

# Matteo Busi

Curriculum Vitæ

## PERSONAL INFORMATION

**Citizenship** Italian  
**Birthday** Jul. 11, 1993  
**Address** Via San Gallo 119/F, 25082 Botticino  
BS, Italy

## CONTACTS

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✉️ [matteo.busi42@gmail.com](mailto:matteo.busi42@gmail.com)  
📖 <https://scholar.google.com/citations?user=0a0yNBIAAAAJ>  
🔄 <https://github.com/matteobusi>  
🏠 <http://matteobusi.github.io>

## EDUCATION

**Ph.D. in Computer Science** [Nov. 1, 2017 — Apr. 26, 2021]

**Institution** Department of Computer Science, University of Pisa

**Thesis** *Secure Compilation all the Way Down*

**Defense** Apr. 26, 2021

**Supervisors** Prof. Pierpaolo Degano & Dr. Letterio Galletta

**External reviewers** Prof. Dominique Devriese & Prof. Cătălin Hrițcu

**M.Sc. in Computer Science** [Oct. 12, 2015 — Oct. 06, 2017]

**Institution** University of Pisa

**Thesis** *Four Semantics for a Disciplined Concurrency in COP*

**Grade** 110/110 (hons.)

**Supervisors** Prof. Pierpaolo Degano & Dr. Letterio Galletta

**B.Sc. in Computer Science** [Sep. 06, 2012 — Oct. 09, 2015]

**Institution** University of Pisa

**Thesis** *Type Systems to Realize Domain-specific Languages (in italian)*

**Grade** 110/110 (hons.)

**Supervisors** Prof. Pierpaolo Degano & Dr. Letterio Galletta

## VISITS AND SEMINARS

**Invited participant** [Nov. 28, 2021 — Dec. 3, 2021]

**Event name** Dagstuhl Seminar 21481 (Secure Compilation)

**Details** <https://www.dagstuhl.de/en/program/calendar/semhp/?semnr=21481>

**Visiting scholar** [Nov. 15, 2021 — Nov. 26, 2021]

**Institution** *DistriNet*, KU Leuven

**Host** Prof. Dominique Devriese

**Visiting scholar** [Feb. 25, 2019 — May 24, 2019]

**Institution** *DistriNet*, KU Leuven

**Host** Prof. Frank Piessens

## PH.D. SCHOOLS

**BISS'19** [Mar. 10 — 15, 2019]

**Extended name** Bertinoro International Spring School 2019

**Location** Bertinoro, Italy

- Courses**
- *Multitask learning and learning-to-learn: a statistical learning perspective* (Prof. Massimiliano Pontil)
  - *Software security across abstraction layers* (Prof. Frank Piessens)
  - *Internet of things: a data oriented approach* (Prof. Luciano Bononi)

FOSAD'18 [Aug. 28 — 31, 2018]

**Extended name** 18th International School on Foundations of Security Analysis and Design

**Location** Bertinoro, Italy

- Courses**
- *Data protection in cloud scenarios* (Prof. Sabrina De Capitani di Vimercati)
  - *Formally secure compilation* (Prof. Cătălin Hrițcu)
  - *Secure Internet architectures* (Prof. Adrian Perrig)
  - *Secure multi party computation* (Prof. Nigel Smart)
  - *Differential privacy* (Prof. Kunal Talwar)

BISS'18 [Mar. 11 — 16, 2018]

**Extended name** Bertinoro International Spring School 2018

**Location** Bertinoro, Italy

- Courses**
- *Provable security for low level execution platforms* (Prof. Mads Dam)
  - *Distributed models, MapReduce and large scale algorithms* (Dr. Silvio Latanzi)
  - *Elements of Quantum Computation* (Prof. Herbert Wiklicky)

## WORKING EXPERIENCE

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(Postdoctoral) research fellow [Feb. 01, 2022 — ongoing]

**Project title** *Securing the digital transformation, from the ground up*

**Institution** Ca' Foscari University of Venice

**Supervisor** Prof. Riccardo Focardi

**Official role** *Assegnista*

(Postdoctoral) research fellow [Jul. 1, 2021 — Jan. 30, 2022]

**Project title** *Formal Methods and Techniques for Secure Compilation*

**Institution** University of Pisa

**Supervisor** Prof. Gian-Luigi Ferrari

**Official role** *Assegnista*

Research fellow [Jan. 1, 2021 — Jun. 30, 2021]

**Project title** *Incremental Type Systems for Secure Compilation*

**Institution** University of Pisa

**Supervisor** Prof. Roberto Bruni

**Official role** *Borsista*

## TEACHING EXPERIENCE

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Co-organizer of and speaker at the *Hot topics in language-based security seminar series* [Spring 2022]

**Details** <http://pages.di.unipi.it/bodei/HTLBS.html> (Cached)

Tutor for the *Turing Machine Programming National & International Contest* [14 — 17 Sep 2021]

**Details** <https://www.turingcontest.com> (Cached)

T.A. for *Laboratory of Innovative Software* [Mar. 2021 — May 2021]

**Degree** M.Sc. in Computer Science at the University of Pisa

**Teachers** Prof. Chiara Bodei & Prof. Gian-Luigi Ferrari

**Log** <https://unimap.unipi.it/registri/dettregistriNEW.php?re=3311405::::&ri=9408>

T.A. for *Foundations of Computer Science* [Oct. 2020 — Dec. 2020]

**Degree** B.Sc. in Computer Science at the University of Pisa

**Teacher** Prof. Andrea Corradini

**Log** <https://unimap.unipi.it/registri/dettregistriNEW.php?re=3310600:::&ri=8054>

**T.A. for *Advanced Programming* [Oct. 2019 — Dec. 2019]**

**Degree** M.Sc. in Computer Science and Networking at the University of Pisa

**Teacher** Prof. Andrea Corradini

**Log** <https://unimap.unipi.it/registri/dettregistriNEW.php?re=3297002:::&ri=8054>

**Teacher for the laboratory *Introduction to Turing Machines* [Feb. 2019]**

**Institution** “U. Dini” high school

**Location** Pisa, Italy

**T.A. for *Advanced Programming* [Oct. 2018 — Dec. 2018]**

**Degree** M.Sc. in Computer Science and Networking at the University of Pisa

**Teacher** Prof. Andrea Corradini

**Log** <https://unimap.unipi.it/registri/dettregistriNEW.php?re=3286601:::&ri=8054>

**T.A. for *Algorithms and Laboratory* [Feb. 2018 — May 2018]**

**Degree** B.Sc. in Computer Science at the University of Pisa

**Teachers** Prof. Anna Bernasconi & Prof. Alina Sirbu

**Log** <https://unimap.unipi.it/registri/dettregistriNEW.php?re=2086516:::&ri=9431>

## SKILLS

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**Programming and markup languages**

- Good knowledge of OCaml, C, Java, C++11, L<sup>A</sup>T<sub>E</sub>X, Python
- Basic knowledge of Javascript, Haskell, Coq, Isabelle/HOL

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	Comprehension		Spoken		Written
	Listening	Reading	Interaction	Oral production	
Languages	Italian				
	Mother tongue				
	English <sup>†</sup>	C1	C1	C1	C1

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<sup>†</sup> Self-evaluation w.r.t. the “Common European Framework of Reference for Languages”

## OTHER ACTIVITIES

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- PC member** • PriSC’22, SecDev’22, FCS’22
- Reviewer** • Elsevier “Blockchain: Research and Applications” (BCRA)
- External reviewer** • POST’19, ITASEC’20, HotSpot’20
- Student volunteer** • POPL’20, ITASEC’20

## PARTICIPATION IN RESEARCH PROJECTS

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**Project** *DECLWARE* [Jul. 2018 — Jul. 2020]

**Title** Declarative methodologies for designing and deploying applications

**Financed by** University of Pisa

**Ref. number** PRA\_2016\_64

**Website** <http://pages.di.unipi.it/declware/>

## EVENT ORGANIZATION

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Co-organizer of *THESES'19* [05/12/2019]

**Extended name** THeses presentation Event for StudEntS

**Supervisor** Prof. Paolo Ferragina

**Website** <http://theses.di.unipi.it/>

## THESIS CO-SUPERVISION

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Co-supervision of Marco Antonio Corallo's B.Sc. thesis [A.Y. 2020/2021]

**Institution** University of Pisa

**Thesis (in italian)** *An F# Framework for Value-Set Analysis*

**Co-Supervisors** Prof. Pierpaolo Degano & Dr. Letterio Galletta

Co-supervision of Federico Pennino's B.Sc. thesis [A.Y. 2019/2020]

**Institution** University of Pisa

**Thesis (in italian)** *CADL: Generating a Type Checking Module from Datalog to OCaml*

**Co-Supervisors** Prof. Pierpaolo Degano & Dr. Letterio Galletta

## PUBLICATIONS

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For **conferences and workshops**:

- [✕] indicates that I (physically or virtually) **participated** at the event during which the work was presented;
- [🗨️] indicates that I **presented** the work during the corresponding event;
- [i] indicates the **lack of formal proceedings** for the corresponding work.

## JOURNALS

1. Matteo Busi, Job Noorman, Jo Van Bulck, Letterio Galletta, Pierpaolo Degano, Jan Tobias Mühlberg, and Frank Piessens. "Securing Interruptible Enclaved Execution on Small Microprocessors". *ACM Trans. Program. Lang. Syst.* 43 (2021)
2. Matteo Busi, Pierpaolo Degano, and Letterio Galletta. "Mechanical incrementalization of typing algorithms". *Science of Computer Programming* 208 (2021). ISSN: 0167-6423. DOI: <https://doi.org/10.1016/j.scico.2021.102657>

## CONFERENCES

1. [✕, 🗨️] Matteo Busi, Pierpaolo Degano, and Letterio Galletta. "Towards effective preservation of robust safety properties". *SAC '22: The 37th ACM/SIGAPP Symposium on Applied Computing, Virtual Event, April 25 - 29, 2022*. Ed. by Jiman Hong, Miroslav Bures, Juw Won Park, and Tomás Cerný. ACM, 2022, pp. 1674–1683. DOI: [10.1145/3477314.3507084](https://doi.org/10.1145/3477314.3507084)
2. [✕, 🗨️] Carmine Abate, Matteo Busi, and Stelios Tsampas. "Fully Abstract and Robust Compilation and How to Reconcile the Two, Abstractly". *19th Asian Symposium on Programming Languages and Systems, APLAS 2021, Chicago, IL, USA, October 17-22, 2021*. 2021
3. [✕, 🗨️] Matteo Busi, Job Noorman, Jo Van Bulck, Letterio Galletta, Pierpaolo Degano, Jan Tobias Mühlberg, and Frank Piessens. "Provably Secure Isolation for Interruptible Enclaved Execution on Small Microprocessors". *33rd IEEE Computer Security Foundations Symposium, CSF 2020, Boston, MA, USA, June 22-26, 2020*. 2020, pp. 262–276. DOI: [10.1109/CSF49147.2020.00026](https://doi.org/10.1109/CSF49147.2020.00026)
4. [✕, 🗨️] Matteo Busi, Pierpaolo Degano, and Letterio Galletta. "Control-flow Flattening Preserves the Constant-Time Policy". *Proceedings of the Fourth Italian Conference on Cyber Security, Ancona, Italy, February 4th to 7th, 2020*. Ed. by Michele Loreti and Luca Spalazzi. Vol. 2597. 2020, pp. 82–92. URL: <http://ceur-ws.org/Vol-2597/paper-08.pdf>
5. Matteo Busi, Pierpaolo Degano, and Letterio Galletta. "Robust Declassification by Incremental Typing". *Foundations of Security, Protocols, and Equational Reasoning - Essays Dedicated to Catherine A. Meadows*. Ed. by Joshua D. Guttman, Carl E. Landwehr, José Meseguer, and Dusko Pavlovic. Vol. 11565. Lecture Notes in Computer Science. Springer, 2019, pp. 54–69. DOI: [10.1007/978-3-030-19052-1\\_6](https://doi.org/10.1007/978-3-030-19052-1_6)

6. [✕, 📄] Matteo Busi, Pierpaolo Degano, and Letterio Galletta. “Using Standard Typing Algorithms Incrementally”. *NASA Formal Methods - 11th International Symposium, NFM 2019, Houston, TX, USA, May 7-9, 2019, Proceedings*. 2019, pp. 106–122. DOI: 10.1007/978-3-030-20652-9\_7
7. [✕, 📄] Matteo Busi and Letterio Galletta. “A Brief Tour of Formally Secure Compilation”. *Proceedings of the Third Italian Conference on Cyber Security, Pisa, Italy, February 13-15, 2019*. Ed. by Pierpaolo Degano and Roberto Zunino. Vol. 2315. 2019. URL: <http://ceur-ws.org/Vol-2315/paper03.pdf>
8. Matteo Busi, Pierpaolo Degano, and Letterio Galletta. “A Semantics for Disciplined Concurrency in COP”. *Proceedings of the 17th Italian Conference on Theoretical Computer Science, Lecce, Italy, September 7-9, 2016*. 2016, pp. 177–189. URL: <http://ceur-ws.org/Vol-1720/full13.pdf>

## WORKSHOPS

1. [i] Emiel Lanckriet, Matteo Busi, and Dominique Devriese. “ $\pi_{RA}$ : A  $\pi$ -calculus for verifying protocols that use remote attestation.” *Workshop on Foundations of Computer Security 2022, FCS 2022, Haifa, Israel, August 11, 2022*. 2022
2. [✕, 📄, i] Carmine Abate and Matteo Busi. “The Fox and the Hound: Comparing Fully Abstract and Robust Compilation”. *5th Workshop on Principles of Secure Compilation, PriSC 2021, Virtual event, January 17, 2021*. 2019. URL: <https://arxiv.org/abs/2006.14969v2>
3. [✕, i] Carmine Abate and Matteo Busi. “The Fox and the Hound: Comparing Fully Abstract and Robust Compilation”. *Workshop on Foundations of Computer Security 2020, FCS 2020, Virtual event*. 2020
4. [✕, 📄, i] Matteo Busi, Job Noorman, Jo Van Bulck, Letterio Galletta, Pierpaolo Degano, Jan Tobias Mühlberg, and Frank Piessens. “Securing Interruptible Enclaves”. *4th Workshop on Principles of Secure Compilation, PriSC 2020, New Orleans, Louisiana, United States, January 19, 2020*. 2020
5. [✕, 📄, i] Matteo Busi, Pierpaolo Degano, and Letterio Galletta. “Translation Validation for Security Properties”. *3rd Workshop on Principles of Secure Compilation, PriSC 2019, Cascais, Portugal, January 13, 2019*. 2019. URL: <https://arxiv.org/abs/1901.05082>