

Research Board International Collaboration Fund Summary Report

PI:	Peer-Olaf Siebers	School/Dept:	Computer Science
Project Title: Agents to the Rescue: An Artificial Lab for Evaluating Human-Natural Systems			

About your project

What outcomes have emerged from your collaboration – both inside and outside of the original scope of your project? (measurables such as papers, joint funding apps, impact activities etc are helpful to include here)

I visited Dr Arika Ligmann-Zielinska, whose research interest is modeling approaches that capture the dynamic relationships within coupled human and natural systems.

This visit was very valuable for my career as it *has triggered a number of ongoing activities* in both, Michigan and Nottingham. It served as a kick-off for promoting my EABSS (Engineering Agent-Based Social Simulation) framework, which supports co-creation and helps academics and non-academics to effectively communicate with each other in a structured way, and to develop social simulation models that represent the joint view of all stakeholders.

I had many *fruitful debates* with the host (Dr Arika Ligmann-Zielinska), her colleagues, and her doctoral students. These discussions helped them to understand my work and me to further develop my EABSS framework. To present our mutual research interests, we both went to the Agent-Based Modelling Symposium (ABM17) in May 2017 in San Diego, where we joined a large network of national and international scholars. I *presented an individual poster*, which attracted a high-volume of interest and constructive feedback. In particular, at the symposium, I had opportunities to discuss in person with some top scholars in the field of Agent-Based Modelling. Consequently, I established useful contacts for further collaborations and *made myself a household name* amongst these top scholars.

While in Michigan, I was *invited to deliver a talk* at the host department (Geography). After the presentation, due to the popularity of the topic, I was *invited by two further departments* (Architecture; Sustainable Development) to present my research, with an audience from across the university. On my return to Nottingham, I continued to work on a *collaborative journal paper* with Arika and several other top scholars we met at the ABM17. This paper is currently under revision by Arika and we planned to submit it to the "Environmental Modelling & Software" later this year. Soon after my return, I was invited to *give a talk about the EABSS framework* in the School of Math at Leeds University. This extended the knowledge I gained from my visit in the US.

Inspired by the positive response about my framework from the host institution in the US, I drafted and submitted an Academies Partnership in Supporting Excellence in Cross-Disciplinary Research Award (APEX) *funding proposal*, which was submitted to the Royal Society in December 2017. It is a cross disciplinary proposal, which aims to apply the EABSS framework in the healthcare sector, which I have written with a cross disciplinary team consisting of colleagues from the UoN Business School, and the Nottingham University Hospitals NHS Trust. The decision of acceptance will be out in August 2018. The application of the EABSS framework is expected to make a *direct impact case on healthcare*.

Furthermore, I have been invited *to run two half-day workshops for testing my framework* in the Economics and Mental Health domains. I am also involved in *organising a panel discussion* at the Simulation Workshop (SW) 2018 in March on the use of frameworks for simulation modelling. This panel discussion has a great *potential to lead to a publication* in JOS (Journal of Simulation), and to consequently attract a high impact citations. My last JOS panel discussion paper from 2010 has been cited 253 times. Finally, I *presented my framework* at the European Social Simulation Association (ESSA@work) Workshop in November 2017, proposing the application of the framework the Philosophy domain.

As can be seen from the above, the *sponsorship had a big impact on my research, far beyond the sponsorship period*. It offered me an excellent opportunity for networking and collaboration. My activities, as reported, are not only research-oriented, but they also have great potential to make impact on applications in the real world.

Are there future planned activities/outputs as a result of the collaboration?

Future collaboration will certainly be necessary and valuable. Arika and I are committed to working together on the *completion of the journal paper*. We also *consider to jointly apply for some project funding*. We found that we have a complementary skill set, which we have not used to the full yet. Arika is currently considering *spending her next sabbatical* at the University of Nottingham, when she will bring an enormous experience to our school. I plan to go back to Michigan State University to *further strengthen my network* in this world-famous university, as soon as time and money allows.

About the International Collaboration Fund

Are there any aspects of the Fund that you suggest are improved/changed? (e.g. funding amount, criteria, application process)

It was extremely helpful to receive support, as it provided me with this *rare opportunity* to visit Michigan State University and the ABM17, and advance my career through building up my network. As I could stay with my wife (and did not have to pay for accommodation), who was doing her sabbatical at Michigan State University at that time, the *money was sufficient for the purpose at hand*.

How would you rate the Fund? (1 = “not at all useful”, 5 = “extremely valuable”)

5