UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

**PhD PROGRAM IN
INFORMATION AND TECHNOLOGY FOR HEALTH**

PhD PROGRAM IN INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING

Seminar announcement

Monday 29 September 2025, Time: 12:00 - 14:00
Aula Seminari, Piano I, Edificio 3, DIETI - Via Claudio, 21 - NAPOLI

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Argumentation-Based Reasoning Frameworks for Public Interest Communication in Healthcare

Abstract: Public interest communication in healthcare requires tools that can account for the diversity of values, preferences, and priorities across different audiences. Decisions and messages in this domain often need to balance competing social values—such as individual autonomy, collective safety, equity, and economic sustainability—while ensuring transparency and resilience against shifting public perceptions. Argumentation frameworks provide a formal way to represent such value-laden debates and to assess how different audiences may respond to alternative narratives.

In this work, we address the context of the **Single-Audience Value-Based Abstract Argumentation Framework (AVAF)**, where arguments are labeled with the social values they promote, and the activation or deactivation of attacks depends on the audience profile (expressed as a set of preferences between these values). Within this setting, we introduce a new notion of **robustness**, designed to measure the sensitivity of reasoning outcomes to changes in the audience profile.

Specifically, for a set of arguments S or a single argument a, we define the **robustness degree** of their status as the maximum number k *of deletions/insertions of preferences from/into the audience profile that are tolerable, in the sense that S remains an extension (or a non-extension) or a remains accepted (or unaccepted) after at most k* changes.

We then introduce the decision problems related to the computation of the robustness degree and provide a thorough analysis of their computational complexity. By situating this formal contribution within the healthcare communication context, we highlight how robustness can be used to assess the stability of persuasive strategies and to design communication that remains effective even when audience priorities shift.

Lecturer short bio: *Sergio Flesca is Full Professor at the University of Calabria. He took his PhD in Ingegneria dei Sistemi ed Informatica with a thesis entitled "Query Languages for Graph-like Databases" at the University of Calabria. His research activities are in the field of database systems and in particular: Databases and World Wide Web, Active and Deductive databases integration, XML, Information extraction, Inconsistent data management, Approximate query answering, Process Mining, Abstract Argumentation. The results of his research was published in several papers which appeared in the main journal of the field, including IEEE Transactions on Knowledge and Data Engineering, Journal Of Computer And System Sciences, Information and Computation, Journal of the ACM, Artificial Intelligence and in the proceedings of the main conferences (ACM-PODS, VLDB, EDBT, ICALP, IJCAI).*

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