



ERCIM "ALAIN BENSOUSSAN"
FELLOWSHIP PROGRAMME



Scientific Report

First name / Family name	Asreen Rostami
Nationality	Iranian
Name of the <i>Host Organisation</i>	RISE Research Institutes of Sweden
First Name / family name of the <i>Scientific Coordinator</i>	Shahid Raza
Period of the fellowship	01/05/2020 to 31/04/2021

I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

My research was centred around providing an understanding of the technical, design, social and political issues that are exposed when considering IoT systems from a human-centred perspective. In the most recent study in this project, I investigated end-users' practices of hacking their own commercial medical devices in order to make the technology meet their goals rather than those originally intended by the manufacturer or those proscribed by regulatory bodies. This provided an insight into how users of intimate IoT devices like insulin pumps and home respirators take the development of essential predictive systems into their own hand to address situations in which their interests do not align with that of the developers. A paper about this study is currently submitted to ACM CSCW'21 and another one is expected to be submitted to ACM CHI'22:

- Why users hack: conflicting interests and the political economy of software (under review).
- Stories of being hacked: The hack as a non-technical social object. Targeted venue: ACM CHI'22

This study laid the groundwork for a new strand of research which is an examination of the gender inclusivity of cybersecurity strategies in IoT devices, the socio-technical implications of IoT devices, their designs and use on gendered (in)securities. This research proposal resulted in a successful postdoctoral research grant on “**Gender**

inclusive cybersecurity”, and as part of a joint research project between Department of Computer and Systems sciences at Stockholm University and RISE Research Institutes of Sweden, under the Digital Futures program. The research is planned for two years (2021-2023) and includes investigating the privacy challenges that these emerging technologies impose among women and non-binary users. This will be a crucial to study Cybersecurity strategies and to bring the perspective of marginalised users into the design, and develop cybersecurity strategies that can protect these groups against the abusers.

Digital Futures is a cross-disciplinary research centre that explores and develops digital technologies of great societal importance. It was jointly established by KTH Royal Institute of Technology, Stockholm University and RISE Research Institutes of Sweden, based on significant long-term support of a Strategic Research Area by the Swedish Government.

Within RISE Cybersecurity, I have also been partially involved in nIoVe project, an European project co-founded by the European Union's Horizon 2020. Particularly, as an HCI researcher I was involved in capturing user requirements in the context of experts' situated practices and expertise of cybersecurity, by user requirements in the context of experts' situated practices and expertise through adopting a practice-based research methodology. It is anticipated that a paper will emerge from this study:

- Breaking Silos: Cybersecurity for the Internet-of-Vehicles through the Eyes of Experts. Targeted venue: The 11th International Conference on the Internet of Things (IoT 2021)

Although as a postdoctoral researcher I did not have any proscribed teaching responsibilities, I supervised two master's students at KTH reading Interaction Design and Information and Network Engineering. One of these studies is currently planned to be submitted as a co-authored paper to a conference venue:

- Exploring Security and Privacy Practices of Home IoT Users. Targeted venue: The 11th International Conference on the Internet of Things (IoT 2021)

Service to community:

During the fellowship, I was invited and agreed to serve as:

- Organising Committee Future Digileaders'21
- Organising Committee Member ACM IMX'22 Conference, Technical Program Chair
- Organising Committee Member ACM IMX'21 Conference, Doctoral Consortium Co-Chair.
- Associate Paper Chair ACM MM Conference.
- Associate Paper Chair ACM DIS'21 Conference.
- Associate Chair (AC) ACM CHI'2021, Late Breaking Works.
- Organising Committee Member ACM IMX'20 Conference, Diversity & Inclusion Co-Chair.

II – PUBLICATION(S) DURING YOUR FELLOWSHIP

Jakob Tholander, Chiara Rossitto, Asreen Rostami, Yoshio Ishiguro, Takashi Miyaki, and Jun Rekimoto. 2021. Design in Action: Unpacking the Artists' Role in Performance-Led Research. Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems. Association for Computing Machinery, New York, NY, USA, Article 626, 1–13. DOI:<https://doi.org/10.1145/3411764.3445056>

III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

During the fellowship program I was invited to deliver lectures in several universities and programs including:

- Immersive and creative technologies, design methods and concepts as part of Designing for Emerging Technologies; Department of Computer and Systems Sciences, Stockholm University, Master's level (2021).
- Immersive and interactive experience; Department of Human Centered Technology, KTH Royal Institute of Technology, Master's level (2021).
- Algorithms, Society, and Security; from Data to Experience as part of the Data and Society course; Malmö University, Master's level (2020).

During the fellowship program I also presented/co-organised in the following events:

- Panellist: Digitalization and collaboration in Industry, Digitalize In Stockholm 2020
- Workshop: Security mental models, State of Knowledge - Digitization in the Swedish VA industry, RISE, 2020

Attended conferences and seminars:

- AI Seminars at RISE
- Atlas of AI, The Alan Turing Institute
- Gender and IoT (GIoT): The Implications of Smart, Internet-Connected Devices on Victims and Survivors of Domestic and Sexual Violence, Digital Futures
- Tech-abuse: Untangling Contemporary Mechanisms of Control, London South Bank University
- ACM IMX'20, ACM IMX'21 conferences

IV – RESEARCH EXCHANGE PROGRAMME (REP)

REP institute: Centrum Wiskunde & Informatica (CWI), DIS Group, Amsterdam, the Netherlands

Local scientific coordinator: Prof. Pablo Cesar

Due to the ongoing pandemic and travel restrictions, a virtual meeting and research visit was arranged during June 2021. After meeting with Prof. Cesar on June 16th, I met with his researcher group on June 31st to get familiar with different topics of research presented in their group, present my research and explore potential future works with different members of the group. Additionally, a further meeting was arranged with an ERCIM Alumni from this group to discuss our overlapping research interests and possible opportunities of cross-country collaborations.