna (no graduation).
Research (main areas)		
Theory and Applications of Modelling & Simulation of Dynamic and Complex Systems		
Comparative Modelling & Simulation, Coupling and Comparison of Mathematical Model Approaches		
Implementation, Parametrization, Calibration and Validation Concepts		
Integration of Simulation Models in and transfer between various Domains and Application Areas like <i>Health System Research, Mobility, Infrastructure Planning, Logistics, Sustainable Energy</i> .		
<i>Health System Research, Health Outcome Research, Health Technology Assessment, Comparative Effectiveness</i>		

Selected Projects
<i>Niki Popper has acquired a total amount of about 7,25 Million Euro in competitive Funding Calls on national and international level (excluding Industrial Financing)</i>
CIDS (Concurrent Infectious Disease Simulation, 2020-2021); funded by FFG; The aim of the project CIDS Concurrent Infectious Disease Simulation is to model and simulate the spread of SARS-CoV-2 and the associated COVID-19 diseases with regard to interactions with competing infectious diseases. This is done by means of a simulation-based analysis of this interplay on the basis of an existing agent-based simulation model; Position: developer, Co-coordinator; Overall Project Volume €500.000, Overall Project Funding €230.000
SYD19 (Synthesis of Disease Spread and Network Reduction Data for COVID-19 Simulation, 2020-2021); funded by WWTF; Aggregated statistics mobile data, results of actual developed strategies for (randomized) COVID-19 tests, and information about other COVID-19 test strategies in Austria. E.g. methods to identify areas where contact reduction doesn't work to intensify testing will be developed. Position: CoPI; Overall Project Volume €50.000
RB0.4 (Rheuma Buddy 4.0, 2020 - 2023); funded by EU Eurostars; RB4.0 aims to improve a virtual, context-aware and algorithm-driven app for Rheumatoid Arthritis (RA) patients' self-management and improved communication. Development and evaluation of new solutions like a virtual coach, patient-reported outcomes. Position: Head of Modelling; Overall Project Volume: 1.274.244,50€
TAV-COVID (Targeted COVID-19 Vaccination Strategies: An Agent-based Modeling Evaluation Considering Limited Vaccination Capacities); funded by SMDM via Gordon and Betty Moore Foundation/Johns Hopkins University; Based on limited vaccine availability for COVID19 the research project is developing an evidence-based decision basis which groups of people should be treated with a COVID vaccine as a matter of priority, with the main focus on maximizing the overall benefit for the population; Position: Project Team, Head Modelling; Overall Project Volume €50.000
DEXHELPP (Development of Methods & Technologies for Health Policy & Planning, since 2014); funded by FFG and Gemeinde Wien; development of Research Services, Data Driven Analyses and Simulation Models to improve analysis, prognosis and policies for health systems; in cooperation with 10 partners from research, industry and the health system (Hauptverband der SVs Österreich, Gesundheit Österreich, ...); Position: developer, chairman; Overall Project Volume € 4.0 Mio, Overall Project Funding: € 2,8 Mio.
GameOpSys (Gamification für die Optimierung des Energieverbrauchs von Gebäuden und übergeordneten Systemen, 2019-2021) Development of a mobile application which generates usable data and information for the user's own cost and energy optimization (electricity and heat) by participation via gamification. In cooperation with: TU Graz, Univ. Graz; Position: Head of Modelling; Overall Project Funding: € 245.000
AundO (Intelligente agentenbasierte Lokumlaufsimulation und -optimierung im Güterverkehr Österreichs, 2018-2020) Modelling, Simulation and Optimization of roster and route planning of the the Austrian rail cargo system. In cooperation with Alpen-Adria Universität, ÖBB Rail Cargo; Position: Supervisor; Overall Project Funding: € 420.000
ViSciPub (Visualization of Scientific Publications, 2018-2020), Visual analysis, modelling and communication of large bodies of scientific literature to communicate summaries and trends. In cooperation with Chinese Academy of Science; Position: developer, supervisor; Overall Project Funding: € 325.000

<p>ImProve (Managing the Health Product Development, 2016-2018); development of sustainable data management and modelling services for life science companies; funded by Wirtschaftsagentur (Gemeinde Wien); in cooperation with TU Wien, University of Vienna, Medical University of Vienna; Position: developer, supervisor; Overall Funding: € 200.000</p>
<p>Modyplan (Early Phase Planning for Health Buildings, 2013-2015); funded by ZIT (Gemeinde Wien); development of simulation tools for resources planning in health care; in cooperation with TU Wien (architecture, mathematics); Position: developer, supervisor; Overall Project Funding: € 200.000</p>
<p>IFEDH (Innovative Framework for Evidence-based Decisionmaking, 2010-2012); funded by FFG; development of a new framework for model based HTA; in cooperation with 10 project partners from science, public health, economy; Position: developer, project manager; Overall Project Funding: € 355.000</p>
<p>MoreSpace (2010-2012); funded by ZIT; development of a simulation tool for room booking, simulation and usage in big organizations; in cooperation with two institutes at TU Wien; Position: project manager; Overall Project Funding: € 200.000</p>
<p>AMSDM (Applied Modelling, Simulation and Decision Making, 2011-2012); funded by ZIT; building cooperative teaching networks in modelling & simulation with TU Wien; Position: developer, project manager; Overall Funding: € 70.000; continuing as AMSDM Masterkolleg 2013⁺ at TU Wien since 2013</p>
<p>AMSDM/COCOS PhD Network (since 2014); funded by FFG (Industriennahe Dissertationen) and industrial partners; cooperative network of PhD thesis at TU Wien together with partners from Industry; Position: developer, supervisor; Overall Funding: € 800.000</p>
<p>STABLE Networks (Simulation Tools and Blended Learning, 2013-2014); funded by FFG; development of research industry networks in the areas of Airport Planning, Health Building & Organization and Health Technology Assessment; Position: developer, supervisor; Overall Funding: € 150.000</p>
<p>Coordinator for Data Analysis and Modelling & Simulation workpackages in various national and international projects funded by EU-FP7, FFG, Wirtschaftsagentur Wien e.g. CEPHOS-LINK (Comparative Effectiveness Research on Psychiatric Hospitalisation by Record Linkage of Large Administrative Data Sets, EU-FP7, 2014-2017), INFO (Interdisziplinäre Forschung zur Energieoptimierung in Fertigungsbetrieben, FFG, 2010-2013), Balanced Manufacturing (Flagship Project FFG, Austria, 2014-2017), VALID (Visual Analytics in Data-Driven Journalism, FFG, 2014-2018), Komplexe Welte (Dynamische Simulation für komplexe Systeme, Gemeinde Wien, 2014-2015), Overall Funding for our research group: € 600,000</p>
<p>Memberships & other relevant Activities</p>
<p>ISPOR (International Society For Pharmacoeconomics and Outcomes Research), Founding President ISPOR Austrian Chapter, Member of the ISPOR Modeling Review Group, SMDM (Society for Medical Decision Making) Member, EUROSIM (Federation of European Simulation Societies), Secretary and Chair of Technical Committee “Data Driven System Simulation”, ASIM (Arbeitsgemeinschaft Simulation - Simulation Society of German Speaking Countries), Board Member, Vice Spokesperson “Methods in Modelling and Simulation“ & “Environmental and Geo Sciences, Medicine and Biology”, Reviewer for Journals (e.g. Nature Communications, European Journal of Epidemiology, PLOS One) and Conferences (e.g. Wintersim Conference, EUROSIM, ASIM, SIMS), Mentor at Health Hub Vienna, INiTS Universitäres Gründerservice, Member of the program committee & Special sessions on modelling & simulation at various international conferences (EUROSIM, ASIM, Mathmod, I3M), Member of the Special Issue</p>

Editorial Board "Simulation Notes Europe"-Journal; **Member of the COVID19 Advisory Board** to the Austrian Federal Ministry of Social Affairs, Health, Care and Consumer Protection, **Member of the Austrian COVID19 Prognosis Consortium.**

Recent Keynotes & nvised Talks: Wittgenstein Centre Conference/Austrian Academy of Sciences 2020; ASIM 2020 @ Fraunhofer IAIS; ETFA 2020 - IEEE International Conference on Emerging Technologies and Factory Automation, Harvard School of Public Health, Austrian Health Forum Schladming, Internationale Akademie Traunkirchen

Teaching (recent, selected)

Supervised Academic Work

Co-Supervision of PhD & master theses (in German and English) in the areas of modelling & simulation theory, modelling & simulation in technical & industrial applications, modelling & simulation in health system research and health technology assessment (for detailed list see below)

PhD Thesis

Martin Bicher: *Classification of microscopic models with respect to aggregated system behaviour*

Supervisor: F. Breitenecker, N. Popper; finished

Dominik Brunmeir: *Machine Learning and Agent-based Modelling: Creating Intelligent Agents*

Supervisor: F. Breitenecker, N. Popper; in progress

Barbara Glock: *Modellierung & Simulation der Verkehrsinfrastruktur im Bereich großer Infrastrukturvorhaben: Flughäfen Wien und Zagreb* Supervisor: F. Breitenecker, N. Popper; in progress

Irene Hafner: *Disquisition on the Methodology, Consequences and Application of Multirate and Cooperative Simulation* Supervisor: F. Breitenecker, N. Popper; in progress

Matthias Rössler: *Analysis of Interpolation-based Methods for Approximations of the Solution Manifold of Parametrized Models* Supervisor: F. Breitenecker, N. Popper; in progress

Günther Schneckenreither: *Verschiedene Perspektiven auf Dynamische Systeme* Supervisor: F. Breitenecker, N. Popper; finished

Matthias Wastian: *Breit einsetzbare Modellierungszugänge zur Qualitätssicherung: Deep-Learning-Methoden im Image Processing* Supervisor: F. Breitenecker, N. Popper; in progress

Günther Zauner: *Mathematical Modelling in Health Technology Assessment*

Supervisor: F. Breitenecker, N. Popper; in progress

Nadine Weibrecht: *Reproducible Implementation of Software based on various Healthcare System Models* Supervisor: A.Rauber, N.Popper; in progress

Melanie Zechmeister: *Creating a process for data preparation for modelling projects based on examples from the health-care sector* Supervisor: A.Rauber, N.Popper; in progress

Claire Rippinger: *Modeling and simulation of supply planning in healthcare using microsimulation*. Supervisor: F.Breitenecker, N.Popper; in progress

Master Thesis Dr. Popper has supervised more than 15 master theses.

Postgraduate: Short Course *System Dynamics and Feedback Models for Decision Support* developed for SMDM, together with P. Einzinger, C. Urach, F. Miksch, B. Jahn, Short Course *Agent Based Transmission Models for Infectious Diseases* developed for SMDM together with F. Miksch, C. Urach, P. Einzinger

Recent Lectures: Since 2019, Advanced Modeling and Simulation (194.056), since 2018 Modeling and Simulation, (194.076), since 2014 Modelling and Simulation in Health Technology Assessment (HTA) (194.094), since 2010, AKBIO Modellbildung und Simulation des Herzkreislaufsystems (101.055), since 2010, Simulation (101.161), davor u.a. Objektorientierte Diskrete Simulation, Modellbildung mit Leistungsgraphen

Selected Publications (50)

1) Model and Simulation-Based Planning of Sustainable Processes (selected, 15)

Bieber, Marie, Glock, A Plagemann, und Niki Popper. 2020. „Model-based Analysis of Maintenance-induced Availability of Aircraft in an Airline Network“. *Simulation Notes Europe* 30: 31–34. <https://doi.org/10.11128/sne.30.sn.10507>.

Breitenecker, F, F Judex, N Popper, I Troch, und J Funovits. 2007. „Structure of simulators for hybrid systems—general development and introduction of a concept of external and internal state events“. *EUROSIM, Ljubljana, Slovenia*.

Breitenecker, Felix, Niki Popper, und Günther Zauner. 2010. „Simulators for Physical Modelling - Features, Trends, Comparison“. In , 50–59. Ulm, Deutschland.

Breitenecker, Felix, Siegfried Wassertheurer, Nikolas Popper, und Gunter Zauner. 2007. „Benchmarking of Simulation Systems—The ARGESIM Comparisons“. In *First Asia International Conference on Modelling & Simulation (AMS'07)*, 568–73. IEEE.

Hafner, Irene, und Niki Popper. 2017. „On the Terminology and Structuring of Co-simulation Methods“. In *Proceedings of the 8th International Workshop on Equation-Based Object-Oriented Modeling Languages and Tools*, 67–76. EOOLT '17. New York, NY, USA: ACM. <https://doi.org/10.1145/3158191.3158203>.

Heinzl, B., Matthias Rößler, N. Popper, I. Leobner, K. Ponweiser, W. Kastner, F. Dür, F. Bleicher, und F. Breiteneker. 2013. „Interdisciplinary Strategies for Simulation-Based Optimization of Energy Efficiency in Production Facilities“. In *2013 UKSim 15th International Conference on Computer Modelling and Simulation*, 304–9. <https://doi.org/10.1109/UKSim.2013.115>.

Heinzl, Bernhard, Matthias Rößler, Niki Popper, Michael Landsiedl, Christoph Dorn, Stefan Brandstetter, Friedrich Bleicher, Alexandros-Athanassios Dimitriou, und Felix Breiteneker. 2011. „Studies on Multi-Domain Modelling and Thermal Coupling of a Machine Tool“. In *Tagungsband Abstracts Und Fullpapers*, herausgegeben von Richard Bödi und Werner Maurer. ZHAW, Winterthur, Schweiz: Pabst Science Publishers.

Körner, Andreas, Felix Breiteneker, und Niki Popper. 2013. „About an Alternative Method of Numerical Iteration for State Event Finding and Handling in System Simulation of Hybrid Dynamical Systems“. In *2013 UKSim 15th International Conference on Computer Modelling and Simulation*, 390–95. IEEE.

Popper, N., und F. Breiteneker. 2009. „Parallel Aspects of Modelling Versus Implementation in Hybrid Simulation Approaches“. In *Proceedings MATHMOD 09 Vienna - Full Papers CD Volume*, herausgegeben von I. Troch und F. Breiteneker, 35 (2009):1674–79. ARGESIM Report. Vienna, Austria: ARGESIM / ASIM Verlag.

Popper, Niki, Irene Hafner, Matthias Rößler, Franz Preyser, Bernhard Heinzl, Peter Smolek, und Ines Leobner. 2014. „A General Concept for Description of Production Plants with a Concept of Cubes“. *SNE Simulation Notes Europe* 24 (2): 105–14. <https://doi.org/10.11128/sne.24.tn.102247>.

Popper, Niki, und Philipp Pichler. 2015. „Reproducibility“. In *Agent-based Modeling and Simulation in Archaeology*, herausgegeben von Gabriel Wurzer, Kerstin Kowarik, und Hans Reschreiter, 77–98. Cham: Springer International Publishing. http://link.springer.com/10.1007/978-3-319-00008-4_4.

Rößler, Matthias, Matthias Wastian, Anna Jellen, Sarah Frisch, Dominic Weinberger, Philipp Hungerländer, Martin Bicher, und Niki Popper. 2020. „Simulation and Optimization of Traction Unit Circulations“. In *Proceedings of the 2020 Winter Simulation Conference*, herausgegeben von K.-H. Bae, B. Feng, S. Kim, S. Lazarova-Molnar, Z. Zheng, Theresa M. Roeder, und R. Thiesing, 90–101. Online-Conference: IEEE.

Rößler, Matthias, Matthias Wastian, Michael Landsiedl, und Niki Popper. 2018. „An Agent-Based Model for Robustness Testing of Freight Train Schedules“. In *Proceedings of the MAS: The 17th International Conference on Modelling & Applied Simulation*, 101–5. Budapest, Hungary.

Schweiger, Gerald, Lisa V. Eckerstorfer, Irene Hafner, Andreas Fleischhacker, Johannes Radl, Barbara Glock, Matthias Wastian, u. a. 2020. „Active Consumer Participation in Smart Energy Systems“. *Energy and Buildings* 227 (November): 110359. <https://doi.org/10.1016/j.enbuild.2020.110359>.

Schweiger, Gerald, Cláudio Gomes, Irene Hafner, Georg Engel, Thierry Noudui, Niki Popper, und Josef-Peter Schoegg. 2018. „Co-simulation: Leveraging the Potential of Urban Energy System Simulation“. *EuroHeat&Power* 15: 13–16.

2) Modelling & Simulation of Data Driven Processes & Analysis of Dynamic Systems (selected, 15)

Bicher, Martin, Claire Rippinger, Christoph Urach, Dominik Brunmeir, Uwe Siebert, and Niki Popper. “Evaluation of Contact-Tracing Policies Against the Spread of SARS-CoV-2 in Austria— An Agent-Based Simulation.” Preprint. *Epidemiology*, May 19, 2020. <https://doi.org/10.1101/2020.05.12.20098970>, Medical Decision Making accepted 26.3.2021

Bicher, Martin, Martin Zuba, Lukas Rainer, Florian Bachner, Claire Rippinger, Herwig Ostermann, Nikolas Popper, Stefan Thurner, and Peter Klimek. “Supporting Austria through the COVID-19 Epidemics with a Forecast-Based Early Warning System.” Preprint. *Health Policy*, October 20, 2020. <https://doi.org/10.1101/2020.10.18.20214767>. (Preprint under Review!)

Breitenecker Felix, Judex Florian, Popper Niki, “Love emotions between laura and petrarch—an approach by mathematics and system dynamics”, *Journal of computing and information technology* 16 (4), 255-269, <https://doi.org/10.2498/cit.1001393>

Glock, Barbara, Florian Endel, Gottfried Endel, Niki Popper, Paolo Fraccaro, Nophar Geifman, Wouter T. Gude, William Hulme, Glen P. Martin, and Richard Williams. “Informatics for Health 2017: Advancing Both Science and Practice - Challenges and Results with the Record Linkage of Austrian Health Insurance Data of Different Sources.” *Journal of Innovation in Health Informatics* 24, no. 1 (April 21, 2017): 1. <https://doi.org/10.14236/jhi.v24i1.939>.

Glock, Barbara, Florian Endel, Gottfried Endel, Klaudia Sandholzer, Niki Popper, Christoph Rinner, Georg Duftschmid, et al. “How Sick Is Austria? – A Decision Support Framework for Different Evaluations of the Burden of Disease within the Austrian Population Based on Different Data Sources.” *International Journal of Population Data Science* 1, no. 1 (April 18, 2017). <https://doi.org/10.23889/ijpds.v1i1.111>.

Gothe, Holger, Sasa Rajsic, Djurdja Vukicevic, Tonio Schoenfelder, Beate Jahn, Sabine Geiger-Gritsch, Diana Brixner, Niki Popper, Gottfried Endel, and Uwe Siebert. “Algorithms to Identify COPD in Health Systems with and without Access to ICD Coding: A Systematic Review.” *BMC Health Services Research* 19, no. 1 (December 2019): 737. <https://doi.org/10.1186/s12913-019-4574-3>.

Kuehne, Felicitas, Beate Jahn, Annette Conrads-Frank, Marvin Bundo, Marjan Arvandi, Florian Endel, Niki Popper, et al. “Guidance for a Causal Comparative Effectiveness Analysis Emulating a Target Trial Based on Big Real World Evidence: When to Start Statin Treatment.” *Journal of Comparative Effectiveness Research* 8, no. 12 (September 2019): 1013–25. <https://doi.org/10.2217/cer-2018-0103>.

Miksch Florian, Pichler Philipp, Espinosa Kurt, Popper Niki, "Agent-based methods for simulation of epidemics with a low number of infected persons", *Proceedings of the Information and Communication Technology-EurAsia Conference*, Springer, Berlin, Heidelberg, p.21-28

Popper Niki, Melanie Zechmeister, Dominik Brunmeir, Claire Rippinger, Nadine Weibrecht, Christoph Urach, Martin Bicher, Günter Schneckenreither, and Andreas Rauber. “Synthetic Reproduction and Augmentation of COVID-19 Case Reporting Data by Agent-Based Simulation.”, *Data Science Journal*, , 20(1), p.16. <https://doi.org/10.5334/dsj-2021-016>

Popper, Niki, Barbara Glock, Matthias Schauppenlehner, and Harald Piringer. “16th Biennial European Meeting of the Society for Medical Decision Making: ESMDM Meeting Abstracts, Monitoring Primary Care – Development of Data Based Indicators for the Austrian Health-System.” *Medical Decision Making* 36, no. 7 (October 1, 2016): E448–609. <https://doi.org/10.1177/0272989X16665121>.

Popper, Niki, Florian Miksch, Günther Zauner, Harald Piringer, Ingrid Wilbacher, and Felix Breiteneker. "IFEDH: Solving Health System Problems Using Modelling and Simulation." *International Journal of Privacy and Health Information Management (IJPHIM)* 1, no. 2 (2013): 28–37. <https://doi.org/10.4018/ijphim.2013070103>.

Schneckenreither, Günter, Philipp Tschandl, Claire Rippinger, Christoph Sinz, Dominik Brunmeir, Nikolas Popper, and Harald Kittler. "Reproduction of Patterns in Melanocytic Proliferations by Agent-Based Simulation and Geometric Modeling." Edited by Alexander R.A. Anderson. *PLOS Computational Biology* 17, no. 2 (February 4, 2021): e1008660. <https://doi.org/10.1371/journal.pcbi.1008660>.

Urach, Christoph, Günther Zauner, Gottfried Endel, Ingrid Wildbacher, Florian Miksch, and Felix Breiteneker. "Assessing the Impact of Organized Screening for Abdominal Aorta Aneurysms in Austria - Following EUnetHTA Core Information." *Value in Health - The Journal of the International Society for Pharmacoeconomics and Outcomes Research*, Volume 16, Number 7 (November 2, 2013): A540.

Zauner, G., N. Popper, and F. Breiteneker. "State of the Art Research In Austria: Dexhapp - Decision Support For Health Policy and Planning: Methods, Models and Technologies Based On Existing Health Care Data." *Value in Health* 17, no. 7 (November 2014): A452. <https://doi.org/10.1016/j.jval.2014.08.1222>.

Zauner, G, N Popper, and I Wilbacher. "Evaluation of Fractures In The Elderly In Austria And Drug Risk Factor Analysis Based on Claims Data." *Value in Health* 18, no. 7 (November 2015): A539–40. <https://doi.org/10.1016/j.jval.2015.09.1702>.

3) Modelling & Simulation to improve Ressource Reduction in Complex & Dynamic Systems (selected, 10)

Bruckner, M., S. Tauböck, N. Popper, S. Emrich, B. Roszenich, and S. Alkilani. "Modelling and Simulation of Student Pedestrian Traffic at University Campus." *Simulation News Europe SNE* 22, no. 2 (August 2012): 95–100.

Emrich, Štefan, D. Wiegand, F. Breiteneker, S. Tauböck, N. Popper, and S. Mesic. "More Space – A Hybrid Dynamic Approach for Modelling Lecture Room Management." In *Proceedings MATHMOD 09 Vienna - Full Papers CD Volume*, edited by I. Troch and F. Breiteneker, 35 (2009):1704–10. ARGESIM Report. Vienna, Austria: ARGESIM / ASIM Verlag, 2009.

Glock, B., N Popper, and F Breiteneker. "Exploring the Advantages of Multi-Method Modelling in the Use Case of a Large Socio-Technical Infrastructure System – The Airport City." Lippstadt, Deutschland, 2016.

Glock, Barbara, Niki Popper, and Felix Breiteneker. "Various Aspects of Multi-Method Modelling and Its Applications in Modelling Large Infrastructure Systems like Airports." Bergeggi, Italy, 2015.

Glock, Barbara, Gabriel Wurzer, Felix Breiteneker, and Nikolas Popper. "Reverse Engineering Hospital Processes Out of Visited Nodes." In *EUROSIM 2013 8th EUROSIM Congress on Modelling and Simulation*, edited by Khalid Al-Begain, David Al Dabass, Alessandra Orsoni, Richard Cant, and Richard Zobel, 312–17. Cardiff: EUROSIM 2013 8th EUROSIM Congress on Modelling and Simulation, 2013. http://publik.tuwien.ac.at/files/PubDat_224432.pdf.

Lorenz, W., G. Wurzer, Matthias Rößler, I. Hafner, N Popper, and B. Glock. "((MODYPLAN)) – Early-Stage Hospital Simulation with Emphasis on Cross-Clinical Treatment Chains." In *Proceedings of the SIMAUD 2015 – 6th Annual Symposium on Simulation for Architecture and Urban Design*, 97–100. Washington, D.C., USA, 2015.

Popper, Niki, Florian Endel, Rudolf Mayer, Martin Bicher, and Barbara Glock. "Planning Future Health: Developing Big Data and System Modelling Pipelines for Health System Research." *SNE Simulation Notes Europe* 27, no. 4 (December 2017): 203–8. <https://doi.org/10.11128/sne.27.tn.10396>.

Urach, Christoph, Günther Zauner, Kristian Wahlbeck, Peija Haaramo, and Niki Popper. "Statistical Methods and Modelling Techniques for Analysing Hospital Readmission of Discharged Psychiatric Patients: A Systematic Literature Review." *BMC Psychiatry* 16, no. 1 (December 2016). <https://doi.org/10.1186/s12888-016-1128-7>.

Wiegand, D., F. Breiteneker, N. Popper, G. Hodecek, and S. Tauböck. "Utilization of Buildings: Understand, Model, Simulate! The MoreSpace Project at TU Vienna." In *Preprints MATHMOD 2012 Vienna – Abstract Volume*, edited by F. Breiteneker and I. Troch, 38:4. ARGESIM Report. Vienna, Austria: ARGESIM / ASIM, 2012.

Wurzer, Gabriel, Wolfgang E. Lorenz, Matthias Rößler, Irene Hafner, Barbara Glock, Martin Bruckner, and Niki Popper. "MODYPLAN: Early-Stage Hospital Simulation Based on Treatment Chains." *IFAC-PapersOnLine*, 8th

Vienna International Conference on Mathematical Modelling, 48, no. 1 (January 1, 2015): 868–73.
<https://doi.org/10.1016/j.ifacol.2015.05.144>.

4) Modelling & Simulation of Population Concepts (selected, 10)

Bicher, M., N. Popper, and G. Schneckeneither. "Comparison of a Microscopic and a Macroscopic Age-Dependent SIR Model." *Mathematical and Computer Modelling of Dynamical Systems* 23, no. 2 (March 4, 2017): 177–95. <https://doi.org/10.1080/13873954.2016.1232279>.

Bicher, Martin, Christoph Urach, and Niki Popper. "GEPOC ABM: A Generic Agent-Based Population Model for Austria." In *Proceedings of the 2018 Winter Simulation Conference*, 2656–67. Gothenburg, Sweden: IEEE, 2018. <https://doi.org/10.1109/WSC.2018.8632170>.

Bicher, Martin, Christoph Urach, Günther Zauner, Claire Rippinger, and Niki Popper. "Calibration of a Stochastic Agent-Based Model for Re-Hospitalization Numbers of Psychiatric Patients." In *Proceedings of the 2017 Winter Simulation Conference*, 12, 2017.

Jahn, Beate, Jovan Todorovic, Marvin Bundo, Gaby Sroczynski, Annette Conrads-Frank, Ursula Rochau, Gottfried Endel, et al. "Budget Impact Analysis of Cancer Screening: A Methodological Review." *Applied Health Economics and Health Policy* 17, no. 4 (August 2019): 493–511. <https://doi.org/10.1007/s40258-019-00475-6>.

Miksch, F, N Popper, M Bicher, K Haar, and M Paulke-Korinek. "Evaluation Of Measles Vaccination Coverage In Austria." *Value in Health* 20, no. 9 (October 2017): A798–99. <https://doi.org/10.1016/j.jval.2017.08.2367>.

Miksch, Florian, Beate Jahn, Kurt Junshean Espinosa, Jagpreet Chhatwal, Uwe Siebert, and Nikolas Popper. "Why Should We Apply ABM for Decision Analysis for Infectious Diseases?—An Example for Dengue Interventions." Edited by Rafael Maciel-de-Freitas. *PLOS ONE* 14, no. 8 (August 27, 2019): e0221564. <https://doi.org/10.1371/journal.pone.0221564>.

Rippinger, C., M. Bicher, C. Urach, D. Brunmeir, N. Weibrech, G. Zauner, G. Sroczynski, et al. "Evaluation of Undetected Cases during the COVID-19 Epidemic in Austria." *BMC Infectious Diseases* 21, no. 1 (January 13, 2021): 70. <https://doi.org/10.1186/s12879-020-05737-6>.

Schneckeneither, G., N. Popper, and F. Breiteneker. "Modelling SIR-Type Epidemics by ODEs, PDEs, Difference Equations and Cellular Automata – A Comparative Study." *Simulation Modelling Practice and Theory* 16, no. 8 (October 2008): 1014–23. <https://doi.org/doi:10.1016/j.simpat.2008.05.015>.

Schneckeneither, Günter, and Niki Popper. "Dynamic Multiplex Social Network Models on Multiple Time Scales for Simulating Contact Formation and Patterns in Epidemic Spread." In *Proceedings of the 2017 Winter Simulation Conference*, 4324–35. Las Vegas, Nevada: IEEE, 2017. <https://doi.org/10.1109/WSC.2017.8248138>.

Zauner, Günther, Christoph Urach, Martin Bicher, Niki Popper, and Florian Endel. "Microscopic Modelling of International (Re-)Hospitalisation Effects in the CEPHOS-LINK Setting." *International Journal of Simulation and Process Modelling* 3, no. 14 (January 2019): 261–79. <https://doi.org/10.1504/IJSPM.2019.101012>.

Phd Thesis

N. Popper: "[Comparative Modelling and Simulation, A Concept for Modular Modelling and Hybrid Simulation of Complex Systems](#)"; Supervisor, Evaluators: F. Breiteneker, G. Music; Institut für Analysis und Scientific Computing, 2015; Rigorosum: 12.06.2015.

Master Thesis

N. Popper: "*Simulation of the Respiratory System - Compartment Modelling and Modelling of Perfusion*"; Supervisor: F. Breiteneker; Institut für Analysis und Technische Mathematik, 2001.

Keynotes & Invited Talks (selected, 10)

[to be] 27.05.21 – 29.05.2021: **Invited Talk** at Austrian Health Forum 2021; https://www.austrianhealthforum.at/ahf_2021/

30.11.20 – 01.12.20: **Keynote** at Wittgenstein Centre Conference/Austrian Academy of Sciences 2020; “The COVID-19 crisis - decision support based on an agent-based approach: the challenge of understanding dynamic effects”

19.11.2020: **Invited Talk** at Virtual ISPOR Europe 2020; “Contact-Tracing Policies for SARS-COV-2- Lessons Learned from Austrian, German and Polish Modeling Studies Informing Decision Makers”

14.10.2020: **Keynote** at Symposium Simulationstechnik – ASIM 2020 @ Fraunhofer IAIS; “Simulation Based Decision Support – The COVID 19 Crisis from a Modeller’s Perspective”

10.9.2020: **Keynote** at ETFA 2020 - IEEE International Conference on Emerging Technologies and Factory Automation; “Simulation Based Decision Support – the COVID19 Crisis in Austria”

23.11.2018: **Keynote** at DBSS Symposium 2018; “Sharing Data, Methods, and Simulation Models – New Opportunities for Simulation”; <https://www.dutchbss.org/2018-symposium-simulation-in-practice/>

12.7.2017: **Workshop** at 61st ISSS World Conference der International Society for the Systems Sciences. “Health System Simulation”

05.04.2017: **Keynote** at Cambridge, UKSIM Conference on Simulation 2017; “Big Data and System Simulation for Analysis and Decision Support in Health Care Systems”; <https://uksim.info/uksim2017/uksim2017.htm>

02.9.2016: **Keynote** at Digitale Pioniere im Gesundheitssystem - Europäisches Forum Alpbach 2016, Gesundheitsgespräche; “Dexhelpp – Entscheidungsunterstützung im Österreichischen Gesundheitssystem”

26.02.2016: **Keynote** at 2nd ATHEA-Conference for Health Economics; “Entwicklung und Umsetzung von Methoden zur Entscheidungsunter- stützung im österreichischen Gesundheitssystem – Das Comet K-Projekt DEXHELPP”