

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
Università degli studi di Salerno

2022 - Ongoing

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
Università degli studi di Salerno

2019 - 2022

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
Università degli studi di Salerno

2016 - 2019

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
ISISLab

11/22 - Ongoing

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
Università degli Studi di Salerno

11/22 - Ongoing

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

RESEARCH EXPERIENCE

Research scholarship | Sistemi di presentazione privacy-aware
Università degli studi di Salerno

07/22 - 10/22

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
Università degli studi di Salerno

11/21 - 04/22

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.

LANGUAGES

Italian

English

B2

SOFT SKILLS

Over the past years, I have been involved in numerous social events, holding leadership positions. Thanks to these experiences, I improved my dialogue and communication abilities, as well as my interpersonal skills (such as finding more effective ways to settle disputes). These activities helped me boost my results in both personal and professional contexts.

TALKS AND SEMINARS

In the last few years, I have had the opportunity to hold seminars on several occasions:

- Rust language in the research community | UNISA, 11/22
<https://bit.ly/3kNIrGy>
- Rust-AB status | UNISA, 03/22
<https://bit.ly/3yU8aBE>
- Dapps in practice | UNISA, 4/21
<https://bit.ly/3yUQBkY>
- About Rust | Avellino, 10/19
<https://bit.ly/3NZk1mr>
- Agent-based models in Rust | UNISA, 07/19
<https://bit.ly/3ars0jp>

OTHER ACTIVITIES

- Volunteering - Member of Associazione ricreativa e culturale italiana (Arci) since 2017
- Production - Sponz Fest staff from 2017 to 2022
- Gaming - (RTS, RPG and FPS)

OTHER EXPERIENCES

Within the JUMP project funded by the Campania Region with the POR FSE 2014/2020, I was appointed responsible for the CoWorking space. I led a team to project completion, providing assistance and maintenance of the room.

Research scholarship | Architetture distribuite al supporto della fruizione collaborativa 3D
Università degli studi di Salerno

05/20 - 08/20

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
13th Temporal Web Analytics Workshop (The Web Conf), 2023 - To appear

ACM Web Conf

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

Reliable Agent-based Modeling and Simulation
Under Review

JASSS

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
Appl. Sci. 2023, 13(1), 13; Special Issue Advances in Complexity Science through Modeling and Simulation

Applied Science

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