

Roberto Casadei

Curriculum Vitae

PhD, Research Fellow



Overview

Research Fellow (Department of Computer Science & Engineering)

2019/11 → 2021/10

Theme Engineering collective adaptive processes through aggregate computing

Università di Bologna

PhD in Computer Science and Engineering, “Excellent” defence

2016/11 → 2020/04

Thesis Engineering Self-* Collective Processes for Cyber-Physical Ecosystems

Università di Bologna

Research, community, teaching

2016 →

Papers 27+ in journals/conf.proceedings; h-index 11 (SCOPUS), 12 (gscholar)

Service ACSOS'21 PC, COORDINATION'21 PC, eCAS'21 Chair

Teach. Teaching & tutoring in Bachelor's and Master's Courses

Open-source/academic software projects

Notably SCAFI (Lead Developer), Alchemist (Contributor)

Research & Education experience abroad

2018 TU Wien (Austria) – Visiting PhD student

2017 University of St Andrews (Scotland) – Visiting PhD student

2012 University of Limerick (Ireland) – Erasmus Programme

Work experience as Software Engineer (part-time, while studying)

2014/03 → 2015/12

Notably Backend, Front-end, Web and App Developer (.NET)

Scholarships & awards

Notably IEEE TCSC PhD Thesis Award; Prize G. Bassi'17

Scholarships

Notably PhD scholarship (MIUR); Mobility Grants (MarcoPolo, conferences)

Recent activity

Summary I am currently a research fellow at the Department of Computer Science & Engineering of the University of Bologna (UNIBO). I have 27+ publications at international journals and conferences; my current H-Index is 12 (GScholar), 11 (SCOPUS). I got a PhD in *CS & Eng.* from UNIBO, with a thesis on “Engineering Collective Adaptive Processes for Cyber-Physical Ecosystems” (supervised by Prof. Viroli), awarded by the IEEE TCSC. I have been a visiting PhD student at the University of St Andrews (refereed by Prof. Simon Dobson) and at TU Wien (refereed by Prof. Schahram Dustdar). I got awards as a Master graduate/student. In 2014-15, I have also worked as a part-time software engineer. I also enjoy teaching; I am Adjunct Professor in the BEng course *Object-Oriented Programming*, a.y. 2020-21, at UNIBO, Cesena.

Research Themes

In a nutshell, my research interests and activity revolve around two main themes: **software engineering** and **distributed artificial intelligence**. In particular, I focus on programming paradigms, languages, architectures, and design patterns for addressing issues in distributed systems, multi-agent systems, self-* systems, collective systems, and intelligent systems.

Research Community Service

eCAS'21 Workshop Chair 6th eCAS Workshop on Engineering Collective Adaptive Systems	2021 Washington DC, USA
MODELS'21 Student Research Competition Committee Member ACM/IEEE 24th International Conference on Model Driven Engineering Languages and Systems (MODELS) (MODELS 2021)	2021 Virtual Conference
PLDI'21 Artifacts Program Committee Member 42nd ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2021)	2021 Virtual Conference
COORDINATION'21 Program Committee Member 23rd International Conference on Coordination Models and Languages	2021 Valletta, Malta
ACSOS'21 Program Committee Member 2nd IEEE International Conference on Autonomic Computing and Self-Organizing Systems	2021 Washington DC, USA
ACSOS'21 Publicity Chair 2nd IEEE International Conference on Autonomic Computing and Self-Organizing Systems	2021 Washington DC, USA
CLOUD COMPUTING'21 Program Committee Member 12th International Conference on Cloud Computing, GRIDs, and Virtualization	2021 Porto, Portugal
MDPI Electronics - Topic Board Member MDPI Electronics Journal - Topic Editors	2020–
eCAS'20,'17 Program Committee Member 5th eCAS Workshop on Engineering Collective Adaptive Systems Same role in the past: 2017, Tucson USA (2nd eCAS)	2020 Washington, USA
eCAS'19 Workshop Chair 4th eCAS Workshop on Engineering Collective Adaptive Systems	2019 Ulmea, Sweden
SASO'18 Web Chair (Organizing Committee Member) 12th IEEE International Conference on Self-Adaptive and Self-Organizing Systems	2018 Trento, Italy

Research Contracts

Research Contract @ UNIBO	2019–2020, 2020–2021
Theme Engineering evolving collective adaptive systems for modern infrastructures	UNIBO, Cesena
Supervisor Prof. Mirko Viroli	

Experiences Abroad

Visiting PhD student @ TU Wien (Austria)	2018, 2 months
Collaboration on collective adaptive systems and edge computing.	
Foreign reference professor: Prof. Schahram Dustdar	

Visiting PhD student @ St Andrews (Scotland)

Collaboration on topological methods and distributed computing.

Foreign reference professor: Prof. Simon Dobson

2017, 3 months
Marco Polo scholarship

Erasmus @ Limerick (Ireland)

Taking exams on specific BEng courses.

2012, 4 months
Erasmus scholarship

Scholarships

Computer Science and Engineering PhD Scholarship

First classified in the general merit ranking for admission to the PhD Programme and scholarship assignment.

2016/11 → 2019/10
Università di Bologna

Travel/Conference Grant – DisCoTec 2019

2019

Issuer Denmarks Tekniske Universitet (DTU)

This selective grant covered my participation to the COORDINATION 2019 conference in Copenhagen, Denmark.

Mobility Grant – Marco Polo 2016

2017

Issuer Department of Computer Science and Engineering (DISI), UNIBO

This selective grant covered my PhD abroad period in St Andrews, Scotland.

Travel/Conference Grant – Scala Symposium 2016

2016

Issuer École polytechnique fédérale de Lausanne (EPFL)

Grant issued by École polytechnique fédérale de Lausanne (EPFL) for presentation at the Scala Symposium 2016, co-located with the SPLASH conference series.

Study Scholarship

2016/09 → 2016/11
University of Bologna

Issuer Department of Computer Science and Engineering (DISI), UNIBO

Financ. Centro Studi - Orizzonti Holding SPA

Theme Software Infrastructures for the Management of IoT Systems

This scholarship supported a study of proof-of-concept IoT solutions for the retail market. In this context, I got familiarity with microservices, Docker, and process mining. I renounced to the scholarship once I got formally admitted to the PhD Programme, for incompatibility of the scholarships.

Scholarship for meritorious students

2015
Università di Bologna

I am among the ex-aequo winners of the public competition for meritorious students of the University of Bologna in academic year 2014/2015 (section common to all Engineering and Architecture faculties), granting a scholarship.

Awards

IEEE TCSC Outstanding PhD Dissertation Award 2020

2020

I was selected as winner for an international PhD thesis award promoted by the IEEE Technical Committee on Scalable Computing.

Best master graduate student (G.Bassi 2017 prize)

2017
Faenza (Italy)

I was selected as winner of prize *Gianni Bassi*, with 5000€ scholarship, issued by Rotary Club Faenza for *Best Master Graduate Student* across all Engineering faculties of Romagna (district 2072) based on Grade Average and number of laudes.

High school graduation award

2009
Cesena (Italy)

I was given the "Roberto Ruffilli" acknowledgment for high-school graduation with score 100/100 (cum laude).

Selected Publications

1. Giorgio Audrito, **Roberto Casadei**, Ferruccio Damiani, Volker Stolz, and Mirko Viroli. "Adaptive distributed monitors of spatial properties for cyber-physical systems". In: *Journal of Systems and Software* (2021), p. 110908
 - Q1 (Scimago Quartile as of 2019); 0 cits. (Gscholar)
2. **Roberto Casadei**, Mirko Viroli, Giorgio Audrito, Danilo Pianini, and Ferruccio Damiani. "Engineering collective intelligence at the edge with aggregate processes". In: *Engineering Applications of Artificial Intelligence* 97 (2021), p. 104081. ISSN: 0952-1976. DOI: <https://doi.org/10.1016/j.engappai.2020.104081>
 - Q1 (Scimago Quartile as of 2019); 4 cits. (Gscholar)
3. **Roberto Casadei**, Danilo Pianini, Andrea Placuzzi, Mirko Viroli, and Danny Weyns. "Pulverization in Cyber-Physical Systems: Engineering the Self-Organizing Logic Separated from Deployment". In: *Future Internet* 12.11 (2020), p. 203
 - Q2 (Scimago Quartile as of 2019); 2 cits. (Gscholar)
4. Antonio Bucchiarone, Mirko D'Angelo, Danilo Pianini, Giacomo Cabri, Martina De Sanctis, Mirko Viroli, **Roberto Casadei**, and Simon Dobson. "On the Social Implications of Collective Adaptive Systems". In: *IEEE Technology and Society Magazine* 39.3 (2020), pp. 36–46
 - Q1 (Scimago Quartile as of 2019, Engineering subject area); 1 cits. (Gscholar)
5. Danilo Pianini, **Roberto Casadei**, Mirko Viroli, and Antonio Natali. "Partitioned integration and coordination via the self-organising coordination regions pattern". In: *Future Generation Computer Systems* (2020)
 - Q1 (Scimago Quartile as of 2019); 5 cits. (Gscholar)
6. Mirko Viroli, Jacob Beal, Ferruccio Damiani, Giorgio Audrito, **Roberto Casadei**, and Danilo Pianini. "From distributed coordination to field calculus and aggregate computing". In: *Journal of Logical and Algebraic Methods in Programming* (2019), p. 100486. ISSN: 2352-2208
 - Q2 (Scimago Quartile); 20 cits. (Gscholar)
7. **Roberto Casadei**, Giancarlo Fortino, Danilo Pianini, Wilma Russo, Claudio Savaglio, and Mirko Viroli. "A development approach for collective opportunistic Edge-of-Things services". In: *Information Sciences* 498 (2019), pp. 154–169
 - Q1 (Scimago Quartile); 47 cits. (Gscholar)
8. **Roberto Casadei**, Christos Tsigkanos, Mirko Viroli, and Schahram Dustdar. "Engineering Resilient Collaborative Edge-Enabled IoT". in: *2019 IEEE International Conference on Services Computing (SCC)*. 2019, pp. 36–45. DOI: [10.1109/SCC.2019.00019](https://doi.org/10.1109/SCC.2019.00019)
 - A- (GGS Rating); 8 cits. (Gscholar)

9. **Roberto Casadei** and Mirko Viroli. "Coordinating Computation at the Edge: a Decentralized, Self-Organizing, Spatial Approach". In: *2019 Fourth International Conference on Fog and Mobile Edge Computing (FMEC)*. 2019, pp. 60–67. DOI: [10.1109/FMEC.2019.8795355](https://doi.org/10.1109/FMEC.2019.8795355)
 - 10 cits. (Gscholar)
10. **Roberto Casadei**, Giancarlo Fortino, Danilo Pianini, Wilma Russo, Claudio Savaglio, and Mirko Viroli. "Modelling and simulation of Opportunistic IoT Services with Aggregate Computing". In: *Future Generation Computer Systems* (2018)
 - Q1 (Scimago Quartile); 96 cits. (Gscholar)
11. **Roberto Casadei**, Alessandro Aldini, and Mirko Viroli. "Towards attack-resistant Aggregate Computing using trust mechanisms". In: *Science of Computer Programming* 167 (2018), pp. 114–137
 - Q3 (Scimago Quartile); 14 cits. (Gscholar)
12. Giorgio Audrito, **Roberto Casadei**, Ferruccio Damiani, and Mirko Viroli. "Compositional Blocks for Optimal Self-Healing Gradients". In: *Self-Adaptive and Self-Organising Systems (SASO), IEEE International Conference on*. IEEE. 2017
 - 32 cits. (Gscholar)

Peer-reviewed Publications

Bibliometrics

- **H-index**: 12 (Gscholar), 11 (Scopus).
- **i10-index**: 14 (Gscholar).
- **Number of citations**: 442 (Gscholar), 308 (Scopus).
- **Number of publications**: 27 (Scopus).
- **Number of Q1 journal publications**: 6.

All my publications (ordered by year, descending):

1. **Roberto Casadei**, Gianluca Aguzzi, and Mirko Viroli. "A Programming Approach to Collective Autonomy". In: *Journal of Sensor and Actuator Networks* 10.2 (2021). ISSN: 2224-2708. DOI: [10.3390/jsan10020027](https://doi.org/10.3390/jsan10020027). URL: <https://www.mdpi.com/2224-2708/10/2/27>
2. Giorgio Audrito, **Roberto Casadei**, Ferruccio Damiani, Volker Stolz, and Mirko Viroli. "Adaptive distributed monitors of spatial properties for cyber-physical systems". In: *Journal of Systems and Software* (2021), p. 110908
3. **Roberto Casadei**, Mirko Viroli, Giorgio Audrito, Danilo Pianini, and Ferruccio Damiani. "Engineering collective intelligence at the edge with aggregate processes". In: *Engineering Applications of Artificial Intelligence* 97 (2021), p. 104081. ISSN: 0952-1976. DOI: <https://doi.org/10.1016/j.engappai.2020.104081>

4. **Roberto Casadei**, Danilo Pianini, Andrea Placuzzi, Mirko Viroli, and Danny Weyns. "Pulverization in Cyber-Physical Systems: Engineering the Self-Organizing Logic Separated from Deployment". In: *Future Internet* 12.11 (2020), p. 203
5. **Roberto Casadei**, Mirko Viroli, Giorgio Audrito, and Ferruccio Damiani. "FScaFi : A Core Calculus for Collective Adaptive Systems Programming". In: *Leveraging Applications of Formal Methods, Verification and Validation: Engineering Principles*. Springer, 2020, pp. 344–360. ISBN: 978-3-030-61470-6
6. Antonio Bucchiarone, Mirko D'Angelo, Danilo Pianini, Giacomo Cabri, Martina De Sanctis, Mirko Viroli, **Roberto Casadei**, and Simon Dobson. "On the Social Implications of Collective Adaptive Systems". In: *IEEE Technology and Society Magazine* 39.3 (2020), pp. 36–46
7. Danilo Pianini, **Roberto Casadei**, Mirko Viroli, and Antonio Natali. "Partitioned integration and coordination via the self-organising coordination regions pattern". In: *Future Generation Computer Systems* (2020)
8. R. Casadei, M. Viroli, and A. Ricci. "Collective Adaptive Systems as Coordination Media: The Case of Tuples in Space-Time". In: *2020 IEEE International Conference on Autonomic Computing and Self-Organizing Systems Companion (ACSOS-C)*. 2020, pp. 139–144
9. Mirko Viroli, Jacob Beal, Ferruccio Damiani, Giorgio Audrito, **Roberto Casadei**, and Danilo Pianini. "From distributed coordination to field calculus and aggregate computing". In: *Journal of Logical and Algebraic Methods in Programming* (2019), p. 100486. ISSN: 2352-2208
10. **Roberto Casadei**, Giancarlo Fortino, Danilo Pianini, Wilma Russo, Claudio Savaglio, and Mirko Viroli. "A development approach for collective opportunistic Edge-of-Things services". In: *Information Sciences* 498 (2019), pp. 154–169
11. **Roberto Casadei**, Christos Tsigkanos, Mirko Viroli, and Schahram Dustdar. "Engineering Resilient Collaborative Edge-Enabled IoT". in: *2019 IEEE International Conference on Services Computing (SCC)*. 2019, pp. 36–45. DOI: [10.1109/SCC.2019.00019](https://doi.org/10.1109/SCC.2019.00019)
12. **Roberto Casadei** and Mirko Viroli. "Coordinating Computation at the Edge: a Decentralized, Self-Organizing, Spatial Approach". In: *2019 Fourth International Conference on Fog and Mobile Edge Computing (FMEC)*. 2019, pp. 60–67. DOI: [10.1109/FMEC.2019.8795355](https://doi.org/10.1109/FMEC.2019.8795355)
13. **Roberto Casadei**, Danilo Pianini, Guido Salvaneschi, and Mirko Viroli. "On Context-Oriented in Aggregate Programming". In: *2019 IEEE 4th International Workshops on Foundations and Applications of Self* Systems (FAS* W)*. IEEE. 2019, pp. 92–97
14. Danilo Pianini, **Roberto Casadei**, and Mirko Viroli. "Security in Collective Adaptive Systems: A Roadmap". In: *2019 IEEE 4th International Workshops on Foundations and Applications of Self* Systems (FAS* W)*. IEEE. 2019, pp. 86–91
15. Stefano Mariani, **Roberto Casadei**, Fabrizio Fornari, Giancarlo Fortino, Danilo Pianini, Barbara Re, Wilma Russo, Claudio Savaglio, Mirko Viroli, and Franco Zambonelli. "Case Studies for a New IoT Programming Paradigm: Fluidware". In: *Proceedings of the 1st Workshop on Artificial Intelligence and Internet of Things*. Vol. 2502. CEUR Workshop Proceedings. CEUR-WS.org, 2019, pp. 82–96. URL: <http://ceur-ws.org/Vol-2502/paper6.pdf>

16. **Roberto Casadei**, Danilo Pianini, Mirko Viroli, and Antonio Natali. "Self-organising Coordination Regions: A Pattern for Edge Computing". In: *International Conference on Coordination Languages and Models*. Springer. 2019, pp. 182–199
17. **Roberto Casadei**, Mirko Viroli, Giorgio Audrito, Danilo Pianini, and Ferruccio Damiani. "Aggregate Processes in Field Calculus". In: *International Conference on Coordination Languages and Models*. Springer. 2019, pp. 200–217
18. **Roberto Casadei** and Mirko Viroli. "Collective Abstractions and Platforms for Large-Scale Self-Adaptive IoT". in: *2018 IEEE 3rd International Workshops on Foundations and Applications of Self* Systems (FAS* W)*. IEEE. 2018, pp. 106–111
19. Danilo Pianini, Giovanni Ciatto, **Roberto Casadei**, Stefano Mariani, Mirko Viroli, and Andrea Omicini. "Transparent Protection of Aggregate Computations from Byzantine Behaviours via Blockchain". In: *Proceedings of the 4th EAI International Conference on Smart Objects and Technologies for Social Good*. ACM. 2018, pp. 271–276
20. **Roberto Casadei**, Giancarlo Fortino, Danilo Pianini, Wilma Russo, Claudio Savaglio, and Mirko Viroli. "Modelling and simulation of Opportunistic IoT Services with Aggregate Computing". In: *Future Generation Computer Systems* (2018)
21. **Roberto Casadei**, Alessandro Aldini, and Mirko Viroli. "Towards attack-resistant Aggregate Computing using trust mechanisms". In: *Science of Computer Programming* 167 (2018), pp. 114–137
22. Mirko Viroli, Jacob Beal, Ferruccio Damiani, Giorgio Audrito, **Roberto Casadei**, and Danilo Pianini. "From Field-Based Coordination to Aggregate Computing". In: *International Conference on Coordination Languages and Models*. Springer. 2018, pp. 252–279
23. **Roberto Casadei** and Mirko Viroli. "Programming actor-based collective adaptive systems". In: *Programming with Actors*. Springer, 2018, pp. 94–122
24. Giorgio Audrito, **Roberto Casadei**, Ferruccio Damiani, and Mirko Viroli. "Compositional Blocks for Optimal Self-Healing Gradients". In: *Self-Adaptive and Self-Organising Systems (SASO), IEEE International Conference on*. IEEE. 2017
25. **Roberto Casadei**, Alessandro Aldini, and Mirko Viroli. "Combining trust and aggregate computing". In: *International Conference on Software Engineering and Formal Methods*. Springer. 2017, pp. 507–522
26. Giorgio Audrito, Ferruccio Damiani, Mirko Viroli, and **Roberto Casadei**. "Run-Time Management of Computation Domains in Field Calculus". In: *Foundations and Applications of Self* Systems, IEEE International Workshop on*. IEEE. 2016, pp. 192–197
27. **Roberto Casadei**, Danilo Pianini, and Mirko Viroli. "Simulating large-scale aggregate MASs with Alchemist and Scala". In: *Computer Science and Information Systems (FedCSIS), 2016 Federated Conference on*. IEEE. 2016, pp. 1495–1504
28. Mirko Viroli, **Roberto Casadei**, and Danilo Pianini. "On Execution Platforms for Large-scale Aggregate Computing". In: *Proceedings of the 2016 ACM International Joint Conference on Pervasive and Ubiquitous Computing: Adjunct*. UbiComp '16. Heidelberg, Germany: ACM,

2016, pp. 1321–1326. ISBN: 978-1-4503-4462-3. DOI: [10.1145/2968219.2979129](https://doi.org/10.1145/2968219.2979129). URL: <http://doi.acm.org/10.1145/2968219.2979129>

29. **Roberto Casadei** and Mirko Viroli. “Towards Aggregate Programming in Scala”. In: *First Workshop on Programming Models and Languages for Distributed Computing*. PMLDC '16. Rome, Italy: ACM, 2016, 5:1–5:7. ISBN: 978-1-4503-4775-4. DOI: [10.1145/2957319.2957372](https://doi.org/10.1145/2957319.2957372). URL: <http://doi.acm.org/10.1145/2957319.2957372>

Talks

Collective Adaptive Systems as Coordination Media: The Case of Tuples in Space-Time	2020/08 Online
Event 5th eCAS Workshop on Engineering Collective Adaptive Systems	
Engineering Resilient Collaborative Edge-enabled IoT	2019/07 Milan (ITA)
Event 16th IEEE International Conference on Services Computing	
Aggregate Processes in Field Calculus	2019/06 Copenhagen (DNK)
Event 21th International Conference on Coordination Models and Languages	
On Context-Orientation in Aggregate Programming	2019/06 Umeå (SWE)
Event 4th eCAS Workshop on Engineering Collective Adaptive Systems	
Coordinating Computation at the Edge: a Decentralized, Self-Organizing, Spatial Approach	2019/06 Rome (ITA)
Event 4th IEEE International Conference on Fog and Mobile Edge Computing	
Collective Abstractions & Platforms for Large-Scale Self-Adaptive IoT	2018/09 Trento (ITA)
Event 3rd eCAS Workshop on Engineering Collective Adaptive Systems	
From Field-Based Coordination to Aggregate Computing	2018/06 Madrid (ESP)
Event 20th International Conference on Coordination Models and Languages	
Compositional Blocks for Optimal Self-Healing Gradients	2017/09 Tucson, Arizona (USA)
Event 11th IEEE International Conference on Self-Adaptive and Self-Organizing Systems (SASO'17)	
Practical Aggregate Programming in Scala	2016/10 Amsterdam (NLD)
Event Scala Symposium 2016	
Programming Actor-based Collective Adaptive Systems	2016/10 Amsterdam (NLD)
Event AGERE'16 (international workshop on agents and actors)	
On Execution Platforms for Large-Scale Aggregate Computing	2016/09 Heidelberg (DEU)
Event Workshop on Collective Adaptation in Very Large Scale Ubicomp: Towards a Superorganism of Wearables, Ubicomp/ISWC Adjunct	
Towards Aggregate Programming in Scala	2016/06 Rome (ITA)
Event 1st International Workshop on Programming Models and Languages for Distributed Computing (PMLDC) – co-located with ECOOP	

Teaching

Engineering Intelligent Collective Systems

2021

Course PhD Programme on Computer Science and Engineering

Online

Activity I run a module of 10 hours on research themes pertaining to collective adaptive systems engineering.

Foundations of Informatics A - Module 3

a.y. 2020-21

Course First cycle degree programme (L) in Electronics Engineering for Energy and Information

Cesena

Activity I run 30CFU of teaching and laboratory material preparation and assessment on imperative, structured programming in C.

Object-Oriented Programming - Module 3

a.y. 2020-21

Course First cycle degree programme (L) in Computer Science and Engineering

Cesena

Activity I run 30CFU of teaching and laboratory material preparation and assessment on OOP in Java and related programming tools (version control, Eclipse, JavaFX, Gradle, etc.).

Tutor for course modules *Programming and Development Paradigms* and *Concurrent and Distributed Programming*

2016-17, 2017-18,
2018-19, 2019-20,

Course Second cycle degree programme (LM) in Computer Science and Engineering (cod. 8614)

2020-21

Cesena

Activity As a tutor, I prepare exercises, help students in doing them and following the course, and do seminars on specialised topics. These courses cover advanced programming and paradigms (functional, logic, concurrent, distributed).

Tutor for course module *Object-Oriented Programming*

2019-20

Course First cycle degree programme (L) in Computer Science and Engineering

Cesena

Activity As a tutor, I prepare exercises (on OOP in Java) and help students in doing them and following the course.

Seminars in the BBS open-program *Internet of Things*, modules *Software Production* and *Distributed Systems*

2018

Bologna Business School

Activity I did two seminars to engineers and professionals on specialised topics: (1) software testing and (2) cloud-native application development.

30h in IFTS course “Technician for design and development of computer applications specialised in new digital technologies”

2018

Cesena

What Higher Technical Education and Training (IFTS) is an education programme funded by the Italian Ministry of Education (MIUR).

Activity 30 hours teaching the basics of programming in Python to high-school graduates.

60h in IFTS course “Technician for design and development of computer applications specialised in business problem solving”

2018

Cesena

Activity 60 hours teaching the basics of programming in JavaScript to high-school graduates.

Reviewer Activity

Peer reviewing in Journals and Conferences (10+)

- IEEE Internet of Things
- IEEE Transactions on Intelligent Transportation Systems
- Springer Software and Systems Modeling
- Elsevier Journal on Pervasive and Mobile Computing (PMC)
- For more, see [my publons profile](#)

Books

- *Programming with Types* (Vlad Riscutia, 2019, Manning)
- *Classic Computer Science Problems in Python* (David Kopec, 2019, Manning)

Contributions (open-source/academic projects)

SCAFI (Lead developer)

ScaFi is a Scala toolkit for Aggregate Computing: it includes a field calculus DSL, simulator, and distributed platform. I lead the development of ScaFi, check pull requests, and coordinate work.

ALCHEMIST (Contributor)

Alchemist is a meta-simulator tailored to pervasive computing, on the JVM. I issued pull requests mainly on the ScaFi-Alchemist incarnation.

Miscellaneous Contributions

– [org.protelis.protelisdock](#): Kotlin gradle plugin to generate Protelis docs, via dokka

Slides @ Slideshare

Slides with notes about computer science, lectures, and talks.

Professional Experience

Software Engineer

Web application development in ASP.NET MVC and JavaScript within a Scrum/Kanban process framework.

2014/09 → 2015/12
[Apex-Net \(WEDO\)](#)
Cesena (Italy)

Software Engineer

Development of a Windows 8.1 application in C#/XAML and development of the related WCF back-end service for SharePoint integration.

2014/03 → 2014/09
[Apex-Net \(WEDO\)](#)
Cesena (Italy)

IT Book reviewer

During the years of high school, I used to write reviews of computer science books for an Italian e-zine (and the next years, more informally, for a [personal blog](#)) The website is dismissed: [look it up on archive.org](#).

2007 → 2011
[programmazione.it](#)

Certifications

TS: Microsoft .NET Framework - Application Development Foundation (License 8424975 - Prometric)

2011
Bologna (Italy)

Education

PhD Programme in Computer Science and Engineering

2016/11 → 2020/04
Università di Bologna

Thesis Engineering self-adaptive collective processes for cyber-physical ecosystems

Courses

- Spatial Multiagent Systems and Aggregate Computing: New Directions for Spatial Computing (2017, A. Omicini & M. Viroli)
- Approximation Algorithms (BISS'17, F. Grandoni)
- Kleene Algebra with Tests and Applications to Network Programming (BISS'17, A. Silva)
- Models and Algorithms for Matching and Assignment Problems (S. Martello)
- Developing, maintaining, and sharing software tools for research (D. Pianini)

Master's Degree in Computer Science and Engineering

2013/09 → 2016/03
Università di Bologna

Grade Summa Cum Laude (Grade Average: 30/30, 6 laudes)

Thesis Aggregate Programming in Scala: a Core Library and Actor-based Platform for Distributed Computational Fields

Exams

- Artificial Intelligence
- Programming and Paradigms
- Autonomous Systems
- Business Intelligence
- Computer Security
- Data Base Systems
- Distributed Systems
- Engineering Complex Adaptive Software Systems
- Programming Languages and Models of Computation
- Project Management
- Semantic Web
- Software Systems Engineering
- Web Services and Applications

Bachelor's Degree in Electronics, Informatics, and Telecommunications Engineering

2009/09 → 2013/03
Università di Bologna

Grade Summa Cum Laude (Grade Average: 29.29/30, 5 laudes)

Thesis Reuse Mechanisms and Concurrency: from Actors to Agent-oriented Programming

Exams

- Automatic Controls
- Computer Networks
- Data Base Systems
- Digital Design Principles and Computer Architecture
- Economics and Business Organisation
- Electrotechnics
- Foundations of Informatics A
- Foundations of Informatics B
- General Physics A
- General Physics B
- Geometry and Algebra
- Mathematical Analysis A
- Mathematical Analysis for the Engineering Information Technology
- Operating Systems
- Operations Research
- Signal Processing
- Software Engineering
- Telecommunications Networks
- Web-related Technologies
- English Proficiency B1

Erasmus Programme

2012/01 → 2012/05
University of Limerick (IRL)

Courses

- Distributed Systems
- Human-Computer Interaction
- Real-time Systems
- Software Testing and Inspection

Skills and expertise

Note: this section is only indicative; current level of mastery can vary; by no means exhaustive.

- Paradigms** Imperative; OOP; Functional; Reactive; Async; Logic; Agent-Oriented
- Languages** Scala, Java/Kotlin, C#, C++, Ruby, Haskell, Python, JavaScript
- Data** E/R modeling; relational modelling; semantic web
- Design/Arch.** Design patterns; SOA/Microservices; cloud-native applications
- Devops** Docker; Kubernetes; CI/CD (Gradle, Travis)
- Technologies**
 - Cloud** – Google Cloud Platform, Amazon Web Services, Heroku
 - Web dev.** – HTML5; CSS3; jQuery; PHP
 - Frameworks** – Akka; Spring; NodeJs; ASP.NET MVC; Rails; Vert.x; RabbitMQ
 - Data** – MySQL; NoSQL
- Process**
 - Agile sw dev. and practices:** Scrum; (A)TDD/BDD.
 - Model-driven sw dev.:** UML; DSL; code-generation (XText).
 - Collaborative sw dev.:** version control (git); build automation (Gradle, sbt).

Languages

- Italian** Mother tongue.
- English** Proficient in both spoken and written English.

References

Prof. Mirko Viroli

Role Full Professor, Department of Computer Science and Engineering (DISI), Alma Mater Studiorum–Università di Bologna
Prof. Viroli was my PhD and Master Thesis supervisor.

Prof. Alessandro Ricci

Role Associate Professor, Department of Computer Science and Engineering (DISI), Alma Mater Studiorum–Università di Bologna
Prof. Ricci was my Bachelor Thesis supervisor.

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