RESEARCH INTERESTS

My research interests lie at the intersection of complex networks, agent-based modeling, and social phenomena. I am particularly fascinated by understanding how social interactions work and evolve at both the micro and macro levels and how complex network structures influence these interactions. I aim to simulate social systems and explore the mechanisms that lead to the emergence of collective behaviors, such as cooperation and coordination. In addition, I am focused on developing new methods to analyze complex networks, with a specific focus on community detection and network dynamics.

AFFILIATION

I am a member of the ISISLab laboratory led by professor Vittorio Scarano, which is also my supervisor. The laboratory promotes research and educational activities in Distributed and Parallel Computing, Cloud Computing, Simulation, Collaborative Computing, and Open Data.

TECH SKILLS

Distributed Systems   4+ yrs

Cloud Computing   3+ yrs

Bash Scripting   3+ yrs

Rust   3+ yrs

Java   3+ yrs

NoSQL   3+ yrs

SQL   3+ yrs

C   4+ yrs

ABM framework   4+ yrs

Docker   3+ yrs

AI & ML   2+ yrs

DANIELE DE VINCO

Ph.D. student in Computer Science

EDUCATION

Ph.D. student in Computer Science and Information Technology   `2022 - Ongoing`
Università degli studi di Salerno

My research focuses on complex networks. Specifically, I exploit hypergraphs to represent and describe social processes to better understand how our world works and evolves.

Master Degree in Computer Science   `2019 - 2022`
Università degli studi di Salerno

Specialization: Cloud Computing. 110/110 cum laude.
Relevant topics: Design, management, and development of Cloud-native applications and systems; Principles and theory of Distributed and Parallel Computing; Machine Learning and Data Science.
Thesis title: *Parameters sweeping in a distributed environment for agent-based simulations.*

Bachelor Degree in Computer Science   `2016 - 2019`
Università degli studi di Salerno

Relevant topics: Mathematical foundations; Algorithmic principles; computer science theory; Main programming paradigms; Database management; Web and mobile application development.
Thesis title: *Agent-based models with Rust.*

TEACHING AND MENTORSHIP

Mentoring   `11/22 - Ongoing`
ISISLab

Since the beginning of my Ph.D., I am supervising and coordinating the students' traineeship and thesis activities in the ISISLab laboratory. I have collaborated with three master and two bachelor students.

Help Teaching   `11/22 - Ongoing`
Università degli Studi di Salerno

Cloud Computing | Serverless computing for Internet of Things | Computational Theory

RESEARCH EXPERIENCE

Research scholarship | Sistemi di presentazione privacy-aware   `07/22 - 10/22`
Università degli studi di Salerno

I kept developing the decentralized architecture of Livenote, a live-streaming platform for presentations, based on the work carried out during my previous positions (see Open-source projects).

Research scholarship | Sistemi di presentazione privacy-aware   `11/21 - 04/22`
Università degli studi di Salerno

I worked on developing the first version of Livenote, a decentralized web platform for streaming live presentations based on the study from my previous position.

Research scholarship | Architetture distribuite al supporto della fruizione collaborativa 3D   `05/20 - 08/20`
Università degli studi di Salerno

I worked on gathering, surveying, and testing the newest web technologies, such as blockchain and IPFS, to develop a live-streaming platform for presentations based on a decentralized web 4.0 architecture.

OPEN SOURCE PROJECTS

DMASON | ISISLab & George Mason University   `2021 - Ongoing`
Tools: Java, MPI, RMI

In collaboration with Sean Luke, full professor at George Mason University, I'm working on the development of the distributed version of MASON, an agent-based simulation modeling framework.
https://cs.gmu.edu/~eclab/projects/mason/

Livenote | ISISLab   `2021 - Ongoing`
Tools: Web Development, libp2p, blockchain

A modern, fast, and lightweight tool for streaming slides on the decentralized web.
https://github.com/isislab-unisa/livenote-plus-plus

krABMaga | ISISLab   `2019 - Ongoing`
Tools: ABM, Rust

A discrete-event simulation engine for developing agent-based models that leverages Rust features for high performance.
https://github.com/krABMaga/krABMaga

PUBLICATIONS

The Age of Snippet Programming: Towards Understanding Developers Communities in Stack Overflow and Reddit   `ACM Web Conf`
13th Temporal Web Analytics Workshop (The Web Conf), 2023 - To appear

Antelmi, A., Cordasco, G., De Vinco, D., Spagnuolo, C.

Reliable Agent-based Modeling and Simulation   `JASSS`
Under Review

A. Antelmi, P. Caramante, G. Cordasco, G. D'Ambrosio, D. De Vinco, F. Foglia, L. Postiglione, C. Spagnuolo

Experimenting with Agent-Based Model Simulation Tools   `Applied Science`
Appl. Sci. 2023, 13(1), 13; Special Issue Advances in Complexity Science through Modeling and Simulation

Antelmi, A., Cordasco, G., D'Ambrosio, G., De Vinco, D., Spagnuolo, C.

On evaluating Rust as a programming language for the future of massive agent-based simulations   `AsiaSim`
Communications in Computer and Information Science, 2019

A Antelmi, G Cordasco, M D'Auria, D De Vinco, A Negro, C Spagnuolo
Best paper award nominee