



ERCIM "ALAIN BENSOUSSAN"  
FELLOWSHIP PROGRAMME



## Scientific Report

First name / Family name	Sarah Eagle
Nationality	UK
Name of the <i>Host Organisation</i>	NTNU
First Name / family name of the <i>Scientific Coordinator</i>	Monica Divitini
Period of the fellowship	11/08/2014 to 10/08/2015

### I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

- A theoretically based framework towards understanding learning and engagement in coding and science, through the provision of hands-on creative, collaborative activities.
- A study of contexts in which undergraduates and school students participate in ‘making’ or ‘tinkering’ for the purposes of encouraging engagement and creativity in coding.

### II – PUBLICATION(S) DURING YOUR FELLOWSHIP

**TITLE** A Board Game For Participatory Innovation: Instructions As Design Material

**AUTHORS** Sarah Eagle, NTNU: Sara Reinholtz, Jane Webb, Mahdis Aliasgari & Marcel Penz, Interactive Institute, Swedish ICT

**REFERENCE** Eagle, S., Reinholz, S., Webb, J., Aliasgari, M., & Penz, M. (2015) A board game for participatory innovation: Instructions as design material. In: *Proceedings of the 5th Participatory Innovation Conference (PIN-C '15)*, Den Haag, 18-13 May 2015

**ABSTRACT** Designers, users and stakeholders who work together in the pursuit of innovation often collaborate in workshop settings, facilitated by professionals. The focus of this paper is a ‘thing’ designed by the Stockholm studio of Interactive

Institute for use in such workshop settings; it consists of a board game, together with a technique for use of video by the players of the game. What is not clear is the relation between the various elements of the design and the process through which ideas can unfold. The team responsible for the design worked with an academic researcher to analyse the 'things' in use; by taking an analytical stance to their own process of collaboration in the context of the board game, they were able to produce new ideas. The creative outcome is a series of theoretically informed questions on the role of instructions for use with 'things' designed to support participatory innovation, together with ideas for further studies.

Papers under preparation:

- *Which comes first, community or technology? Designing for learning in digital maker environments.*

The paper contrasts three superficially similar learning environments that were set up to offer experience in computer programming, or coding, to children of school age through hands-on 'making' activity, pinpointing the design decisions behind them that may be significant in relation to learning objectives and outcomes.

- *What does educational theory have to say about making and learning? : a review of literature on learning through hands-on creative, collaborative activities.*

### **III – ATTENDED SEMINARS, WORKSHOPS, CONFERENCES**

**Responsive & Flexible Career Development Framework for Researchers EU FP7 Programme for research, technological development and demonstration**  
Invited Participant, Reflex project: intelligent support mechanisms for intelligent careers. Trondheim, August 2015

**Teaching to Tinker – Making as an Educational Strategy, NordiCHI'14 26-30 , Helsinki, October 2014** Workshop convenors Daniel Cermak-Sassenrath, IT University of Copenhagen; Emilie Møllenbach, IT University of Copenhagen.

**Interactive Institute, Stockholm, 23-26 January 2015.** A collaborative project over four days, taking place between a group of designers and a researcher (myself), as set up by the convenors of PIN-C 2015 (Participatory Innovation Conference) *Makers and analysts jointly explore the challenges of designing for new ecologies of materials, artefacts and interactions*

**Women in leadership positions workshop, Department of Computer and Information Science, NTNU Trondheim, September 2014** run by Lars Asle Einarsen of LEAD AS. Basic tools in leadership: Communication and conflict management: Psychosocial Work Environment – Factors creating motivation and stress at work: Leadership - building power and influence

**Designing with Internet of Things – in the home, city, garden, around your body and everywhere!** Open House, Mobile Life, SICS Swedish ICT, Stockholm. 21 January 2015

### **Seminars, workshops and special events, NTNU Trondheim.**

- Computer Science Graduate Student Conference, 27 May 2015
- Child & Youth Seminar, Department of Education, May 2015, 'Children, children's perspectives, play, learning and media when children meets the school'
- Strategy Seminar for Department of Computer and Information Science,– Åre, Sweden, 6, 7 May 2015
- Seminar on Innovative Teaching Methods, June 1 2015
- Seminar on Digital Innovation, IDI, April 2015
- Humanitarian Innovation and Design Seminar, March 2015
- Biotechnology and Innovation: Origins of evolutionary adaptations and innovations, September 2014 Prof. Andreas Wagner.
- Neuroscience and Education: September 2014. Kvali institute, NTNU. Stanislas Dehene "The matter of education: Literacy, numeracy and the developing brain".

## **IV – RESEARCH EXCHANGE PROGRAMME (REP)**

A five day visit to Departamento de Lenguajes y Ciencias de la Computación hosted by Dr. Pedro Merino Gómez. Significantly, this visit enabled the gathering information about the design of informal environments for learning with robotics that are run by the University of Malaga, named MindTech, in the form of summer schools that also take place in Sevilla and Cadiz.