NEWS LETTER

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CLOUD STARS

AGH secondments at IBM TJ Watson Research

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The Faculty of Computer Science at AGH University of Krakow has strong expertise in cloud computing, the Internet of Things (IoT), and the scientific applications of these technologies. Since the early beginning of serverless computing, researchers from AGH have explored possibilities of applying these new approaches to scientific workflows and other compute- and data-intensive applications. These topics are relevant to the CloudStars project, which focuses on the next generation of cloud and edge computing platforms.

In 2023, we successfully kicked off the project and started the first set of secondments with research visits to the IBM TJ Watson Research Center in

Yorktown Heights. Dr Bartosz Balis and Dr Tomasz Szydło visited IBM in June, while Dr Maciej Malawski visited the IBM lab in August. The topics of the visit, hosted by Dr Alek Slominski from IBM, included presentation of the research on cloud and serverless computing conducted at AGH, learning about the research projects related to multi-cloud computing at IBM Research, defining a set of projects for PhD and MSc students, and working on a book chapter on serverless workflows.

The secondments allowed us to gain knowledge of problems related to multi-cloud serverless computing from the IBM perspective, discuss multi-cloud deployments using the Kubernetes cluster management system, and explore issues related to low-power edge clusters. They also gave us insight into the working environment and collaborative platforms available at IBM Research and led to further industry-academia collaborations in the area of multi-cloud and security. The secondment results were presented at the 9th Workshop on Serverless Computing, where Dr Szydlo presented the initial results regarding Serverless Edge Computing - challenges and opportunities stemming from heterogeneous hardware.

The plans for 2024 include follow-up secondments of Dr Szydlo and Dr Balis at IBM TJ Watson and visits of Dr Slawomir Zielinski and Marek Konieczny at IBM Zurich focused on topics related to cloud networking and data management. Additionally, PhD student Justyna Zawalska plans to visit IBM Zurich to work on resource management for cloud platforms using quantum optimisation algorithms.

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