3ʀᴅ Tᴜᴛᴏʀɪᴀʟ ᴏF ᴛʜᴇ DᴇSɪGN ᴛʜᴇᴏʀʏ SIG

30ᴛʜ Jᴀɴ – 1Sᴛ Fᴇʙ, 2019 ɪɴ PᴀʀɪS

Special Interest Group on
DESIGN THEORY
of the International Design Society

the **Design Society**
a worldwide community

BASIC COURSES

Design Theory:
history, tradition & contemporary challenges

Generativity

Knowledge Structure

Social Spaces
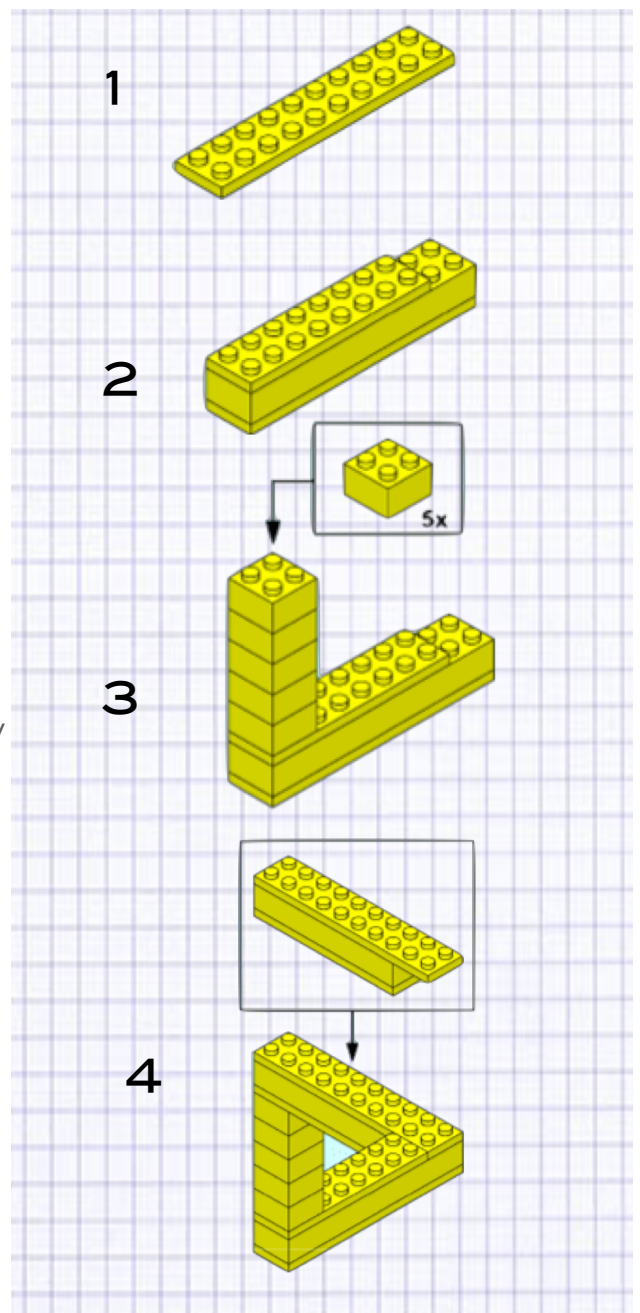
ADVANCED COURSES

Biomimetic with design theory

Parameter analysis method with design theory

Empirical analysis of failures in design

Automated search in digital innovation

Creativity & design theory

MᴀSᴛᴇʀ CʟᴀSS & PᴜʙʟɪSʜɪɴG ɪɴ DᴇSɪGN Tʜᴇᴏʀʏ

dtm design theory and methods for innovation

i³ institut interdisciplinaire de l'innovation

MINES ParisTech

PSL

3rd SIG Design Theory Tutorial (30 jan - 01 Feb 2019, Paris, France)

Professorial college:

Professorial College		
Name	**Institution**	**Country, city**
Hatchuel Armand	MINES ParisTech	France, Paris
Kazakci Akin	MINES ParisTech	France, Paris
Kroll Ehud	ORT Braude College	Israel, Karmiel
Le Masson Pascal	MINES ParisTech	France, Paris
Reich Yoram	Tel Aviv University	Israel, Tel Aviv
Subrahmanian Eswaran	Carnegie Mellon University	USA, Pittsburg
Vajna Sandor	Otto-von-Guericke University	Germany, Magdeburg
Weil Benoit	MINES ParisTech	France, Paris

Organizer: Benjamin Cabanes

Speakers:

Speakers		
Name	**Institution**	**Country, city**
Camarda Annaëlle	MINES ParisTech	France, Paris
Fritzsche Albrecht	FAU Erlangen- Nürnberg	Germany, Nürnberg
Hatchuel Armand	MINES ParisTech	France, Paris
Kazakci Akin	MINES ParisTech	France, Paris
Kroll Ehud	ORT Braude College	Israel, Karmiel
Le Masson Pascal	MINES ParisTech	France, Paris
Nagel Jacquelyn K.S.	James Madison University	USA, Harrisonburg
Reich Yoram	Tel Aviv University	Israel, Tel Aviv
Smulders Frido	TU Delft	Deflt, Netherlands
Subrahmanian Eswaran	Carnegie Mellon University	USA, Pittsburg
Vajna Sandor	Otto-von-Guericke University	Germany, Magdeburg
Weil Benoit	MINES ParisTech	France, Paris
Yukari Nagai	JAIST	Japan, Tokyo

Goal: Diffuse the knowledge produced in the DT SIG community in the last ten years – in the spirit of the "ten years" SIG plenary:

In recent years, the works on Design Theory (and particularly the works of the Design Theory SIG of the Design Society) have contributed to reconstruct a basic science, Design Theory, comparable in its structure, foundations and impact to Decision Theory, Optimization or Game Theory in their time. These works have reconstructed historical roots and the evolution of design theory, unified the field at a high level of generality and uncovered theoretical foundations, in particular the logic of generativity, the "design-oriented" structures of knowledge and the logic of design spaces that goes beyond the problem space complexity. These results give the academic field of engineering design a new consistent ecology of scientific objects and models, which allows for advanced courses and education. They have contributed to a paradigm shift in the organization of R&D departments, supporting the development of new methods and processes in innovation centres. Emerging from the field of engineering design, design theory development has now a growing impact in many disciplines and academic communities. The Design Society may play significant role in addressing contemporary challenges if it brings the insights and applicability of Design theory to open new ways of thinking in the developing and developed world.

We don't claim a complete presentation of all that has been done in design but we focus on the recent works on design theory.

Participants can expect:
1- knowledge on the papers and results obtained in design theory
2- understand the logic "formal program / open program" of the SIG

Contents:
- Basic courses: 7 modules, made by professors of the Professorial college of the tutorial
- Master classes: interactive work sessions with (young or not…) researchers on their research topic and Design Theory in these research works, phd dissertation, publication projects
- Advanced Topic: short presentation made by an expert on an advanced topic in design theory – typically: 30 minutes, based on a paper, presented by a professor + 15 minutes for questions.
- One session on "publishing in design theory"

Day 1: Room V111-112-113 / V115 / V116 / V119

Basic Course	Advanced Topic / Paper Discussion	Publication discussion & Master Class

Day 1 - 30 Jan 2019			
Timetable	**Type of Course**	**Title Course**	**Speakers**
9:00 - 10:00	**Workshop program + presentation of participants + Paper discussion**	Design theory: a foundation of a new paradigm for design science and engineering	Pascal Le Masson, Eswaran Subrahmanian
10:00 - 11:00	**Basic course:** Classical School	The simonian tradition in design (Economics, info, learning, decision, problem solving tradition)	Eswaran Subrahmanian
11:00 - 11:30	Break		
11:30 - 12:30	**Basic course:** Classical School	An overview on the Design Methodology by Gerhard Pahl and Wolfgang Beitz	Sandor Vajna
12:30 - 14:00	Lunch		
14:00 - 15:00	**Basic course:** Contemporary Formal Models I	Introduction to CK Design Theory	Pascal Le Masson & Benoit Weil
15:00 - 16:00	**Conference**	Design theory and the art tradition	Armand Hatchuel
16:00 - 16:30	Break		
16:30 - 17:30	**Advanced topic / Paper discussion (1)**	The Dreamliner's bumpy road to takeoff. Overlooked Design & Innovation Theory as root cause?	Frido Smulders
17:30 - 18:30	**Master class 1**		Benjamin Cabanes + Professorial College

Day 2: Room V111-112-113 / V115 / V116 / V119

Day 2 - 31 Jan 2019			
Timetable	**Type of Course**	**Title Course**	**Speakers**
9:00 - 10:00	**Basic course:** Contemporary Formal Models II	Knowledge structure in design (n-dim, category theory, matroïd, sp splitting condition)	Eswaran Subrahmanian
10:00 - 11:00	**Basic course:** Contemporary Formal Models III	Enhanced parameter analysis method	Ehud Kroll
11:00 - 11:30	**Break**		
11:30 - 12:30	**Basic course:** Contemporary Formal Models IV	An introduction to the PSI (Product - Social – Institutional) Framework	Yoram Reich
12:30 - 14:00	**Lunch**		
14:00 – 15:00	**Master class 2**		Benjamin Cabanes + Professorial College
15:00 – 16:00	**Advanced topic / Paper discussion (2)**	Biomimetics with design theory (Vendôme classroom)	Jacquelyn K.S. Negel
16:00 - 16:30	**Break**		
16:30 - 17:30	**Conference**	Industrial applications of design-oriented methods	Milena Klasing Chen
17:30 – 19:30	**Cocktail**		

Day 3: Room V111-112-113 / V115 / V116 / V119

Day 3 – 1st Fev 2018			
Timetable	**Type of Course**	**Title Course**	**Speakers**
9:00 - 9:45	**Advanced topic / Paper discussion (3)**	Design creativity and innovation	Yukari Nagai
9:45 - 10:30	**Advanced topic / Paper discussion (4)**	Demonstration of fixation effect during generation of creative ideas from fundamental experimentation approach to applied experimentations.	Anaëlle Camarda
10:30 - 11:00	**Break**		
11:00 – 11:45	**Advanced topic / Paper discussion (5)**	Generative artificial intelligence	Akin Kazakçi
11:45 - 12:30	**Advanced topic / Paper discussion (6)**	Conjunctions of Design and Automated Search in Digital Innovation	Albrecht Fritzsche
12:30 - 14:00	**Lunch**		
14:00 – 15:00	**Master Class 3**		Benjamin Cabanes + Professorial College
15:00 – 16:00	**Publishing in design theory**	Room V115	Yoram Reich (RED)