Ivano Salvo
Curriculum Vitae

May 11th, 2021

Part I: General Information

Full Name: **Ivano Salvo**

Citizenship: **Italian**

Current Position: **Assistant Professor** (Researcher) at **Sapienza University of Rome**.

Spoken Languages: **Italian** (native speaker)**, English** and **French** (fluent)

Part II: Education

- University Graduation in **Scienze dell'Informazione** from **University of Udine,** mark: **110 cum laude** (**1995**)**.** Title of the thesis: "**Principi di Dimostrazione per Oggetti Finitari in Teoria dei Tipi**". Advisor: prof. **Furio Honsell**.

- PhD in **Computer Science** from **Sapienza University of Rome** (**2000**)**.** Title of the thesis: "**Confluence and Expressiveness in Reduction Systems**". Advisor: prof. **Benedetto Intrigila**.

Part III: Academic Appointments

- From **1/12/1999** to **31/12/2001**: **Post-Doc** position at **University of Turin**.

- From **1/1/2002** to **28/2/2002: Post-Doc** position at **Ècole Normale Superieure, Paris** (visiting researcher from **1/6/2002** to **31/1/2003**).

- From **1/3/2002** (**ongoing**): **Assistant Professor** (Researcher) at **Sapienza University of Rome**.

Part IV: Teaching Experience

Ivano Salvo has been **responsible** of the following courses:

- **Programmazione a Oggetti** (Object-Oriented Programming), Bachelor Degree in Computer Science, **4 credits**, for **5** years (**2003** and **2005-2008**).
- **Tecniche di Sicurezza Basate sui Lingauggi** (Language Based Security), Master Degree in Computer Science, **6 credits**, for **8** years (**2006-2013**). From 2007 to 2009 in collaboration with Daniele Gorla (**3** credits out of **6**).
- **Verifica Automatica** (Model Checking), Master Degree in Computer Science, **6 credits**, **2005**.
- **Modelli di Calcolo** (Models of Computation), Master Degree in Computer Science, **6 credits**, **2006**.
- **Metodologie di Programmazione** (Programming Methodology), Bachelor Degree in Computer Science, **6** (out of **9**) **credits**, **2014**.
- **Linguaggi di Programmazione** (Programming Languages), Bachelor Degree in Mathematics, **3 credits,** for **7** years (**2014-2020, ongoing**).
- **Formal Methods for Software Development**, Master Degree in Computer Science, **3** (out of **6**) **credits**, for **2** years (**2019-2020, ongoing**).
  In collaboration with Igor Melatti.
- **Tecniche di Programmazione Funzionale e Imperativa** (Functional and Imperative Programming Techniques), Bachelor Degree in Computer Science, **6 credits**, **2021**, **ongoing**.
- **Informatica Generale** (Introduction to Computer Science), Bachelor Degree in Mathematics, **6** (out of **9**) **credits**, **2021, ongoing**.

Ivano Salvo has collaborated on the following courses:

- **Paradigmi di Programmazione: Linguaggi** (Programming Languages), a module on Functional Programming, Bachelor Degree in Computer Science, **2** (out of **6**) **credits**, **2003**.
- **Programmazione 2** (Programming II), Bachelor Degree in Computer Science, **3** (out of **9**) **credits, 2002** (2 classes) and **2003.**
- **Architetture 1** (Digital Systems), Bachelor Degree in Computer Science, **3** (out of **9**) **credits, 2003.**
- **Programmazione 1** (Programming I), Bachelor Degree in Computer Science, **3** (out of **9**) **credits,** for **6** years**, 2003-2008;**
- **Metodologie di Programmazione** (Programming Methodology), Bachelor Degree in Computer Science, **3** (out of **9**) **credits, 2011.**
- **Progettazione di Algoritmi** (Algorithm Design) Bachelor Degree in Computer Science, **3** (out of **9**) **credits**, for **2** years, **2019** and **2020**.
- **Informatica Generale** (Introduction to Computer Science), a module on C Programming, Bachelor Degree in Mathematics, **3** (out of **9**) **credits**, for **10** years (**2011-2020,** from **2015** to **2020** in two parallel classes).

Ivano Salvo has been **advisor** of about **35 Bachelor Thesis** and **10 Master Thesis** in Computer Science and about **15 Bachelor Thesis** and **2 Master Thesis** in Mathematics.

Part V: Society Memberships, Awards and Honours

- Best paper award at 24th International Symposium on Foundations of Intelligent Systems (ISMIS18), for the paper:
  T. Mancini, F. Mari, I. Melatti, **I. Salvo**, E. Tronci. *An Efficient Algorithm for Network Vulnerability Analysis Under Malicious Attacks*. In Proc. of 24th International Symposium on Foundations of Intelligent Systems, ISMIS 2018, Limassol, Cyprus, October 29-31, 2018, doi: 10.1007/978-3-030-01851-1_29.

- Qualification for Associate Professor (Abilitazione Scientifica Nazionale, II fascia) in both **01/B1** (Informatica, **2020**) and **09/H1** (Sistemi di Elaborazione delle Informazioni, **2019**).

Part VI: Funding Information [Grants as PI-principal Investigator or I-investigator]

- **Principal Investigator** of the project: "*Estradiol Level Estimation from Follicle Measurements during Ovarian Stimulation in Assisted Reproduction*", Sapienza University of Rome (5.000 pienza Universitmation from Fol

- **Principal Investigator** of the project: "*History Based Control Software Synthesis for Embedded Systems with Partial State Observability*", Sapienza University of Rome (4.000 pienza Universitl Software S

- **Investigator** in the FP7 project **PAEON** "*Model Driven Computation of Treatments for Infertility Related Endocrinological Diseases*" (600773) coordinated by prof. E. Tronci (Sapienza University of Rome). Value: 2,4M € (620K € Sapienza unit), 2013-16. PAEON included 5 partners from 3 countries (Switzerland, Germany, and Italy), including both Universities (Sapienza, University of Lucerna), research institutions (Zuse Institut of Berlin), and University Hospitals (Hannover Medical School and Zurich Universitat Hospital). Ivano Salvo was responsible of Tasks T1.3 ("Quality Assurance") and T2.5 ("Treatment Protocol and Properties Modelling").

- **Investigator** in the FP7 project **SmartHG** "*Energy Demand Aware Open Services for Smart Grid Automation*" (317761) coordinated by prof. E. Tronci (Sapienza University of Rome). Value: 3,5M € (600K € Sapienza unit), 2013-16. SmartHG included 12 partners from 5 countries (Denmark, Belarus, Germany, Spain, and Italy), including both Universities (Sapienza, Aurhus University), research institutions (IMDEA, etc.), and Energy Distributors (MinskEnergo and SEAS-NVE, etc.) and municipality (Kalundborg (DK) and Minsk). Ivano Salvo was responsible of Tasks T2.8 ("Specification and Validation").

- **Investigator** in the EU projects **MyThS** "*Models and Types for Security in Mobile Distributed Systems*" (contract: **IST-2001-32617**), 2001-2003 and **DART** "*Dynamic Assembly and Reconfiguration*" (contract: **IST-2001-33477**) funded by the Global Computing initiative in the FP5-IST programme for research, technological development and demonstration on a user-friendly information society, 1998-2002.

Part VII: Research Activities

VII.a: Research Topics

- **Type Theory and Semantics** (mainly 1998-2003): type theory as a tool to describe properties of functional programs, security in distributed systems and safety of object-oriented languages. More recently (2019-ongoing), bisimulation in Event Structures in Theory of Concurrency.

- **Model Checking** (mainly 2008-ongoing): model checking techniques applied to several domains: Nash equilibria in BAR systems, optimal correct-by-construction controllers of Cyber-Physical Systems, and Systems Biology.

- **Graph Algorithms and Congestion Games** (mainly 2015-ongoing): graph theoretic characterization and polynomial detection of sub-graph patterns related to inefficiencies in Selfish Routing.
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VII.b: Service

- **PC chair** of **ICTCS21** (Bologna, 2021)
  [see `http://helm.cs.unibo.it/ictcs2021/committees.html`].

- **Member** of **the PC commettee** of **Express/SOS 2020** (Vienna, 2020)
  [see `https://express-sos2020.cs.ru.nl/`].

- In the **Organising commette** of:
  - UNIF (Rome, 1998)
  - 4th TLCA (L'Aquila, 1999)
  - ETAPS (Rome, 2013)
  - LICS 2022 (Rome, 2022 – initially scheduled for 2021, postponed to 2022 due to covid-restrictions).

- **Reviewer** for the following **journals** (selection): IEEE Transactions on Automatic Control, Information and Computation, The Computer Journal, Acta Informatica, International Journal of Parallel Programming, Journal of Energy Storage.

- **Reviewer** for the following **conferences** (selection): CONCUR, TLCA, EXPRESS, MFPS, Gandalf, ICTCS, ITRS, FSTTCS, Charme.

- Ivano Salvo is member of the Advisors Committee ("Collegio di Dottorato") of the PhD School of the Sapienza University of Rome, Department of Computer Science since January **2011** (except in 2018). He has served as member of the Selection Commettee for the admission to the Sapienza PhD program in **2007** and **2012**.

- Member of the Selection Commettee for a position of Assistant Professor, SD INF/01, University of Turin, 2006.

VII.c: Research Software

Contribution to the development of the following software tools:

- **QKS** (*Quantized Kontrol Synthesizer*) implements several algorithms for automatic synthesis of control software for discrete time hybrid systems (a preliminary version is available at `http://mclab.di.uniroma1.it/software qks.html`).

- **NashMV**: checks if a given Multiple Administrative Domain protocol is Nash Equilibria by properly modifying the NuSMV model checker (available at `http://mclab.di.uniroma1.it/software.html#nashmv`).

Part VIII: Summary of Scientific Achievements

The following table shows statistics regarding papers authored by Ivano Salvo: data are presented separately for articles and conference papers (as classified by Scopus). In the table are reproted total and average number of citations according to the **Scopus** database and the total value of Impact Factor (Scopus citeSeer) and its average value (Impact Factor is defined for **27** out of **34** papers: this has a negative impact on the average impact factor for conference papers).

Product Type	Number	Citations	Average Citations	Impact Factor	Average I.F x product
Article	10	69	6.9	39.4	3.940
Conference Paper	24	271	11.3	24.6	1.025
Total	34	350	10.3	64	1.882

Papers authored by Ivano Salvo start in **1998** and end in **2021**, for a total of **23** years. Ivano's Salvo **H-index** is **12**. Therefore, the **average H-index** (per year) is **0,521**.

The following table shows Ivano Salvo's achievements with respect to the National Scientific Qualification requirements, as from the Sapienza IRIS Catalog:

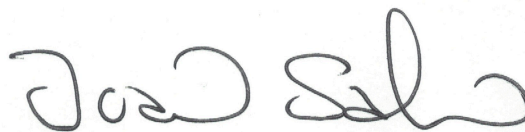| Habilitation Type	Indicator 1 (nr. of articles)			Indicator 2 (nr. of citations)			Indicator 3 (H index)			Overall Result
	Val	Trh	Res	Val	Thr	Res	Val	Thr	Res	
II Fascia	6	4	✓	252	157	✓	10	7	✓	✓
I Fascia	7	9	✗	278	304	✗	11	10	✓	✗
Commissario	7	11	✗	278	391	✗	11	11	✓	✗

Part IX: Selected Publications

In the following list, for each paper, it is indicated: SCOPUS classification, the SCOPUS citescore for the Impact Factor and the number of citations in the SCOPUS database.

1. **Article**, IF: **2.4**, Citations: **1**
   D. Gorla, **I. Salvo** (2021). *Conflict vs causality in event structures.* Journal of Logical and Algebraic Methods in Programming, volume 119, February 2021, Article number 100631. doi: 10.1016/j.jlamp.2020.100631

2. **Article**, IF: **2.4**, Citations: **2**
   P. Cenciarelli, D. Gorla, **I. Salvo** (2019). *A Polynomial-Time Algorithm for detecting the possibility of Braess Paradox in Directed Graphs.* Algorithmica, vol. 81, num. 4, p. 1535-1560. ISSN: 0178-4617, doi: 10.1007/s00453-018-0486-6

3. **Article**, IF: **4.1**, Citations: **0**
   P. Cenciarelli, D. Gorla, **I. Salvo** (2019). *Depletable channels: dynamics, behaviour, and efficiency in network design.* Acta Informatica, vol. 56, nr. 5, p. 405-431. ISSN: 0001-5903, doi: 10.1007/s00236-018-0329-6

4. **Article**, IF: **11.6**, Citations: **15**
   V. Alimguzhin, F. Mari, I. Melatti, **I. Salvo**, E. Tronci (2017). *Linearising discrete time hybrid systems.* IEEE Transactions on Automatic Control, vol. 62, p.5357-5364. ISSN: 0018-9286, doi: 10.1109/TAC.2017.2694559

5. **Article**, IF: **5.7**, Citations: **23**
   F. Mari, I. Melatti, **I. Salvo**, E. Tronci (2014). *Model Based Synthesis of Control Software from System Level Formal Specifications.* ACM Transactions on Software Engineering and Methodology, vol. 23, nr. 1, p.6:1-6:42. ISSN: 1049-331X, doi: 10.1145/2559934

6. **Conference Paper**, IF: **-**, Citations: **26**
   E. Tronci, T. Mancini, **I. Salvo**, S. Sinisi, F. Mari, I. Melatti, A. Massini, F. Davì, T. Dierkes, R. Ehrig, S. Roeblitz, B. Leeners, T. H.C. Krüger, M. Egli, F. Ille (2014). *Patient-Specific Models from Inter-Patient Biological Models and Clinical Records.* In: Proceedings of the 14th Conference in Formal Methods in Computer-Aided Design. doi: 10.1109/FMCAD.2014.6987615

7. **Conference Paper**, IF: **1.9**, Citations: **10**
   V. Alimguzhin, F. Mari, I. Melatti, **I. Salvo**, E. Tronci (2013). *On-the-Fly Control Software Synthesis.* In: Proc. of the International SPIN Symposium on Model Checking of Software (SPIN 2013). LNCS, vol. 7976, p. 61-80, Springer Verlag. ISBN: 9783642391750, ISSN: 0302-9743, doi: 10.1007/978-3-642-39176-7_5

8. **Conference Paper**, IF: **1.9**, Citations: **10**
   F. Mari, I. Melatti, **I. Salvo**, E. Tronci (2012). *Undecidability of quantized state feedback control for discrete time linear hybrid systems.* In: Abhik Roychoudhury and Meenakshi D'Souza eds: Proc. of 9th International Colloquium on Theoretical Aspects of Computing - ICTAC 2012, Bangalore, India, September 24-27, 2012, LNCS vol. 7521, p. 243-258, Springer-Verlag. ISBN: 9783642329425, ISSN: 0302-9743, doi: 10.1007/978-3-642-32943-2_19

9. **Conference Paper**, IF: **1.9**, Citations: **17**
    F. Mari, I. Melatti, **I. Salvo**, E. Tronci (2010). *Synthesis of Quantized Feedback Control Software for Discrete Time Linear Hybrid Systems*. In: Proceedings of 22nd International Conference on Computer Aided Verification, Edinburgh, Scotland, July 15-19, 2010, LNCS, vol. 6174, p. 180-195, Springer Verlag. ISBN: 9783642142949, ISSN: 0302-9743, doi: 10.1007/978-3-642-14295-6_20

10. **Article**, IF: **2.4**, Citations: **6**
    A. Bucciarelli, A. Piperno, **I. Salvo** (2003). *Intersection types and lambda-definability*. Mathematical Structures in Computer Science, vol. 13, p. 15-53. ISSN: 0960-1295, doi: 10.1017/S0960129502003833

11. **Conference Paper**, IF: **1.9**, Citations: **25**
    M. Dezani, **I. Salvo** (2000). *Security Types for Mobile Safe Ambients*. In: ASIAN 2000, Penang, Malaysia, November 25-27, 2000. LNCS vol. 1961, p. 215-236, Springer Verlag. ISBN: 9783540414285, doi: 10.1007/3-540-44464-5_16.

12. **Article**, IF: **3.5**, Citations: **9**
    A. Bucciarelli, S. de Lorenzis, A. Piperno, **I. Salvo** (1999). *Some Computational Properties of Intersection Types*. In: LICS99, Symposium on Logics in Computer Science, Trento, Italy, July, 1999. p. 109-118. IEEE Computer Society. ISSN:1043-6871, doi: 10.1109/LICS.1999.782598

Rome, May 11st, 2021

Ivano Salvo

(non soggetta ad autentica ai sensi dell'art. 39 del D.P.R. 28.12.2000, n. 445)