



ERCIM "ALAIN BENSOUSSAN"  
FELLOWSHIP PROGRAMME



## Scientific Report

First name / Family name

Javier Gomez Escribano

Nationality

Spanish

Name of the *Host Organisation*

Norwegian University of Science and  
Technology (NTNU)

First Name / family name  
of the *Scientific Coordinator*

Letizia Jaccheri

Period of the fellowship

01/01/2018 to 31/12/2018

### I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

During the fellowship, the research I conducted was related to assistive technologies for people with cognitive disabilities, serious games, entertainment computing and social innovation. The process started with a literature review to examine the current state of the art. After getting a general view of the topic, I decided to start a systematic literature review in order to contribute to the field with an accurate view of the current approaches and methods. From this analysis, I am still working on a journal paper that will be submitted in the beginning of 2019.

In parallel to the systematic literature, and from the knowledge acquired previously, I designed a serious game to introduce reading to children with autism. For this purpose, I worked in collaboration with special education teachers (in Spain). The first prototype was tested as a proof-of-concept with teenagers (without any disability) in a workshop session organised at NTNU.

This period also offered me the opportunity to expand my research and work on related fields, such as social innovation (for good). Through a storytelling game, and in collaboration with Dr. Kshitij Sharma (ERCIM fellow at NTNU), we conducted a research

experiment to evaluate and improve empathy through a mobile game. The results were promising, and we are now in position to expand the research and connect it to my closer lines, such as emotions training for children with autism.

During my fellowship, I also did organising activities, as detailed bellow. I co-organised two workshops about inclusion of people in risk or with less participation in technologies, such as girls and people with cognitive disabilities.

Finally, I started a collaboration with University of Tromsø (contact point: Professor Gunnar Hartvigsen) related to video games to increase physical activity of people with cognitive disabilities.

## II – PUBLICATION(S) DURING YOUR FELLOWSHIP

### Journals

1. Gomez, J., Jaccheri, L., Maragoudakis, M. & Sharma, K. (2018). Digital Storytelling for Good with Tappetina game. *Entertainment Computing* (submitted, under review)
2. Torrado, J.C., Gomez, J. & Montoro, G. (2018). Assisted behavior control with wearable devices: a case study for high-functioning autism. *JMIR mHealth and uHealth* (submitted, under review)

### International Conferences

1. Gomez, J., Jaccheri, L., Torrado, J. C., & Montoro, G. (2018, June). Leo con lula, introducing global reading methods to children with ASD. In *Proceedings of the 17th ACM Conference on Interaction Design and Children* (pp. 420-426). ACM. **(Honourable Mention Note)**
2. Katterfeldt, E. S., Dittert, N., Schelhowe, H., Kafai, Y. B., Jaccheri, L., & Escribano, J. G. (2018, June). Sustaining girls' participation in STEM, gaming and making. In *Proceedings of the 17th ACM Conference on Interaction Design and Children* (pp. 713-719). ACM.
3. Skaraas, S. B., Gomez, J., & Jaccheri, L. (2018, June). Tappetina's empathy game: a playground of storytelling and emotional understanding. In *Proceedings of the 17th ACM Conference on Interaction Design and Children* (pp. 509-512). ACM.
4. Gomez, J., Torrado, J. C., & Montoro, G. (2018, June). AssisT-task: a smartphone application to support people with cognitive disabilities in their daily life activities. In *Proceedings of the 17th ACM Conference on Interaction Design and Children* (pp. 517-520). ACM. **(Best demo award)**
5. Díaz-Escudero, A., Torrado, J. C., Gomez, J., & Montoro, G. (2018, September). Technology: aided authoring tools for ASD coaching support. In *Proceedings of the XIX International Conference on Human Computer Interaction* (p. 12). ACM.
6. Gomez, J., Jaccheri, L., & Hauge, J. B. (2018, September). Entertainment Computing-A Key for Improving Inclusion and Reducing Gender Gap?. In *International Conference on Entertainment Computing* (pp. 388-391). Springer, Cham.

7. Skaraas, S. B., Gomez, J., & Jaccheri, L. (2018, September). Playing with Empathy Through a Collaborative Storytelling Game. In *International Conference on Entertainment Computing* (pp. 254-259). Springer, Cham
8. Shikine, N., Yamanaka, T., Jaccheri, L., Gomez, J., & Hoshino, J. (2018, September). NOVELICA: A Visual Novel System to Make People Forget Their Negative Feelings on Mathematics. In *International Conference on Entertainment Computing* (pp. 329-333). Springer, Cham.
9. Jaccheri, L., Gomez, J., & Skaraas, S. B. (2018, September). Tappetina: An Ecosystem of Art, Software, and Research. In *International Conference on Entertainment Computing* (pp. 340-342). Springer, Cham.
10. Montero, G., & Gomez, J. (2018, September). Serious Games in Special Education. A Practitioner's Experience Review. In *International Conference on Entertainment Computing* (pp. 397-401). Springer, Cham.
11. Gomez, J. (2018, October). What Should I Wear Today? An IoT-Based Dress Assistant for the e-Society. In *Conference on e-Business, e-Services and e-Society* (pp. 255-263). Springer, Cham.
12. Torrado, J.C., Gomez, J. & Jaccheri, L. (2019). Basic arithmetic operations self-learning through augmented reality. A special education case study. *17th Annual IEEE Intl. Conference on Pervasive Computing and Communications*. (Submitted, under review)
13. Gomez, J., Jaccheri, L., Özgöbeki, Ö., & Hartvigsen, G. (2019). Digital Transformation for an inclusive society. In 18th IFIP Conference on e-Business, e-Services and e-Society (Submitted, under review)

## Organization

1. Sustaining girls' participation in STEM, gaming and making. Celebrated during the 17th ACM Conference on Interaction Design and Children. June 2018, Trondheim, Norway.
2. Entertainment Computing - A Key for Improving Inclusion and Reducing Gender Gap?. Celebrated during the International Conference on Entertainment Computing. September 2018, Poznan, Poland.
3. Arts and Demo co-chair of the International Conference on Entertainment Computing. September 2018, Poznan, Poland.

## III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

### International Conferences

1. 17th ACM Conference on Interaction Design and Children (IDC). June 2018, Trondheim, Norway. Role: attendee, presenter, workshop co-organiser
2. International Conference on Entertainment Computing (ICEC). September 2018, Poznan, Poland. Role: attendee, presenter, workshop co-organiser, conference arts and demos co-chair

3. International Conference on e-Business, e-Services and e-Society (I3E). October 2018, Kuwait, Kuwait. Role: attendee, presenter
4. NxtMedia Conference 2018. November 2018, Trondheim, Norway. Role: attendee

### **Seminars**

1. Marie Curie Individual Fellowships Seminar. May 2018, Trondheim, Norway. Role: attendee.
2. Physical Activity with e-health support in individuals with intellectual disabilities. October 2018, Tromsø, Norway. Role: attendee, presenter

### **Workshops**

1. International conference for teenagers. Games, culture and science for boys and girls. February 2018, Trondheim, Norway. Role: presenter
2. Sustaining girls' participation in STEM, gaming and making. Celebrated during the 17th ACM Conference on Interaction Design and Children. June 2018, Trondheim, Norway. Role: co-organiser.
3. Entertainment Computing - A Key for Improving Inclusion and Reducing Gender Gap?. Celebrated during the International Conference on Entertainment Computing. September 2018, Poznan, Poland. Role: co-organiser, presenter.

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

### **FORTH – Institute for Computer Science, Heraklio (Crete, Greece), 24-29 November 2018**

During my visit at FORTH-ICS, I met Prof. Constantine Stephanidis team and we discussed research cooperation possibilities. I presented them my work and my research interests related to assistive technologies and social innovation, and we found common ground for joint research in the future. The visit was very fruitful, and we agreed to keep in contact for possible publications together and applications to future project calls.