

Curriculum vitae

Personal data:

Name: Univ.-Prof. Mag. Dr. Thomas Schmickl

Date of birth: 20.10.1969 in Graz (Austria)

Citizenship: Austria

Family status: married, 3 children



Education:

2012: Habilitation thesis “*The Collective Physiology of the Swarm: Modelling Self-Organization, Self-Regulation and Swarm-Intelligence of Distributed Systems in Biology and Bio-Robotics*”.

1999 - June 2001: Doctorate in Zoology at the University of Graz, Austria, passed with distinction. Ph.-D. thesis: “*Regulation of brood development in the honeybee (Apis mellifera L.): Feedback mechanisms and survival strategies of a superorganism*”.

1989-1998: Master of Biology (Zoology & Biochemistry) at the University of Salzburg, Austria, passed with distinction. Master thesis: “*Die Erfassung des mikrobiologischen Status in der Innenraumluft von Krankenanstalten*”.

Positions:

Since Oct. 2016: Full Professor at the Department for Zoology, Karl-Franzens-University Graz Austria, supervising three labs with a total head count of 40+ employees: The honeybee and wasp physiology lab, the animal behaviour lab and the Artificial Life Lab

Since Jan 2019: Founder and head of the research cluster “COLIBRI” (Complexity of Life in Basic Research and Innovation), a joint initiative of 22 professors and (and their associated workgroups) and 8+ Senior-PostDoc run groups at the university that join forces to intensify their research with focus on studying Complex Systems. This is the first step towards creating an “Institute for Complexity Research” at the University.

Jan. 2013-Oct. 2016: Associate Professor at the Department for Zoology, Karl-Franzens-University Graz, Austria, head of the Artificial Life Lab

June 2012-Dec. 2012: Professorship as “Basler Chair of Excellence” at the East-Tennessee State University (ETSU), in Johnson City, TN, U.S.A.

Oct. 2007-June 2012: Full-time assistant professor (faculty position) at the Department for Zoology, Karl-Franzens-University Graz, Austria, head of the Artificial Life Lab.

Sept. 2007: Lecturer at the University of Applied Sciences St. Pölten (Austria) in the course of studies “SimCom” (Computational Simulation, 1 month).

Jan. 2007 – Aug. 2007: Visiting Professor at the East Tennessee State University (Johnson City, USA), Biological Department in the program SYMBIOSIS, granted by the Howard Hughes Medical Institute (8 months).

Feb. 2006 - Feb. 2007: Assistant Professor at the Department for Zoology, Karl-Franzens-University Graz (1 year).

Mar. 2004 – Dec. 2006: Lecturer at the Karl-Franzens-University Graz in the course of study “Biology” as side-duty of my university contract.

Jan. 2004 – Feb. 2007: Post-Doc-position in the EU-funded project “Intelligent Small World Autonomous Robots for Micro-manipulation” EU IST-FET-open project (IP) ‘I-SWARM’, no. 507006.

Oct. 2003 – Dec. 2006: Lecturer at the Karl-Franzens-University Graz in the course of study “Sciences of Environmental Systems”.

Mar. 2003 – July 2006: Lecturer at the University of Applied Sciences St. Pölten (Austria) in the course of studies “SimCom” (Computational Simulation).

Mar. 2003 – Feb. 2004: External lecturer at the Karl-Franzens-University Graz in the course of study “Biology”.

Feb. 2003 – Jan. 2004: Post-Doc-position in the FWF-funded (Austrian Science Foundation) project “Self-Organization of working bees on a honeybee comb: Investigating and modeling the spatial distribution, regulation of tasks, working effort, communication of colony state and sharing of a collective memory among working honeybees”, Project-Nr.: P 15961-B06.

Sept. 2002 – Jan. 2003: Lecturer at the University of Applied Sciences St. Pölten (Austria) in the course of studies “SimCom” (Computational Simulation), teaching Biological Modelling and Simulation, Self-Organization of Biological Systems and Swarm-Intelligence (4 months).

Mar. 2002 – Jul. 2002: External lecturer at the Karl-Franzens-University Graz in the course of study “Biology”.

Aug. 2001 – Jan. 2002: Scientific assistant (6 months) for studies of social insects (FWF-funded position).

Feb. 2001 – Jul. 2001: Guest professor ship (6 months) at the Karl-Franzens-University Graz.

Sept. 2000: Programmer for developing a database application and a statistical analysis tool for corporate data at the company “Foto Schmickl” in Graz (1 month)

Mar. 2000 – Mai 2000: Guest professorship (3 months) at the Karl-Franzens-University Graz.

1999: “Contract for labour” (“Werkvertrag”) to program a literature database for the Department for Zoology, Graz.

1998: 1 year of “civil service” (instead of obligatory military service in Austria) at the Red Cross, Graz.

1996 - 1997: Software developer at the company "progressive software design" in Graz (15 months).

1995: Programmer for contract work at the company “grafomed” (Software Development) in Vienna (4 months)

1994: Employment as a member of the “production team” in a professional movie production of SATEL film for the Austrian Broadcasting Corporation (ORF, 2 months)

Additional Qualifications:

2019: Training at UNIGRAZ: “Communicating feedback” (1 day)

2019: Training at TU Graz: “Protect and exploit your scientific results – an overview of IPR protection and exploitation possibilities” (1 day)

2017: UNISTART - Basic training modules 1 & 2: “Introduction to leadership & human resource development as a leadership objective” (0.5 days)

2017: UNISTART - Basic training module 3: “Employment law and staff management as a leadership skill” (1 day)

2017: UNISTART - Basic training module 4: “Leading teams and groups” (2 days)

2017: UNISTART - Basic training module 5: “Hard facts of leadership” (1 day)

2017: UNISTART - Basic training module 5: “Research – Teach – Lead: Challenges for scientific leaders” (1 day)

2017: UNISTART – Advanced module W5: “Conflict management” (2 days)

2017: UNISTART – Advanced module W6: “Negotiation management” (1 day)

2017: UniIT Training: “Constructing and conducting online tests with Perception” (1 day)

2008: 6 days of intensive training in “robot microcontroller programming” (with μ C-compiler) and “micro-robot assembly” at Dr. Kornienko, at the Institute for Parallel and Distributed Systems (IPVS), Stuttgart, Germany. (18.1.-23.1. 2008)

2006: 5 days of intensive training in “robot microcontroller programming” (with μ C-compiler) and “micro-robot assembly” at Dr. Kornienko, at the Institute for Parallel and Distributed Systems (IPVS), Stuttgart, Germany. (16.6.-20.6.06)

2002 - 2003: Teacher training in “eLearning” and “web-based teaching” at the University of Applied Sciences Joanneum, Graz (3 month course).

2002: Summer school at the European Forum Alpbach (Austria), granted by the “Club Alpbach Graz”. I applied to 2 courses: “Gaia-Theory: The earth as bio-geo-ecosystem” (by W. Wieser and S. Franck) and “Networks in Evolution” (by E. Szathmary and E. Jablonka).

2002: Teacher training in in “eLearning” and “web-based teaching” at the University of Graz (3-month course).

1999: Study visit ("stage") at the "Unité de Génétique Moléculaire Bactérienne de l'Institut Pasteur", Paris.

1998 – 2001: Foundation of my project ‘e:doc’, an open-source, multi-platform front-end for LaTeX, written in Perl/Tk, which was well renown in the Linux community and in the Perl/Tk community.

1998: "Certificate of Excellence" from Microsoft as "Microsoft Certified Professional".

1997: Teacher training "Teaching and learning in on-the-job-trainings" (WIFI, 80 hours course).

1997: "PC User" and "PC Administrator".

1996: "On-the-job training" in Delphi und Interbase by Borland International.

1989-2003: Part-time professional photographer at the company “Foto Schmickl”, Graz.

Grants, awards, sponsorships and scholarships:

2019: The work of the EU project HIVEOPOLIS was awarded the Distributed Design Award by VIENNA DESIGN WEEK and Maker Faire for the exhibition of the HIVEOPOLIS smart beehive material at VIENNA MAKER FAIRE (Exhibition organized by Asya Ilgun).

2019-2024: Grant acquisition and Project Coordinator (PC) in the EU-funded Horizon 2020 project “HIVEOPOLIS” (total funding: approx. € 7 Mio , of which € 1.7 Mio are funding of Universtiy of Graz). Grant agreement ID: 824069

2019-2021: Grant acquisition and Project Coordinator in the EU FET-LAUNCHPAD project ATEMPGRAD (100.000 Euro) with the goal to develop a temperature-based ethological observation device towards various markets (teaching, farming, cultivating, ...)

2015-2019: Grant acquisition and Project Coordinator (PC) and Principal investigator (PI) in the EU-funded Horizon 2020 project “subCULTron” (funded € 3,987,650.75; individual contribution: € 901,300.--). FETPROACT-2-2014, project-no. 640967.

2018: Lehrpreis „Lehre: Ausgezeichnet!” der Karl-Franzens-Universität Graz, Österreich (10/2018)

2017: Best paper award: IEEE SSCI Symposium on Artificial Life, Honolulu, USA (12/201)

2017: Best paper award: International Conference on Bio-inspired Information and Communications Technologies (BICT), New Jersey, USA (03/2017)

2015-2019: Grant acquisition and Principal investigator (Co-PI) in the EU-funded Horizon 2020 project “Flora Robotica” (funded 3,641,782.50€; individual contribution € 608,445.--), project-no. 640959

2015: Grant acquisition and Supervisor in the small-scale, small-term project “vibration experiments”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2015: Grant acquisition and Supervisor in the small-scale, small-term project “robotic experiments 4”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2014: Grant acquisition and Supervisor in the small-scale, small-term project “robotic experiments 3”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2013: Grant acquisition and Supervisor in the small-scale, small-term project “shoaling behaviour”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2013: Grant acquisition and Supervisor in the small-scale, small-term project “temperature organ”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2013: Grant acquisition and Supervisor in the small-scale, small-term project “wall following behaviour”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2013-2018: Grant acquisition and Project coordinator (PC) and principal investigator (PI) in the EU-funded FP7-IP-project ASSISI_bf (funded € 6.00 Mio in total; individual contribution: € 1.7 Mio), project-no. 601074. Finished with an “excellent”.

2014: Science-Award of the state of Styria 2013 in “Simulation & Modeling” in the subject “Basic research”.

2012: Grant acquisition and Supervisor in the small-scale, small-term project “robotic experiments 2”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2012: Grant acquisition and Supervisor in the small-scale, small-term project “behavioural analysis – part 2”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2012: Grant acquisition and Supervisor in the small-scale, small-term project “behavioural analysis – part 1”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2012-2014: Grant acquisition and Principal investigator in the FWF-funded project REBODIMENT (funding € 270,500.--), project-no. P23943-N13

2012: Mentoring award from the Ministry of Transport, Innovation and Technology (Ms. Doris Bures) for the FFG funded small-scale project “young talents”. With the mentored student (T. Kunzfeld) we achieved the highest grade for the mentored project by ending in the Top-20 across Austria.

2012: Visiting-professorship as “Chair of Excellence for the Integration of the Arts, Rhetoric, and Science” at the East-Tennessee State University (ETSU), in Johnson City, TN, U.S.A (6.5 months, funded US-\$ 65.800.-- by Wayne G. Basler)

2011: Grant acquisition and Supervisor in the small-scale, small-term project “robot experiments”, funded by the FFG with € 1,000.-- in the funding program “young talents”.

2011-2014: Grant acquisition and Project coordinator (PC) and Principal investigator (PI) in the EU project “CoCoRo” (funded 2,869,998.-- in total, 735,128.-- individual contribution). FP7-ICT project (Cognitive Systems and Robotics), project-no. 270382. Finished with an “excellent”.

2010: Grant acquisition and Initiation financing for the proposal to the EU project CoCoRo. Funded with € 7.500.-- by the 'FFG: Forschungsförderungsgesellschaft', Austria.

2009-2013: Grant acquisition and Front-end financing ('Zusatzfinanzierung') for the EU-FP7 project "Symbrion" - Symbiotic Evolutionary Robot Organisms. Funded with € 38.700,00 by the 'Bundesministerium für Wissenschaft und Forschung', Austria.

2009-2013: Grant acquisition and Front-end financing ('Zusatzfinanzierung') for the EU-FP7 project "REPLICATOR". Funded with € 49.106,70 by the 'Bundesministerium für Wissenschaft und Forschung', Austria.

2009: Grant acquisition and Initiation financing for the proposal to the EU project MEDUSAS. Funded with € 15.000.-- by the 'FFG: Forschungsförderungsgesellschaft', Austria.

2008-2013: Grant acquisition and Principal investigator (Co-PI) in the EU project “SYMBRION” (funded € 554.000,-- by the 7th framework program of the European Union, IST-FET-Open).

2008-2012: Grant acquisition and Principal investigator (Co-PI) in the EU project “REPLICATOR” (funded € 686.000,-- by the 7th framework program of the European Union, ICT program).

2007-2010: Grant acquisition and Principal Investigator (PI) in the FWF-project “Temperature-induced aggregation of young honeybees: Individual behaviour vs. collective behaviour” (funded € 170.000,-- by the Austrian Science Foundation).

2007: “Visiting Professor” at the East Tennessee State University (8 months, funded US-\$ 30.800,-- by the program SYMBIOSIS, granted by the Howard Hughes Medical Institute).

2006: Granted € 3600,-- from the museum “Haus der Wissenschaften” to establish a robotic swarm installation.

2003: Scholarship for visiting the “European Forum Alpbach 2003” granted by the “IV” (“Industry Association of Austria”).

2002: Scholarship for visiting the “European Forum Alpbach 2002” granted by the “IV” (“Industry Association of Austria”).

2001: 6 month guest professorship (topic: bioinformatics, biomodelling) at the Karl-Franzens-University Graz (funded € 24.000,-- by the University of Graz).

2000: 3 month guest-professorship (topic: bioinformatics, biomodelling) at the Karl-Franzens-University Graz (funded € 12.000,-- by the University of Graz).

1999: Travel scholarship for presentation at the “APIMONDIA conference” in Vancouver, Canada, granted by the Major of Graz, Austria.

1999: Travel scholarship for presentation at the “APIMONDIA conference” in Vancouver, Canada, granted by the Styrian Governor.

1985: Awarded by the “Silver Diploma” for excellent results in the “Akademisches Gymnasium”, Graz, by the Styrian Governor.

Editorship:

- **Since 2013:** Editorial Board of “Frontiers in Invertebrate Physiology”
- **Since 2013:** Editor of the Journal “Swarm Intelligence”
- **Since 2014:** Editorial Board of “Frontiers in Evolutionary Robotics”.

Memberships:

- ⋈ International Society for the Study of Social Insects (IUSSI)
- ⋈ OEG (Entomological Society of Austria)
- ⋈ CEQUACOS (Center for Quantitative and Computational Sciences) → now “Forschungsschwerpunkt Modellierung & Simulation”.
- ⋈ ISAB (International Society for Adaptive Behavior)
- ⋈ INTERNATIONALSAR (International Society for Advanced Research)

Breaks in education:

1999-2000: One year of “paternity leave”.

1998-1999: One year of civil services at the Austrian “Red Cross” (obligatory in Austria).

Reviewing:

I review articles for the following journals and books/scientific series:

⋈ ACM Transactions on Autonomous and Adaptive Systems	⋈ Mathematical and Computer Modelling of Dynamical Systems
⋈ Acta Biotheoretica	⋈ Nature Physics
⋈ Adaptive Behavior	⋈ Naturwissenschaften
⋈ Advances in Complex Systems	⋈ Neural Computing and Applications
⋈ Apiacta	⋈ PLOS One
⋈ Apidologie	⋈ Proceedings of the Royal Society B
⋈ Artificial Life	⋈ Proceedings of the Royal Society Interface
⋈ Artificial Intelligence	⋈ Robotica
⋈ Bulletin of Mathematical Biology	⋈ Robotics
⋈ Ecological Modelling	

<ul style="list-style-type: none"> ⤴ Engineering Applications of Artificial Intelligence ⤴ Genetic Programming and Evolvable Machines ⤴ IEEE Transactions on Robotics ⤴ Insectes Sociaux ⤴ Insect Science ⤴ Intelligent Service Robotics ⤴ International Journal of Innovative Computing and Applications ⤴ Journal of Economic Entomology ⤴ Journal of Insect Behavior ⤴ Journal of Theoretical Biology 	<ul style="list-style-type: none"> ⤴ Science ⤴ Science Robotics ⤴ Scientific Reports ⤴ Springer Swarm Intelligence ⤴ Springer book “Symbiotic multi-robot organisms” (eds. Dr. S. Kernbach, Prof. P. Levi) ⤴ Theoretical Biology ⤴ Theoretical Population Biology ⤴ Transactions on Evolutionary Computation ⤴ Transactions on Robotics
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Program committee & scientific boards of conferences on a frequent basis:

<ul style="list-style-type: none"> ⤴ ACVRW 2020 ⤴ ALIA 2016 ⤴ ALIFE (always) ⤴ ANTS (always) ⤴ ARW 2012 ⤴ AWARE 2011 ⤴ BICT (always) ⤴ BIONETICS ⤴ BIOROB 2012 ⤴ CCS 2019 ⤴ CoSMoS 2015 ⤴ CSI 2017 ⤴ DARS (often) ⤴ EAIS 2017 ⤴ ECAI (2020) ⤴ EAIS 2017 ⤴ ECAL (always) ⤴ EURBEE 2008 ⤴ EvoApps (always) ⤴ EvoRobot (often) 	<ul style="list-style-type: none"> ⤴ EvoStar (often) ⤴ FAS 2018 ⤴ GECCO (often) ⤴ GCAI 2017 ⤴ ICARIS 2010 ⤴ ICRA 2016 ⤴ IEE CEC 2009 ⤴ IEEE CIS 2017 ⤴ IEEE ALIFE 2017 ⤴ IROS (multiple times) ⤴ LIAR 2017 ⤴ Living Machines (always) ⤴ MATHMOD (often) ⤴ MESROB 2016 ⤴ PRIMA 2015 ⤴ SASO (often) ⤴ SWARMFEST 2017 ⤴ TAROS 2011 ⤴ TEVC 2013
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European-level reviewing and consulting:

2019: Reviewer of the EU FET-Open project PHOENIX at the yearly review meeting of the project in Eindhoven, Netherlands

2018: Reviewer of the EU FET-Open project PHOENIX at the yearly review meeting of the project in Eindhoven, Netherlands

2016: Evaluator for EU grant proposals in the call FET PROACTIVE: emerging themes and communities

2011: Reviewer for grant proposals for the Swiss National Science Foundation (SNSF)

2011: Advisory board of AWARENESS, a EU-funded Coordination Action (FP7)

2011: Member of the consultation board in the EU-FET-Proactive consultation "Living technologies", 10.11.2011, invitation by Dargmar Floeck. Leading to the calls FOCAS and ELEVIT

2011: Reviewer for the call FP7-ENV-2011-2.1.4-2 "Behaviour of ecosystems, thresholds and tipping points"

2011: Reviewer for the call FP7-ICT-2011-7 – ICT – Information and Communication Technologies - "Cognitive Systems and Robotics"

2011: Consultation of Rothamsted Research & SYNGENTA in the UK-national project "Honeybee population dynamics: Integrating the effects of factors within the hive and in the landscape" on honeybee population modelling and honeybee behavioural modelling (2.11.2011, Bracknell, UK)

2010: Consultant at the workshop "EVOBODY - New Principles of Unbound Embodied Evolution" in Malta, 23rd Sept. 2010.

2009: Consultant at the EU FET proactive external consultation workshop "Fundamentals of collective adaptive systems". 3.-4. November 2009, Leuven, Belgium.

Organization and co-organization of scientific symposiums and meetings:

2017: Assisi_bf Summer School 2017 - "Engineering and Evolution of Bio-Hybrid Societies", Graz, Austria 29th – 31th - August 2017, at the Karl-Franzens-Universität Graz Organizer: Thoams Schmickl & Martina Szopek

2016: Assisi_bf Winter School 2016 - "From bio-inspired to bio-hybrid (robotic) systems", Lausanne, Switzerland 12th – 14th January 2016, at the Ecole Polytechnique Fédérale de Lausanne Organizer: Francesco Mondada & Thomas Schmickl

2015: Workshop “Bioinspired Underwater Robotics” 2015, Hamburg, Germany, 02nd October 2015 at IROS 2015 Organizer: Cesare Stefanini & Thomas Schmickl

2015: Symposium “Social Behaviour and Self-Regulation in Insects, Swarms and Algorithms” 2015, Graz, Austria, 08th September 2015 at DZG Organizer: Thomas Schmickl & Martina Szopek.

2014: Symposium “Emergent social behaviours in bio-hybrid systems” at Living Machines 2014, Milano, Italy, 30th July – 1st August 2014 with Stuart Wilson & Jose Halloy

2013: Symposium “Emergent social behaviours in bio-hybrid systems” at Living Machines 2013, London, UK, 29th July - 2rd August 2013 with Stuart Wilson & Jose Halloy

2012: Symposium “Honeybee colony organization: from empirical studies to modeling approaches and technical applications” at the EURBEE 2012 (together with Dr. Matthias Becher)

2011: Special Session “Self-adaptive and self-aware multi-component systems” at BIONETICS 2011 (together with Dr. Ronald Thenius)

2009: Workshop “Agent connectivity: the role of cooperation in the regulation of the behavior of animals and robots” at ECAL 2009, Budapest, 13th - 16th September 2009. Organized together with Prof. Istvan Karsai, ETSU, USA.

2009: Symposium “Modeling the swarm” at MATHMOD 2009, Vienna 11th -13th February. Organized together with Dr. Heiko Hamann, University of Karlsruhe.

2005: Co-Organizing the symposium “Optimization and regulation of work in social insects” on the Third European Congress on Social Insects (IUSSE), St. Petersburg State University, 22nd to 27th of August 2005.

2005: "I-SWARM"-workshop at the EURON conference, February 16th - 18th 2005; Warsaw, Poland.

2004: Workshop “Modeling of biological swarms”. Participants: Scientists from universities in: Stuttgart (D), Karlsruhe (D), St. Ingbert (D), Lausanne (CH), Sheffield (UK), Kanpur (India) and Pisa (I), on May, 7th, 2004, Graz, Austria.

Eingeladene Vorträge/Plenary lectures/Keynotes:

2020: “Robot Swarms for Repairing Broken Ecosystems” at the Fakultätskolloquium of the Faculty for Computer Science, Electrical Engineering and Mathematics, Invitation by Prof. Holger Karl.

2019: „Repairing broken Ecosystems with autonomous robot swarms“ at NJIT, Newark, New Jersey, USA, invitation by Prof. Simon Garnier (Federated Department of Biological Sciences)

2019: „Repairing broken Ecosystems with autonomous robot swarms“ at NYU - Tandon School of Engineering, Brooklyn, New York, USA, invitation by Prof. Giuseppe Loiano (RiskEconLab, Courant Institute of Mathematics)

2019: „Artificial Life: approaching the core“ at Binghamton University, Binghamton, New York, USA, invitation by Prof. Hiroki Sayama (System Science and Industrial Engineering)

2019: „Repairing broken Ecosystems with autonomous robot swarms“ at Binghamton University, Binghamton, New York, USA, invitation by Prof. Hiroki Sayama (System Science and Industrial Engineering)

2019: Invited talk at the International Conference at the University of Graz, “Questioning the Non-Human Other Political Potentials of Living Beings in Art” (17.-19.10.2019): “Repairing broken ecosystems with robotic surrogates”, invited by Sabine Fach, Institut für Kunstgeschichte, Graz, Österreich

2019: Invited talk at the EU European Innovation Days (24. – 26.09.2019): “Will Robots save Nature? How autonomous robotic agents can help us to prevent the current ecological collapse”, invited by the EU, Brussels Belgium

2019: Invited talk at the Akademie Graz, “swarming and networking” (23.08.2019): “Lecture on Artificial Life”, invited by Akademie Graz, Österreich

2019: Invited plenary talk at Vienna Design Week 2019: “Technological Augmentation of Ecosystems for a Sustainable Biosphere”. Invitation by Vienna Design Office.

2019: Invited talk at the International Symposium, Exhibitions and Workshop (20.-21.06.2019): “Earth without Humans, Repairing Broken Ecosystems with Robotic Surrogates”, invited by Kapelica Gallery and Artificial Life Symposium, Ljubljana, Slovenia

2019: Invited talk at the “AEC Eröffnungsfeier Linz” (15.-16.06.2019): “Symbiotische Berechnung von Bio-Hybridsystemen” invited by the Ars Electronica Linz, Linz, Austria

2019: Invited talk at the Sustainability4U Ringvorlesung 2019 (20.03.2019): “Können Roboter die Natur retten? Der Beitrag autonomer Roboter (-Schwärme) zur Beobachtung und Reparatur bedrohter Ökosysteme“, invited by Sustainability4U, Graz, Österreich

2018: Invited talk at the workshop: "SCIENTIĆ & ROBOTICA" (05. – 08. September 2018), “Robotertiere, kybernetische Pflanzen und gemischte Gesellschaften”, invited by EPFL Francesco Mondada, Lausanne, Schweiz

2018: Invited talk at the conference: ICTP International Centre for Theoretical Physics (07.-11. May 2018): “Mathematical Modeling of Collective Deception and the Emergence of Fundamentalism”, invited by ICTP committee, Trieste, Italy

2018: Invited talk on the Research Seminar in Economics (09.01.2018): Artificial Life in Graz: Collective Decision in Animals and Robots invited by Christoph Kuzmics, Universität Graz

2017: Invited talk at the Round table organized by AVL List GmbH and the University of Graz presenting the technical developments researched at the Artificial Life Lab Graz.

2017: Summer School ASSISibf (Graz, Austria, 29.-31.08.2019): “From Honey bees to bio-hybrid robot swarms”, opening lecture (29th August 2017)

2017: Invited talk at the Lakeside Research Days 2017: Self-Organization and Swarm Intelligence in Cyber Physical Systems (10.-12. July 2017): “Bio-inspired swarm robotics: From honeybees to space exploration”, invited by Wilfried Elmenreich, Professor of Smart Grids, Institute of Networked and Embedded Systems, Alpen-Adria-Universität Klagenfurt

2017: Invited talk at the conference: IVth International Conference on Research and Education (Poznan, Poland, 06.-08. April 2017): “Robots and honeybees: decoding smart swarms”, invited by Dr hab. Agnieszka Ludwików, Adam Mickiewicz University in Poznań

2017: Invited talk at the workshop: “Annäherung an die Natur. Zum Einsatz von Computersimulationen in der Bionik”, (Lüneburg, Deutschland, 30.01.-01.02.2017): “Animal and Robot Societies Self-Organise and Integrate by Social Interaction (Bees and Fish) ”, invited by Dr. Jan Müggenburg Leuphana University Lüneburg

2016: Invited talk to the Podiumsdiskussion ARS ELECTRONICA (Linz, Austria, 08.-12.09.2016) “Künstliche Intelligenz und Algorithmen”, invited by Ars Electronica, Linz, Austria)

2016: Invited lecture at the conference: CAMS 2016, 10th IFAC Conference on Control Applications in Marine Systems (Trondheim, Norwegen, 13.-16. September 2016): “Subcultron - a New Approach to Long-Term Underwater Autonomy”, invited by PhD Adjunct Associate Professor Vahid Hassani NTNU, Norway

2016: Invited talk at Workshop „Berechnete Tiere. Technik und Verdattung in den Human-Animal-Studies“ (Bochum, Deutschland, 22nd April 2016): “Biohybrid systems - Tiere, Pflanzen, Roboter, Agenten und Algorithmen”, invited by Prof. Stefan Rieger

2016: Invited lecture at winter school of projekt ASSISIbf (Lausanne, Switzerland, 12th Jan. 2016): “Honeybee Biology: Collective Behaviors”, Opening plenary lecture, invited by Prof. Francesco Montada at EPFL Lausanne, CH.

2016: Invited lecture at EPFL (Lausanne CH, 13th Jan. 2016): “From CoCoRo to subCULTron: Collective Cognition in Autonomous Underwater Robot Swarms”, invited by Prof. Alcherio Martinoli

2015: IROS 2015 (Hamburg, Germany, 2th Oct 2015): “Modular bio-inspired algorithms for autonomous underwater robot swarms in CoCoRo and subCULTron” in the workshop “Bioinspired underwater robotics” invited by Prof. Cesare Stefanini.

2015: DZG 2015 (Graz, Austria, 8th Sept. 2015): “Honeybee-inspired models and swarm (robotic) algorithms” in the workshop “Social Behaviour and Self-Regulation in Insects, Swarms and Algorithms”.

2015: EMRA 2015 (Lissabon, Portugal, 18th – 19th June 2015): “subCULTron – Approaching the next level”, invited by Prof. Nikola Miskovic, University of Zagreb

2015: Montagsakademie der Uni Graz (Graz, Österreich, 04.05.2015): *Soziale Cyborgs : Maschinen und Lebewesen verschmelzen zu Super-Gesellschaften*. Invitation by Prof. Alfred Posch

2015: subCULTron. Workshop “*European Robotics projects: Beyond the Robotics Uni!*”, 11th March 2015, European Robotics Forum 2015, Vienna. Invitation by Anne Bajart, Olivier Da Costa, Cécile Huet – European Commission.

2015: Collective Cognitive Robotics (CoCoRo). Workshop “*Step change results from FP7 projects*”, 12th March 2015, European Robotics Forum 2015, Vienna. Invitation by Cécile Huet , Bjoern Juretzki , Franco Mastroddi – European Commission.

2015: Research overview of the Artificial Life Lab, Graz. At: KNAPP A.G., 6th March 2015. Invitation by Mag. Andreas Miller.

2015: Closing the loop between honeybees & robots in collective decision. At INDP Workshop „Social Insect Behaviour“ at Champalimaud Foundation, Lisbon, Portugal, 26th – 29th Jan. 2015. Invitation by Carolina Doran, Simone Lackner, Eugenia Chiappe, Gonzalo G. de Polavieja.

2014: Invited talk on” Schwarmintelligenz-Algorithmen” at Knapp AG, Invitation by Mag. Andreas Miller.

2014: Collective behaviors in honeybees: from observation to modeling to re-embodiment to bio-hybrid systems. Seminar at Université libre de Bruxelles (ULB). 17th Dec. 2014. Invitation by Prof. Jean-Louis Deneubourg.

2014: Der Bot im Schwarm: Wie Roboter und Gesellschaften zu einem völlig neuen homogenen Ganzen verschmelzen. TEDxGRAZ talk, 12th Nov. 2014. Invitation by Friso Schopper. <https://www.youtube.com/watch?v=eS4dyznbdnc>

2014: Social Adaptation of Robots for Modulating Self-Organization in Animal Societies. FOCAS workshop at the SASO 2014 Conference, 8th - 12th Sept. 2015 at the Imperial College in London, UK. Invitation by Prof. Emma Hart and Jennifer Willies.

2014: Robots & honeybees: Establishing behavioural feedback loops between animals and machines. In: Symposium “Emergent social behaviours in bio-hybrid systems” at Living Machines 2014, Milano, Italy, 30th July – 1st August 2014. Invitation by Prof. Stuart Wilson.

2014: Evolving bio-hybrid societies of animals and robots. Opening Keynote at the EvoStar 2014 Conference at Granada, Spain 23-25 April. Invitation by Jennifer Willies and Prof. Emma Hart and Prof. J.J. Merelo.

2014: Evolvierende bio-hybride Gesellschaften. Akademie-Vortragsreihe “Digitale Gesellschaft: Erkennen – Manipulieren – Schützen – Produzieren“ of the Nordrhein-Westfälische Akademie der Wissenschaften und der Künste, Düsseldorf, Germany, 9th April 2014. Invitation by Prof. Franz Rammig.

2014: ASSISI_bf: Advocating bio-hybrid mixed societies of robots and animals. FET Proposers’ Day. 20th Jan. 2014, at DIAMANT Conference & Business Centre in Bruxelles. Invitation by Walter van der Velde, Christiane Wilzeck and Teresa De Martino.

2013: Schwarmintelligenz und bio-hybride Gesellschaften. Lecture at “Biologisches Kolloquium” at the University of Bonn. 2nd Dec. 2013. Invitation by Prof. Gerhard von der Emde.

2013: Embodied & collective intelligence in natural and artificial autonomous agents. Lecture at the “Informationskolloquium” of the Department of Computer Science, University of Paderborn. 12th Nov. 2013. Invitation by Junior-Prof. Dr. Heiko Hamann.

2013: The new Cyborgs: Robots and Animals Forming a Mixed Society? Lecture at the IEEE Croatian Section 2013 Lecture Series organized by Control Systems Chapter (CS23) and Robotics and Automation Chapter (RA24). 5th Nov. 2013 at University of Zagreb, LARICS, Invitation by Dr. Stjepan Bogdan.

2013: “Was Roboter von Tieren und BiologInnen von Robotern lernen können”. Vita Activa Vortragsreihe, University of Graz. 19th March 2013.

2013: "From biology & robots to bio-hybrid systems: establishing adaptive social cyborgs". Invited talk in the workshop "Emergent social behaviours in bio-hybrid systems" at Living Machines 2013, London, UK, 29th July - 2nd August 2013.

2013: "Collective artificial intelligence in autonomous embodied agents". University of Manchester (U.K.) 19th June 2013. Invitattion Dr. Alexandru Stancu.

2012: "Insects – Robots – Humans – Philosophy of the collective cognition: A journey through the mind of the masses". 6th of September 2012. ETSU, USA.

2012: "What is the IQ of one ant or one simple robot? And what if there are more than one to take the test?" 10th of October 2012. ETSU, USA.

2012: "Terminator, Matrix and Star Wars: How (far) will robots develop in our lifetime?" 1st of November 2012. ETSU, USA.

2012: Invited lecture in the Department Seminar of the Department for Biology. 3rd of October 2012, ETSU, USA. Invitation by Dr. I. Karsai.

2012: Invited talk at the Seminar for the Institute for Quantitative Biology (IQB). 24th of October 2012. ETSU, USA. Invitation by Dr. Debra Knisley.

2012: Invited talk in at the class "Great Ideas in Science". 29th of November 2012. ETSU, USA. Invitation by Dr. D.W. Harker and Dr. F.B. Hagelberg.

2012: Invited talk in the class "Modern drama" on swarm robots in theatre plays. 19h of November 2012. ETSU, USA. Invitation by Dr. K. Weiss.

2012: Round table on collective cognition and swarm intelligence", 16th of November 2012, ETSU, USA. Invitation by Dr. Debra Knisley.

2012: Invited talk "From biological models to bio-inspired robots" at the University of Zagreb. 5th of April 2012, invitation by Prof. Stjepan Bogdan.

2012: "Collective Cognitive Robots" at the CogSys Conference 2012 (5th International Conference on Cognitive Systems), 23rd Feb. 2012, Vienna.

2011: Invited talk in the seminar of the Plant and Invertebrate Ecology Department at Rothamsted Research, Harpenden, UK on the 2nd November 2011. Title "Honeybees, robots and other living things" (invitation by Dr. Matthias Becher and Dr. Juliet Osborne).

2011: "Honeybees & robots: Collective decision making and coordination in autonomous swarm systems" in the "Artificial Intelligence Seminar" at the Information Sciences Institute, University of Southern California (invitation bei Wei-Min Shen)

2011: Demonstration (in presentation form) "Spatial computing in modular robotics" at the workshop "Spatial Computing" (10min) 3rd Oct. 2011, SASO 2011, Ann Arbor, MI, USA.

2011: "Simemould - a collective and distributed intelligence" in the course "Holistische Wissenschaften" ("holistic sciences"), LVA-No: 7771090, at the Universität für Bodenkultur (BOKU) Vienna, Austria (invited by Prof. Thomas Prohaska)

2010: Workshop: 2010 IEEE International Conference on Robotics and Automation, Anchorage, Alaska, May 3-8, 2010, Workshop on Bio-Inspired Self-Organizing Robotic Systems. Title: Bio-Inspiration and Artificial Evolution in Collective Robotics.

2010: Workshop of the Research Core Area "Modelling and Simulation". Titel: Self-organized biological systems: Modelling, Simulation and Artificial Evolution.

2009: EU FET proactive external consultation workshop "fundamentals of collective adaptive systems". Title: "Creating adaptive systems that are as rich as their natural counterparts? Challenges for Evolvability". 3.-4. November 2009, Leuven, Belgium.

2009: Workshop/info-day "ICT on tour: Cognitive systems, Interaction, Robotics" of the FFG (Forschungsförderungsgesellschaft) Title: "Erfahrungsbericht aus dem RP7 "Replicator" oder die Biologie als Vorlage für robotische Kontrollarchitekturen". TU Graz, 10.12.2009.

2008: Workshop "Cognitive Robotics" (26.6.08 Budapest), invited talk by George Kampis, Collegium Budapest. Title: "Why robots are suitable models for the research of swarm phenomena"

2008: Workshop on Modelling Complex Biological Systems, 17th-18th April 2008, Uppsala, Sweden. Organized by: David Sumpter. "Individual-based models of honeybee intra-colonial regulation: Task-selection, nutrient allocation, brood care and navigation".

2007: “Complex Behavior: From honeybees to robot swarms”. Seminar of the Departments of Biological Sciences & Health Sciences, ETSU, Jonson City, TN, USA. (Seminar BIOL-5700, invited by the organizer Zulfiqar Ahmad)

2005: “Swarm Intelligence and Self-Organization in Biology”. Course Number 621.150, Seminar on Optimization and Control in Physiological Systems (for Mathematicians and Life Scientists) (2 hours of course credit) organized by: F. Kappel, T. Kenner, D. Schneditz, J. Batzel, D. Auerbach, M. Bachar, M. Fink. (Spezialforschungsbereich F-003) sponsored by the Austrian Science Fund, Graz, Austria.

2005: “Multi-Agentensimulation der dezentralen Regulation der Arbeitsteilung bei Honigbienen”, at the „2nd Day of science”, organized by CEQUACOS, Center for Quantitative and Computational Sciences, Graz, Austria.

2002: “Multiagenten Simulation in der Biologie”, at the “1st Day of Science”, organized by CEQUACOS, Center for Quantitative and Computational Sciences, Graz, Austria.

Public Exhibitions:

2019: Exhibition at the VIENNA DESIGN WEEK “HIVEOPOLIS : Biohybrid superorganisms diversify urban ecological niches “, exhibiting the work of the EU Project HIVEOPOLIS towards the smart beehive of the future.

2019: Exhibition at the Digital Design Market Platform – RESPOND FESTIVAL, Copenhagen, Denmark: “Intelligent Beehives of the Future. “, showcasing the HIVEOPOLIS smart beehive of the future. Invitation by: COPENHAGEN MAKER

2019: Exhibition at the VIENNA MAKER FAIRE 2019: “(make)ROOM FOR SHROOM”.

2018: Ars Electronica Festival, Linz, Österreich (06.09.2018 – 10.09.2018)

2017: Bientage, Graz, Österreich (22.04.2017 – 23.04.2017)

2016: Ars Electronica Festival, Linz, Österreich (08.09.2016-12.09.2016)

2016: Grazer Frühjahrsmesse “Grazer Frühjahrsmesse macht Schule: “Wunderwelt Bienen”, Graz, Österreich (28.04-2016 - 02.05.2016)

2015: EXPO 2015 “subCulTron underwater robot installation”, Venice, Italy (16.10.2015 – 31.10.2015)

2014: CeBit 2014, “CoCoRo underwater robot installation”, Hannover, Germany (10.03.2014 – 14.03.2015)

2014: Multiple live presentations of honeybee-inspired swarm robots. TEDxGRAZ talks, Graz, Old University, 12th Nov. 2014. Invitation by Friso Schopper.

2013: Live presentation of a robot swarm performing the honeybee-inspired robots at “Tag der Naturwissenschaften” at the Aula of the Karl-Franzens-University Graz (16.11.2013).

2010: Exhibition of our bio-robotic swarms at the “RESEARCH 2010” in Graz, Austria (11.6.-12.6.2010).

2010: Museum installation of a robotic implementation of a phosphorescent ant-trail system in the museum “Haus der Wissenschaften” at the exhibition named “Abenteuer Wissenschaft 3”, 24 performances.

2010: Theater performance of swarm robotic algorithms supervised/consulted by the AL-Lab Graz in the theatre play “2012 – Übermorgen is zweifelhaft” at the “Münchener Kammerspiele” by video-, performance- and theater-artist Chris Kondek (<http://www.youtube.com/watch?v=FERe9LfZl4>), 6 performances.

2006: Museum installation of a robots swarm (20 JASMINE robots) in the museum “Haus der Wissenschaften” at the exhibition named “Nobelpreisträger”, which was partially focused on the work and life of Nobel price winner Karl von Frisch.