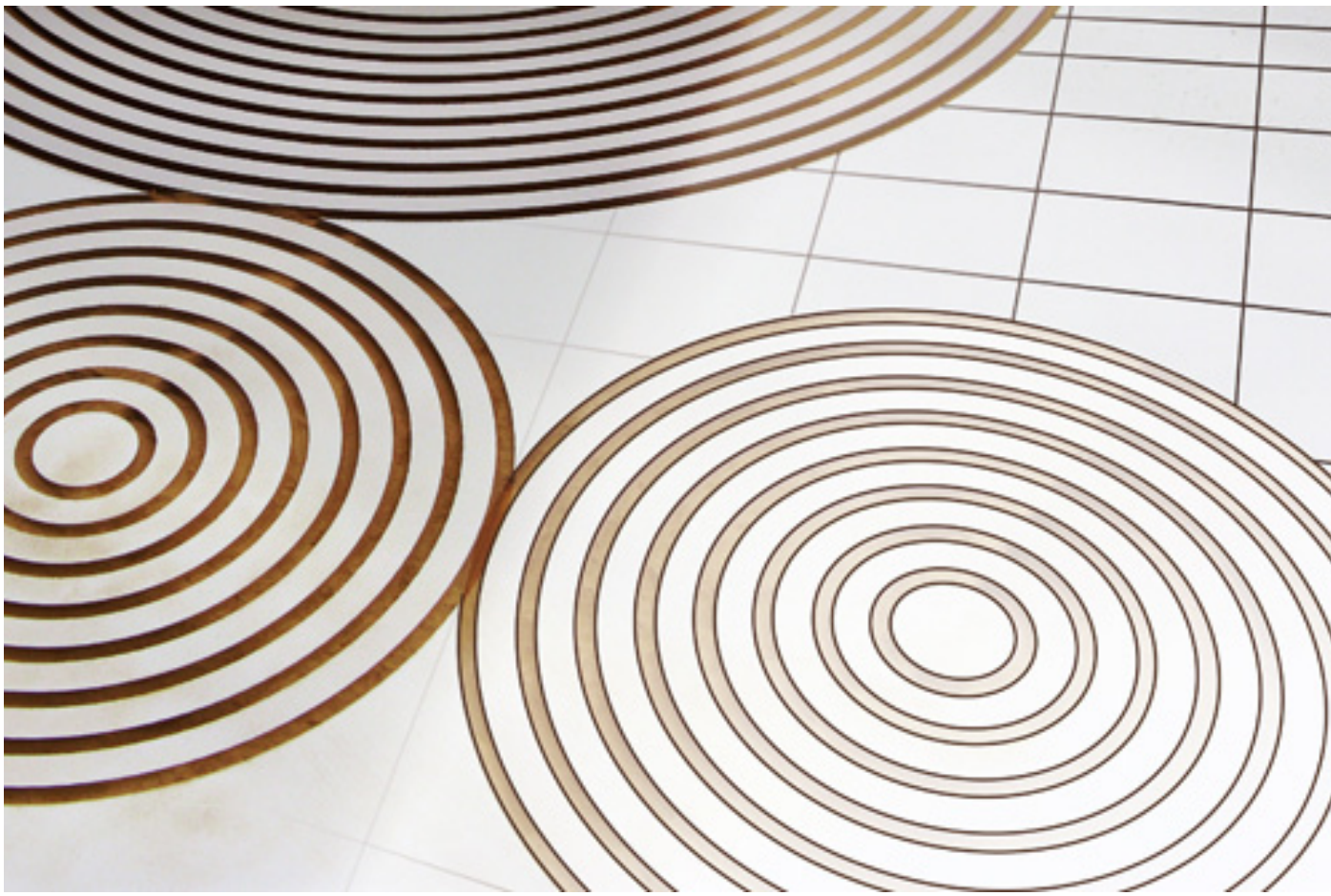
University of Applied Sciences and Arts of Southern Switzerland
Laboratory of visual culture

SUPSI

Designing for the third industrial revolution

Summer school in digital fabrication and interaction design

9-27 July 2012



Laboratory of visual culture
SUPSI-DACD-LCV
Campus Trevano
CH-6952 Canobbio

Designing for the third industrial revolution

Summer school in digital fabrication and interaction design

DIY, fablabs, open source software and hardware platforms are opening up new opportunities for creating interactive artefacts that explore alternative approaches to design, production processes and business models. The open design framework is emerging: low cost prototyping machines and easy to use modelling softwares allow design communities to rethink the way things can be made.

In the context of this third industrial revolution, the challenge for designers is to learn how to manage new manufacturing processes and to create objects that can be digitally fabricated and distributed or built and collaboratively improved by the users' community. Besides, an important challenge is to learn how to manage technological factors and to start designing objects that are open and prenote interactive behaviours.

Goal of this summer school is to provide participants with the fundamental skills of digital fabrication concerning the design of interactive artefacts. Participants learn how to design by fabbing: in other words, to transfer digital information to computer-controlled machinery and to implement sensing systems in order to create physical and open interactive artefacts.

Digital fabrication
Costantino Bongiorno, *Vectorealism*
Enrico Bassi, *Fablab Italia*
9-13 July 2012

Typography, computation, fabrication
Giorgio Olivero and Fabio Franchino, *TODO*
16-20 July 2012

Physical and wearable computing with Arduino
Massimo Banzi, *Arduino*
Zoe Romano, *Open wear*
23-27 July 2012

The summer school is promoted by the Laboratory of visual culture within the activities of the Master of Advanced Studies in Interaction Design, the MAS program offered by SUPSI, which started back in September 2011.
The participation is open to all concerned peoples regardless their educational background (visual arts, design, information technologies, engineering). Participants will receive a certificate of attendance, recognizing 2 ECTS.

Digital fabrication
Costantino Bongiorno
www.vectorealism.com
Enrico Bassi
www.fablabitalia.it
9-13 July 2012

Overview

Digital fabrication refers to the translation of digital designs into physical objects using computer-controlled machine. While the technologies used for digital fabrication have been common in fast prototyping and industrial production, only recently they have become accessible for small-scale productions. Designers' and makers' communities can now take advantage from these powerful technologies and use prototyping machinery and tools such as laser cutters, 3D printers and 3D modelling softwares to design innovative products and systems.

Goals

Goal of the workshop is to learn about digital fabrication practices and processes and how to create digitally designed objects that can be fabricated. After an introduction about digital fabrication, participants will learn:

- how to use the basic functionalities of Rhinoceros, the most used 3D and 2D drawing software, to create an objects);
- how to design and fabricate a small object of low or intermediate complexity, to manage curves, solids and elementary mechanical solutions like snap fits, fasteners, bosses.
- how to design in 2D and 3D objects and how to prepare a file for a laser cutter or a 3D print;
- how to manage computer-controlled machinery and to apply techniques of 3D printing, laser cutting and engraving.

During the workshop a library of Rhinoceros examples will be used for creating digital objects. All participants will develop a final project according to a specific theme.

Marius Watz

Typography, computation and fabrication
Giorgio Olivero and Fabio Franchino
www.todo.to.it
16-20 July 2012

Jen Marquez

Overview

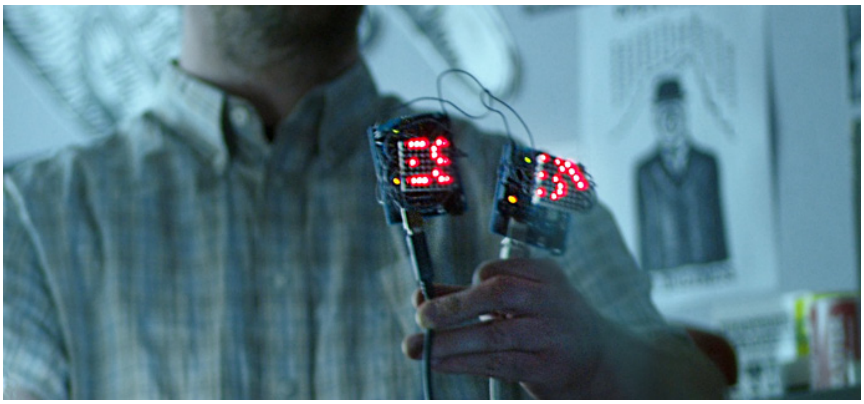
What are the opportunities of computation as a physical process? How can we bypass the bottleneck of traditional, commercial graphic software through generative strategies applied to type? How can we explore the tangible qualities of type beyond the conventional notions of paper and screen? This workshop is devoted to the practice of amplifying typography in tactile, exciting and novel ways. Participants will be taught how to program using Processing and will learn how to write a code in order to generate shape, structures and surfaces that can be digitally fabricated.

Goals

Goals of the workshop are to provide participants with the fundamental knowledge of Processing in order to design generative typographical solutions and to explore digital fabrication techniques. Participants will learn the fundamentals of programming and how to play with glyphs, by analyzing and reshaping them through iterative processes, finding out new forms through the use of computational geometry, autonomous agents and rule-based systems. In the second phase, the goal is to produce hybrid type –part digital, part physical– by using fast prototyping techniques such as laser cutting and 3D printing. Previous experience with scripting languages and digital fabrication technologies is a bonus, but not a requirement.

Physical and wearable computing with Arduino

Massimo Banzi
www.arduino.cc
Zoe Romano
www.openwear.org
23-27 July 2012



Paul Downey

Overview

Physical computing encompasses the design of interactive physical systems through the use of softwares and hardwares that can sense and respond to the analog world. Applications of physical computing are becoming wider spread and, thanks to technology miniaturization and fast prototyping, it is now possible to experiment solutions of interactive and wearable objects that can be digitally fabricated.

Goals

Goal of the workshop is the design and prototyping, through the Arduino platform, of objects that sense, interpret and react to the real world and that can be wearable and digitally fabricated. During the first phase of the workshop, notions of physical and wearable computing will be provided together with an introduction to the Arduino platform and to digital fabrication techniques.

In the second phase, workshop activities are split into two different tracks:

- the physical computing track, held by Massimo Banzi, will focus on the design and prototyping of digitally fabricated interactive objects.
- the wearable computing track, held by Zoe Romano, will explore the world of digital fabrication applied to open source fashion and, in particular, to the implementation of digitally fabricated accessories featured by interactive behaviors.

The workshop requires some rudimentary understanding of programming that can be acquired in the previous week (Typography, computation and fabrication). Applicants without previous experience are warmly welcome to contact us, for getting a list of books for reference.

Practical information

Admission requirements
The workshops are open to all people concerned with interaction design, such as designer and artists. No specific knowledge or competence is required (beginner level), but people who are already familiar with software and hardware platforms employed during the workshops (Processing, Arduino) are welcome.

Venue
The interaction design workshops will take place at SUPSI Campus in Trevano, near the center of Lugano.

Certificate
Participants will receive a certificate of attendance (certificate of continuing education SUPSI) that recognizes 2 ECTS for each workshop.

Application
In order to enroll, all applicants must submit the on line form available at www.maind.supsi.ch/.
The maximum number of participants is 25. In case of a number of applications exceeding the available places, we will proceed to a selection based on CV.

Deadlines
Digital fabrication: 11 June 2012.
Typography, computation, fabrication: 18 June 2012.
Physical and wearable computing with Arduino: 25 June 2012.

Duration
Each workshop lasts for five days of seven hours a day of lessons and practical activities, summing up to 35 hours of tuition.

Admission fees
Digital fabrication: 650.– CHF.
Typography, computation, fabrication: 650.– CHF.
Physical and wearable computing with Arduino: 650.– CHF.

Students' fee: 20% discount (520.– CHF).
Future students of Maind program: 20% discount (520.– CHF).

Equipment
Participants must bring their own laptop computers. All other material and basic equipment for the realization of the projects will be provided.

Contatti
www.maind.supsi.ch/workshops-2/
summerschool2012/
master.mid@supsi.ch
+41 (0)58 666 6385

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