Jacopo **Massa**

Ph.D. Student · Member @ SOCC Research Group · Member @ CNR-ISTI HPC Lab

Dept. of Computer Science, University of Pisa, Pisa, Italy

+39 3345203868 | jacopo.massa@phd.unipi.it | https://pages.di.unipi.it/massa | jacopo-massa | jacopo-massa

Summary

1. Education & Experience

1.1. Education

Ph.D. in Computer Science

Pisa, Italy

University of Pisa / CNR-ISTI

11/2021 – now

- **Thesis:** *"Data-aware application Placement And Management in the Cloud-IoT continuum"*
- **Advisors:** Antonio Brogi, Stefano Forti, Patrizio Dazzi

M.Sc. in Computer Science - "ICT Solutions Architect"

Pisa, Italy

University of Pisa

10/2019 – 10/2021

- **Thesis:** *"Data-aware application Placement And Routing in the Cloud-IoT"*
- **Advisors:** Antonio Brogi, Stefano Forti
- **Degree Mark:** 110/110 with honors
- **Date of Achievement:** 08/10/2021

B.Sc. in Computer Science

Pisa, Italy

University of Pisa

09/2016 – 10/2019

- **Thesis:** *"Voice and graphical user interface for a smart building application"*
- **Advisors:** Antonio Brogi, Stefano Forti
- **Degree Mark:** 106/110
- **Date of Achievement:** 04/10/2019

High School Diploma in Computer Science

San Giovanni Rotondo, Italy

Istituto Tecnico "Luigi Di Maggio"

09/2011 – 07/2016

- **Final Mark:** 100/100 with honors
- **Date of Achievement:** 15/07/2016

1.2. Other Educational Experiences

Lipari Summer School on Computational Complex and Social Systems

Lipari, Italy

University of Catania

16/07/2023 – 22/07/2023

(40h) Ph.D. summer school, the 2023 edition aimed to provide opportunities for gaining experience in modern data analysis, particularly in the realm of Big Data analytics. This encompassed subjects related to mining data in the Internet of Things. Distinguished guest lecturers and recognized authorities in the field addressed these topics with a focus on algorithms, computational models, and practical results.

1.3. Academic Positions

Scholarship holder

Pisa, Italy

University of Pisa / CNR-ISTI

11/2021 – now

Holder of the scholarship "*Efficient solutions and approaches for AI on Edge Computing platforms*", associated with participation in the Ph.D. programme in Computer Science, funded by CNR-ISTI "A. Faedo".

2. Academic Activities

2.1. Scientific Publications

Conference Papers

[C1] **J. Massa**, S. Forti, F. Paganelli, P. Dazzi, and A. Brogi, "A declarative reasoning approach to conflict management in Intent-Based Networking", in *2024 27th Conference on Innovation in Clouds, Internet and Networks (ICIN)*, 2024, pp. 228–233.
DOI: 10.1109/ICIN60470.2024.10494474,
Quality (GGS): N.A.

[C2] **J. Massa**, S. Forti, F. Paganelli, P. Dazzi, and A. Brogi, "Towards declarative intent processing and conflict resolution in IBN", in *Proceedings of the IEEE/ACM 16th International Conference on Utility and Cloud Computing*, ACM, 2024.
DOI: 10.1145/3603166.3632236,
Quality (GGS): N.A.

[C3] T. Di Riccio, **J. Massa**, S. Forti, and A. Brogi, "Sustainable placement of VNF chains in Intent-based Networking", in *Proceedings of the IEEE/ACM 16th International Conference on Utility and Cloud Computing*, ACM, Apr. 2024.
DOI: 10.1145/3603166.3632167,
Quality (GGS): N.A.

[C4] **J. Massa**, S. Forti, P. Dazzi, and A. Brogi, "Declarative and Linear Programming Approaches to Service Placement, Reconciled", in *2023 IEEE 16th International Conference on Cloud Computing (CLOUD)*, Sep. 2023, pp. 1–10.
DOI: 10.1109/CLOUD60044.2023.00033,
Quality (GGS): A-.

[C5] **J. Massa**, S. Forti, and A. Brogi, "Data-Aware Service Placement in the Cloud-IoT Continuum", in *Service-Oriented Computing*, Springer International Publishing, Jun. 2022, pp. 139–158.
DOI: 10.1007/978-3-031-18304-1_8,
Quality (GGS): N.A.

Workshop Papers

[W1] **J. Massa**, S. Forti, F. Paganelli, P. Dazzi, and A. Brogi, "Declarative Provisioning of Virtual Network Function Chains in Intent-based Networks", in *2023 IEEE 9th International Conference on Network Softwarization (NetSoft)*, Jul. 2023, pp. 522–527.
DOI: 10.1109/NetSoft57336.2023.10175449,
Quality (GGS): N.A.

[W2] **J. Massa**, "Data-Aware Application Placement and Management in the Cloud-IoT Continuum", in *Service-Oriented Computing – ICSOC 2022 Workshops*, Springer Nature Switzerland, Mar. 2023, pp. 301–307.
DOI: 10.1007/978-3-031-26507-5_24,
Quality (GGS): A-.

Micellaneous

[M1] **J. Massa**, S. Forti, P. Dazzi, and A. Brogi, "Data-Aware Declarative Application Management in the Cloud-IoT Continuum", *ERCIM News*, no. 133, Jun. 2023.
URL: `https://ercim-news.ercim.eu/en133/special/data-aware-declarative-application-management-in-the-cloud-iot-continuum`.

Theses

[T1] **J. Massa**, "Data-aware application placement and routing in the Cloud-IoT continuum", M.Sc. Thesis, Dept. of Computer Science, University of Pisa, Oct. 2021.
URL: `https://etd.adm.unipi.it/theses/available/etd-09072021-120248/`.

[T2] **J. Massa**, "Voice and graphical user interface for a smart building application", B.Sc. Thesis, Dept. of Computer Science, University of Pisa, Oct. 2019.

2.2. Scientific Conferences Organisation

Participation in the following international scientific conference committees:

Program committee *member*

- **ACR 2025**, 3rd International Conference on Advances in Computing Research
- **IEEE SOSE 2024**, 18th IEEE International Conference on Service-Oriented System Engineering
- **CSC 2024** (part of MCCSIS), Connected Smart Cities
- **ESOCC 2023**, 10th European Conference On Service-Oriented And Cloud Computing
- **Microservices 2023**, 5th International Conference on Microservices
- **ACSOS 2023**, 4th International Conference on Autonomic Computing and Self-Organizing Systems

Web Chair

- **HPDC 2024**, 33rd International Symposium on High-Performance Parallel and Distributed Computing

2.3. Reviewer Activities

Reviewing scientific contributions for the following international scientific conference series and journals:

Journal

- **TIOT** – ACM Transactions on Internet of Things
- **Heliyon**
- **JSS** – Journal of Systems & Software

Conference

- **CCGRID** – International Symposium on Cluster, Cloud and Internet Computing
- **IEEE STI** – Conference on Science, Technology and Innovation Indicators
- **IEEE CLOUD** – International Conference On Cloud Computing
- **IEEE SOSE** – International Conference on Service-Oriented System Engineering
- **ESOCC** – European Conference on Service-Oriented and Cloud Computing

2.4. Research Groups

OSMWARE: hOlistic Sustainable Management of distributed softWARE systems

Pisa, Italy

Department of Computer Science, University of Pisa — *11/2022 – now*

Research group coordinated by Prof. Antonio Brogi and comprising researchers from the namesake project.

Service-Oriented, Cloud and Fog Computing (SOCC) Research Group

Pisa, Italy

Department of Computer Science, University of Pisa — *05/2022 – now*

Research group coordinated by Prof. Antonio Brogi.

GIÒ: A Fog Computing Testbed for Research & Education

Pisa, Italy

Department of Computer Science, University of Pisa — *06/2019 – now*

Research group coordinated by Prof. Antonio Brogi and comprising researchers from the namesake project.

2.5. Research Projects

OSMWARE: hOlistic Sustainable Management of distributed softWARE systems

Pisa, Italy

Department of Computer Science, University of Pisa — *11/2022 – now*

- **Project code:** PRA_2022_64
- **Role:** project member.
- **Description:** the aim of the project - coordinated by Prof. Antonio Brogi - is to study prototypes and technologies to enable holistic and sustainable management of next-generation distributed software applications, also considering the economic impact.

GIÒ: A Fog Computing Testbed for Research & Education

Pisa, Italy

Department of Computer Science, University of Pisa — *06/2019 – now*

- **Role:** project member.
- **Description:** the project - coordinated by Prof. Antonio Brogi - aims at studying and experimenting with innovative methodologies and techniques for the realisation of ambient intelligence functions on a departmental Fog network and has already produced prototypes of functions for the monitoring and irrigation of plants and for the self-regulation of the natural illumination of an environment and of a graphic-conversational interface that includes an updated interactive map of the Department.

2.6. Research Products

FEDCLYPSE

eclypse-org/fedclypse

Designer and Maintainer — *04/2024 – now*

Previously FedRay, FEDCLYPSE is a Python library for researching and developing Federated Learning processes on simulated, dynamic infrastructures. Based on ECLYPSE and Ray, it allows easy prototyping, seamless scalability, and process parallelisation.

ECLYPSE

eclypse-org/eclypse

Designer and Maintainer — *11/2023 – now*

ECLYPSE (Edge-Cloud Ray-based Platform for Simulated Environments) is the first simulation library entirely written in Python for experimenting with deployment strategies in varying infrastructure conditions. It provides an interface for experimenting without and with an actual application implementation to be deployed.

EdgeWise

di-unipi-socc/edgewise

Designer and Maintainer — *07/2023 – now*

EdgeWise is a Prolog open-source prototype for comparing and combining a declarative logic programming methodology with a Mixed Integer Linear Programming approach to determine eligible placements that minimise operational costs and reduce the number of used nodes to contain the amount of data transfers.

DIPS

di-unipi-socc/dips

Designer and Maintainer — *06/2023 – now*

DIPS (Declarative Intent Provisioning System) is a Prolog tool that exploits a declarative methodology for modelling and processing VNF-based service provisioning intents in a high-level language. The latest version also allows users to find static syntax conflicts among application operator and infrastructure provider intents.

DAPlacer

di-unipi-socc/daplacer

Designer and Maintainer — *06/2022 – now*

DAPlacer (Data-Aware Placer) is a Prolog tool for designing and proposing an eligible placement and a suitable routing strategy for a given service-oriented application within its data and requirements over a Cloud-IoT infrastructure.

2.7. Supervised Thesis

10/2023 Intent-based networking e piazzamento sostenibile di catene VNF
Tommaso Di Riccio (B.Sc. thesis)

2.8. Teaching Experience

A.Y. 23/24	(*20h*) Laboratory 1, Teaching Assistant	*B.Sc. course*
A.Y. 22/23	(*20h*) Advanced Software Engineering, Teaching Assistant	*M.Sc. Course*
A.Y. 21/22	(*20h*) Cloud & Green Computing, Teaching Assistant	*M.Sc. Course*
A.Y. 21/22	(*20h*) Laboratory 1, Teaching Assistant	*B.Sc. course*

3. Talks

3.1. Invited Seminars

25/05/2024 RoboPython - Laboratorio di Robotica Educativa
Festival della Robotica 2024

14/10/2023 Declarative Cloud-IoT continuum: Gestire applicazioni, dati e reti con la programmazione logica
UniPi Orienta educational guidance event

16/04/2021 Assistenti Personali e Smart Building Applications
Incontra Informatica educational guidance event

3.2. Conference Oral Presentations

06/12/2023 Sustainable placement of VNF chains in Intent-based Networking
16th IEEE/ACM International Conference on Utility and Cloud Computing

05/07/2023 Declarative and Linear Programming Approaches to Service Placement, Reconciled
16th IEEE International Conference On Cloud Computing (online)

19/06/2023 Declarative Provisioning of Virtual Network Function Chains in Intent-based Networks
3rd International Workshop on Intent-Based Networking

29/11/2022 Data-Aware Application Placement and Management in the Cloud-IoT Continuum
20th International Conference on Service-Oriented Computing

05/07/2022 Data-aware service placement in the Cloud-IoT continuum
16th Symposium and Summer School On Service-Oriented Computing

4. Skills

4.1. Language

Italian	**Mother tongue**
English	**C1**

4.2. Digital Skills

VCS	**Advanced** – *Git, Github, GitLab*
Python	**Advanced** – *NetworkX, Pandas, Keras, scikit-learn, Matplotlib, Seaborn, Plotly*
Prolog	**Advanced** – *SWI-Prolog*
Containerization	**Advanced** – *Docker, docker-compose*
LaTeX	**Advanced**
Java	**Intermediate**
C, C++	**Intermediate**

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