

CURRICULUM VITAE

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| Name | Nikolas “Niki” Popper |
| Research | TU Wien, Information and Software Engineering, Coordinator COCOS “Centre for Computational Complex Systems”, Favoritenstraße 9-11, 1040 Vienna, Austria, +43 1 58801 194104, nikolas.popper@tuwien.ac.at |
| Company | dwh GmbH and 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 | | |
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| From (year) | to (year) | |
| Since 2015 | | Coordinator TU Wien Interf. Centre “Computational Complex Systems” |
| Since 2014 | | Chairman former COMET K-Project and Association DEXHELPP (“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) |
| 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 |
| 2009 | 2015 | PhD “Comparative Modelling & Simulation” at TU Wien |
| 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 various domain and application areas like <i>health system research and modell based HTA (health technology assessment), mobility, infrastructure planning, logictics, sustainable energy</i> . | | |
| Health Outcome Research | | |

| Selected Projects |
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| <p>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</p> |
| <p>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</p> |
| <p>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</p> |
| <p>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.</p> |
| <p>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 Consortium; Overall Project Funding: € 245.000</p> |
| <p>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: developer, supervisor; Overall Project Funding: € 420.000</p> |
| <p>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> |
| <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> |

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| <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 PhD Network (2014-2019); 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: € 490.000</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. European Journal of Epidemiology) and Conferences (e.g. Wintersim Conference), Mentor at Health Hub Vienna, INiTS Universitäres Gründerservice, Member of the program committee & Special sessions on modelling & simulation at various international conferences (EUROSIM, Mathmod, I3M), Member of the Special Issue Editorial Board SNE “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: Wittgenstein Centre Conference/Austrian Academy of Sciences 2020; ASIM 2020 @ Fraunhofer IAIS; ETFA 2020 - IEEE International Conference on Emerging Technologies and Factory Automation</p> |

Recent, selected Publications

Gothe, H., Rajsic, S., Vukicevic, D., Schoenfelder, T., Jahn, B., Geiger-Gritsch, S., Brixner, D., Popper, N., Endel, G. & Siebert, U. (2019). Algorithms to identify COPD in health systems with and without access to ICD coding: a systematic review. *BMC health services research*, 19(1), 737.; <https://doi.org/10.1186/s12913-019-4574-3>

Kuehne, F., Jahn, B., Conrads-Frank, A., Bundo, M., Arvandi, M., Endel, F., Popper, N., Endel, G., Urach, C., Gyimesi, M., Murray, E. J., Danaei, G., Gaziano, T.A., Pandya, A. & Siebert U. (2019). 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(12), 1013-1025.; <https://doi.org/10.2217/ce-2018-0103>

Miksch, F., Jahn, B., Espinosa, K. J., Chhatwal, J., Siebert, U. & Popper, N. (2019). Why should we apply ABM for decision analysis for infectious diseases?—An example for dengue interventions. *PloS one*, 14(8).; <https://doi.org/10.1371/journal.pone.0221564>

Jahn, B., Todorovic, J., Bundo, M., Sroczynski, G., Conrads-Frank, A., Rochau, U., Endel, G., Wilbacher, I., Malbaski, N., Popper, N., Chhatwal, J., Greenberg, D., Mauskopf, J. & Siebert, U. (2019). Budget Impact Analysis of Cancer Screening: A Methodological Review. *Appl Health Econ Health Policy* (2019) 17: 493.; <https://doi.org/10.1007/s40258-019-00475-6>

Jahn, B., Kurzthaler, C., Chhatwal, J., Elbasha, E. H., Conrads-Frank, A., Rochau, U., Sroczynski, G., Urach, C., Bundo, M., Popper, N. & Siebert U. (2019). Alternative Conversion Methods for Transition Probabilities in State-Transition Models: Validity and Impact on Comparative Effectiveness and Cost-Effectiveness. *Medical Decision Making*, 39(5), 509–522.; <https://doi.org/10.1177/0272989X19851095>

Zauner G., Urach C., Bicher M., Popper N., Endel F., (2019); Microscopic modelling of international (re-)hospitalisation effects in the CEPHOS-LINK setting; *International Journal of Simulation and Process Modelling (IJSPM)*, Vol. 14, No. 3; <https://doi.org/10.1504/IJSPM.2019.101012>

Glock B., Endel F., Endel G., Sandholzer K., Popper N., Rinner C., Duftschmid G., Filzmoser P., Mert M.C., Holl J., Wagner-Pinter M.; (2018) 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; S. 92.; <https://doi.org/10.23889/ijpds.v1i1.111>

Bicher M., Urach C., Popper N. (2018); GEPOC ABM: A Generic Agent-Based Population Model for Austria; 2018 Winter Simulation Conference, Gothenburg; 09.12.2018 - 12.12.2018; in: "Proceedings of the 2018 Winter Simulation Conference", IEEE, (2018), ISBN: 978-1-5386-6571-8; S. 2656 - 2667.; <https://doi.org/10.1109/WSC.2018.8632170>

Popper, N., Glock, Endel F., Endel G.: "Deterministic Record Linkage of Health Data as Preparatory Work in Modelling and Simulation - Use Case: Hospitalizations in Austria"; IWISH 2017 - The International Workshop on Innovative Simulation for Health Care, Barcelona, Spain; 18.09.-20.09.2017; in: "Proceedings of the 6th International Workshop on Innovative Simulation for Health Care", A. Bruzzone, M. Frascio, F. Longo (Hrg.); I3M, Rende, Italy (2017), ISBN: 978-88-97999-89-8; S. 44 - 49.

Bicher M., Popper N. & Schneckeneither G. (2017). Comparison of a microscopic and a macroscopic age-dependent SIR model, *Mathematical and Computer Modelling of Dynamical Systems*, 23:2, 177-195, <https://doi.org/10.1080/13873954.2016.1232279>

Bicher M., Urach C., Zauner G., Rippinger C., Popper N. (2017). Calibration of a Stochastic Agent-Based Model for Re-Hospitalization Numbers of Psychiatric Patients. "Proceedings of the 2017 Winter Simulation Conference", W. K. V. Chan, A. D'Ambrogio, G. Zacharewicz, N. Mustafee, G. Wainer, and E. Page, eds., <https://doi.org/10.1109/WSC.2017.8248016>

Schneckeneither G., Popper N. (2017); Dynamic Multiplex Social Network Models on Multiple Time Scales for Simulating Patterns in Contact Formation and Epidemic Spread. *Proceedings of the 2017 Winter Simulation Conference*, W. K. V. Chan, A. D'Ambrogio, G. Zacharewicz, N. Mustafee, G. Wainer, and E. Page, eds., <https://doi.org/10.1109/WSC.2017.8248138>