Fellow	Feiran **Zhang**

Host Organisation	Norwegian University of Science and Technology (NTNU)

Scientific coordinator	Michail **Giannakos**

I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

The aim of the fellowship was to design and evaluate innovative technologies in educational settings with students, especially children and youth. During the fellowship, the conducted studies can be summarised in three broad categories: (1) Game-based Learning, (2) Child-computer/robot Interaction and (3) User experience and behaviour. In each of the categories above, the following papers reflect the scientific activity conducted. In addition, research on the use of emerging technologies applying the design thinking approach in K-12 school contexts, with colleagues from the hosting institution and international researchers was initiated during the period of the fellowship and continues after the end of the fellowship.

Apart from this, the fellow contributed professional services to the field during the fellowship period by taking the role of reviewer or program committee member in journals (such as the International Journal of Child-Computer Interaction, and International Journal of Technology and Design Education), and conferences (e.g., Interaction Design and Children Conference, International Conference on Human-Robot Interaction, Conference on Human Factors in Computing Systems, Congress of the International Association of Societies of Design Research, International Conference on Methodologies and Intelligent Systems for Technology Enhanced Learning).

II – PUBLICATION(S) DURING YOUR FELLOWSHIP

Peer-reviewed journal articles:

[J1] **Zhang, F.**, Brynildsrud, H., Papavlasopoulou, S., Sharma, K., & Giannakos, M. Where Gamification Meets Inquiry-based Science Learning: A Design Case of Experiverse. (in preparation). Behaviour & Information Technology.

[J2] **Zhang, F**., & Papavlasopoulou, S. (in preparation) Extending Design Thinking with Emerging Technologies: A Literature Review.

Peer-reviewed conference articles:

[C1] **Zhang, F**., Brynildsrud, H., Papavlasopoulou, S., Sharma, K., & Giannakos, M. (2023). Experiverse: Exploring an experiment-based gamification application for motivating children to science learning in an informal setting. In LDT ’23: Learning, Design and Technology, June 23, 2023, Evanston, IL, USA. DOI: 10.1145/3594781.3594799.

[C2] **Zhang, F.**, Broz, F., Ferrari, O., & Barakova, E. (2023). TSES-R: An Extended Scale for Measuring Parental Expectations toward Robots for Children in Healthcare. In Companion of the 2023 ACM/IEEE International Conference on Human-Robot Interaction (pp. 258-262).

[C3] Ferrari, O. I., **Zhang, F.**, Braam, A. A., van Gurp, J. A., Broz, F., & Barakova, E. I. (2023). Design of Child-robot Interactions for Comfort and Distraction from Post-operative Pain and Distress. In Companion of the 2023 ACM/IEEE International Conference on Human-Robot Interaction (pp. 686-690).

[C4] Dahl Aarhus, K., Hotle Motland, J., **Zhang, F.**, Papavlasopoulou, S. (submitted). Development and Evaluation of a Gamified Application for Environmental Education: coralQuest. International Conference on Interactive Mobile and Communication Technologies and Learning (IMCL 2023).

[C5] Liu, N., Barakova, E.I., Han, T., **Zhang, F.** (submitted). Motivating Online Game Intervention to Enhance Practice Engagement in Children with Functional Articulation Disorder. The 11th International Conference on Human-Agent Interaction (HAI 2023)

[C6] **Zhang, F.**, Hotle Motland, J., Papavlasopoulou, S., & Giannakos, M. (to be submitted). A Review of Gamification in K-12 Environmental Education.

Peer-reviewed workshop paper:

[W1] Milrad, M., Herodotou. C., Grizioti. M., Lincke, A., Girvan. C., Papavlasopoulou. S., Shrestha. S., & **Zhang, F.** (2023, in press). Towards a sustainable model of education in the XXI century: Combining Design Thinking with Emerging Technologies. The 13th Methodologies and Intelligent Systems for Technology Enhanced Learning (MIS4TEL), Workshops Proceedings.

Special-issue proposal:

[S1] Søraa, R. A., Zawieska, K., **Zhang, F.**, Fosch-Villaronga, E. (submitted). Responsible robotics with and for society. International Journal of Social Robotics.

III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

During the fellowship, the fellow also participated to the following seminars, conferences and networking events:

- Online Seminar on Effective Grant Writing, November 1, 2022, Trondheim, Norway
- NTNU Internationalization Conference, December 6-7, 2022, Trondheim, Norway
- Online Seminar on Research on K12 Education Digitalization: Reflections and Preflections, December 8, 2022, Växjö, Sweden
- ACM/IEEE International Conference on Human-Robot Interaction (HRI), March 13-16, 2023, Stockholm, Sweden
- Seminar on the Integration of Computational Thinking in School Curricula, May 30, 2023, Trondheim, Norway
- ACM Interaction Design and Children (IDC) Conference, June 19-23, 2023, Chicago

IV – RESEARCH EXCHANGE PROGRAMME (REP)

During the research visit at FORTH-ICS (Crete, Greece), the fellow met with Dr. Dimitris Grammenos and his research group. The fellow took part in a creativity workshop organised by Dr. Dimitris Grammenos. The members of the group showcased their interactive demos and technologies, and talked about their research projects and activities. The fellow presented her work and her research interests to the group in order to find common ground for future research.