

SAYFAN G. BORGHINI

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Dr Sayfan Borghini is a Physicist by formation, and interdisciplinary by profession. She collaborates for more than a decade with complexity scientists, designers, architects and urban planners on a deeper understanding of the complex dynamics at play in socio-technological environments as well as bio-inspiration for innovation. She has published on the Design of Social technological environments, digital and physical, and given a number of courses and international lectures on it. She has been part for three years of a wide European consortium project researching Academy-Industry-Technology relations in Israel vs European countries. She was part as curator and as scientific advisor in a number of exhibitions exploring the relation between art, science and technology.

EDUCATION

PhD	University 'La Sapienza',	October 1998
MS	University 'La Sapienza', Physics	July 1992

ACADEMIC EXPERIENCE

HIT , Holon Institute of Technology, Design Faculty, Holon, Israel	2011 to Present
<ul style="list-style-type: none">• Lecturer – Multidisciplinary Studies• Lecturer – Master Program, Integrated Design	
VUB , The Center Leo Apostel, CLEA,	
<ul style="list-style-type: none">• Lecturer – the Postgraduate School of Thinking	
	2018 to Present
ECCO , Evolution, Complexity and Cognition, VUB, Belgium	2015 to Present
<ul style="list-style-type: none">• Affiliated Researcher	
AESOP , Thematic Group on Urban Planning and Complexity	2016 to Present
<ul style="list-style-type: none">• Affiliated Researcher	
PLAST , Pattern Languages for Systemic Transformation	2015 to 2016
<ul style="list-style-type: none">• Researcher, Redacting CAPS and FET European Proposal, Theory Section	
TEMPUS IDEA , Inter-Disciplinary Education Agenda.	2014 to 2016
European Consortium on Academy-Industry-Technology relations	
<ul style="list-style-type: none">• Research on Academic Innovation in Europe and in Israel• Didactic collaboration with high-tech companies• Academic Training Workshops (UK; Italy; Germany; Israel)	

TEACHING EXPERIENCE

(2011/2021) **Urban Ecology Seminar**, Master Program, Integrated Design (MDes), HIT.
Introductory overview of the dynamics of socio-technological-natural systems.

(2013/Present) **Biomimicry for Innovation**, with Dr. E. Segev, Interdisciplinary Track, HIT
Introduction to the interdisciplinary methodology of biomimicry as a basis for innovation in multiple disciplines

(2018/Present) **Complexity Thinking**, Post Graduate School of Thinking, VUB, Brussels
Introduction to the Science of Complexity. Basic view of Dynamic Systems, Information Theory, Computation, Evolution,

(2013/2015) **Integrated Design Laboratory: Science, Technology and Design**, MDes, HIT
Studio on the intersection of Design with Technology and Science.

(2016/2018) **Integrated Design Laboratory: Service Design**, co-lecturer, MDes, HIT
Studio in socio-technological environments, with a focus on technology in healthcare.

(2014) **Design Management: Technology, Design and Innovation**, Tempus Idea
Studio in collaboration with High Tech Start-ups.

(2013/Present) **Master Projects Advisor**, MDes, HIT

SELECTED INVITED WORKSHOPS & COLLABORATIONS

(2021) Microsoft, R&D Division, Herzilia, Israel
Life in a bottle, principles of ecosystems at play

(2019) CNR – IAC, National Research Council, Applied calculus Institute, Roma, Italy.
Biomimicry, a different perspective on Innovation. Invited workshop.

(2019/2021) Hadassa Academic College, DAN, Jerusalem, Israel,
Faculty workshop on Academic Innovation and Professionalization of the Faculty.
Faculty workshop on Academic Courses Innovation.

(2018) CRI Center for Research and Interdisciplinarity, Paris, France
Workshop on the methodology for multidisciplinary teaching.

(2016) Ben Gurion University, Department of Geography and Environmental Development
Beer Sheva, Israel. Patterns in the Urban Fabric. Day workshop to Master Students.

(2016/2017) Hebrew University, Urban Clinic, as External Researcher, Jerusalem, Israel
Invited collaboration with the Urban Clinic and AESOP researchers in Jerusalem.

(2015) Brighton University, Department of Arts and Design, Brighton, UK

- Workshop in collaboration with local industry.
- (2015) Danube University, PurpleSoc Conference, Graz, Austria,
Workshop on the use of patterns in complex technological system for innovation.
- (2014) ISIA Design Rome, University of Rome, Design week, Rome, Italy
Workshop in collaboration with local industry.

SELECTED PUBLICATIONS

Book Chapter

- Borghini, S. (2021). Thinking Complexity. In: M. Lenartowicz & W.D.R. Weinbaum (Eds.), *The Practice of Thinking: Cultivating the Extraordinary*. Lannoo Publishers, Belgium.
- Borghini, Boddington (2017) Collective Narratives: Startup Companies, High Tech and the Global Market. in Interdisciplinary Research and Education Agenda – A Design Driven Perspective, Vacca, F., Warshavski, T. (Editors).

Journal Publications

- Borghini, S. G., *Stigmergy in the Design of Social Environments*. Eur. Phys. J. Special Topics 226, 269 –281 (2017)
- Rosner-Manor, Y., Borghini, S. G., Boonstra, B., & Silva, P. (2020). Adaptation of the urban codes—A story of placemaking in Jerusalem. *Environment and Planning B: Urban Analytics and City Science*, 47(2), 251-267.
- Borghini, S. G., Finidori, H., Henfrey, T., PLAST Pattern Languages for Systemic Transformation, Spanda Journal, Vol. VI, 1, 2015
- Levin, Borghini, Geiger, Markfeld (2014). “Employing Data Visualization to Explore Human Stigmergy in Information Systems”; Proceedings - ECIS 2014, 22d European Conference on Information Systems, Tel Aviv, Israel,

Conference Papers (Peer-Reviewed)

- Alkobi Fishman, S., Borghini, S.G. (2024) “Modelling Algorithmic Personalization in Online Social Networks: The Phenomenon of Communication Space Dispersion”; Invited to ICWI – WWW/Internet International Conference. Zagreb, Croatia, October 26-28, @024
- Borghini, S.G., Rosner, Y. (2017) “Mediating Adaptation: a City Action System”; proceedings of New Sciences and Actions for Complex Cities – Social and Institutional Innovation in Self-Organizing systems SYPCITY. Florence, Italy, December 14-15, 2017.

Rosner, Y., Borghini, S.G., Boonstra, B., Silva, P. (2017) "Placemaking in a contested city: a story of epigenetic tactics in contemporary Jerusalem"; proceedings of 15th meeting AESOP – Crossing over with Complexity: Co-Evolution in Planning. Ghent, Belgium, April 12-14, 2017.

Borghini, S.G. & Segev, E. (2015) "יצירתיות ככלי מעורר מוטיבציה בהוראה אקדמית"; proceedings of Creativity in Teaching; Oranim Academy, Israel, June 23, 2015.

Finidori, H., Borghini, S.G., Henfrey, T. (2015) "Towards a Fourth Generation Pattern Language: Patterns as Epistemic Threads for Systems Orientation". Proceedings - Purplsoc Conference 2015. Danube University Krems, Austria.

Borghini, S.G. (2014), "The transforming identity of cities"; Transition Towns, Smart City Expo 2014, Barcelona, Spain.

SELECTED PRESENTATIONS AND INVITED LECTURES

Bio-Inspired Grid Strategies for Collective Coordination. The Multidisciplinary Grid 2020 Conference. HIT, Holon, Israel, November 2020.

Patterns of Informalities. Emerging Patterns in the Built Environment. 17th Meeting of the AESOP Thematic Group on Urban Planning and Complexity. Ben Gurion University of the Negev, Beer-Sheva, Israel, November 2018.

Mediating Adaptation: A City Action System. New Sciences and Actions for Complex Cities – Social and Institutional organization in self-organizing systems. SYPCITY. Università degli Studi, Florence, Italy, December 14-15; 2017.

Stigmergy in the Design of Social Environments. In: Evolution, Complexity and Cognition - ECCO/GBI Seminar Serie 2015-16, VUB Doctoral School, November 27, 2015.

Media Labs: from Science to Art. Panel moderation. Ars Electronica, Linz, Austria, September 5, 2013;

From Data to Wisdom: Mapping Complex Systems. IDHO Laboratory, HIT, Holon; November 27, 2012.

Polytopia, a Mind Habitat. ContactCon, 'The Evolution will be Social', Angel Orensanz Center, New York, USA; October 20, 2011.

How do we think the future. TEDxHolyland - 'It's Time'; American Colony, Jerusalem; October 29, 2010.

SELECTED EXHIBITIONS

Museums

Curator, with Van Essen, Y.E. and Chitayat, L. "Art, Science and Technology, an Israeli Perspective", Erarta Museum of Modern Art, St Petersburg, Russia, 21-23.11.2016.

Galleries

Scientific Advisor, “BioDesign–Hybrid Fabrications”, Research Gallery of the Master Program in Integrated Design, HIT, 28.4 - 19.5, 2015.

Scientific Advisor and Assistant Curator. “IL(L) Machine”, Presenting 10 Israeli Academies, ArsCampus Israel at **Ars Electronica Linz**, Austria September 5-9, 2013