

You are invited to the 61st edition of the **PRAGUE COMPUTER SCIENCE SEMINAR**

DANIEL SCHWARZ

Garbage In – Garbage Out: The Critical Role of Data Quality in Clinical Research

October 24, 2024

4:15pm

**Auditorium KN:E-301,
FEL CTU, Karlovo nám. 13
Praha 2**

The lecture will be followed by a discussion

ABSTRACT

In this lecture, we shall explore the challenges posed to clinical research (clinical trials, studies, and patient registries) by compromised data quality, and the technical solutions developed to tackle them. The importance of specialized user-friendly, real-time, regulatory-approved Electronic Data Capture (EDC) systems, together with tailored data management processes, will be discussed, emphasizing how software and algorithmic solutions can help ensure data accuracy, reliability, and integrity.

We shall showcase CLADE-IS, a unique system for clinical data management ranging from databasing to the use of ensemble learning, developed through in-house R&D at the Institute of Biostatistics and Analyses, a Masaryk University spin-off. CLADE-IS has been rigorously evaluated and recently approved by an international auditing team, resulting in the awarding of the prestigious ECRIN certification to the spinoff—the only certified data center in Central and Eastern Europe. This certification, coupled with the system's proven usability and scalability, has already positioned the spinoff as a strong partner in co-managing large international clinical trials.

Finally, we will delve into how CLADE-IS ensures high data quality through a combination of processes like Data Reviews, Central Statistical Monitoring, Risk-Based Monitoring, and Data Augmentation, supported by a multidisciplinary team including data engineers, data scientists, data managers, and data analysts.

ABOUT THE PRAGUE COMPUTER SCIENCE SEMINAR

The seminar takes place once a month on Thursdays at 4:15pm (except June to September, and December) alternately in the buildings of Faculty of Electrical Engineering, Czech Technical University in Prague, Karlovo nám. 13, Praha 2 and Faculty of Mathematics and Physics, Charles University, Malostranské nám. 25, Praha 1. Its program typically consists of a one-hour lecture followed by a discussion. The lecture is based on an (internationally) exceptional or remarkable achievement of the lecturer, presented in a way which is comprehensible and interesting to a broad computer science community. The lectures are in English.



Daniel Schwarz is an Associate Professor at the Faculty of Medicine, Masaryk University, specializing in neuroscience, biomedical engineering, and medical informatics. His research integrates neuroimaging, machine learning, and decision support systems, with a strong focus on virtual patients in medical education. He co-founded the Institute of Biostatistics and Analyses, a Masaryk University spinoff, where he leads a team that develops healthcare software solutions now implemented in major medical institutions across the Czech Republic and internationally. Daniel has extensive experience leading interdisciplinary research projects, collaborating with hospitals and academic institutions, and bridging academic findings with practical applications. His current work focuses on enhancing data quality in clinical research through advanced data integrity practices. He is also an active member of the executive boards of the Czech Society for 3D Printing in Medicine and the Czech Society for Artificial Intelligence and Innovative Digital Technologies in Medicine, both under the Czech Medical Society of Jan Evangelista Purkyně.

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