Stefano Pessotto

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Research interests

Automata theory, Transducer theory, Logics, Temporal logics, Theory of computation, Complexity theory, Finite model theory, Game theory

Education

2021 – Present

University of Udine – Udine, Italy
MSc in Computer Science, minor in Algorithms and Automated Reasoning
Thesis: "From the equivalence problem for transducers to Hilbert's basis theorem"
Supervisors: Prof. Gabriele Puppis and Prof. Luca Geatti (*Weighted mean: 29.286, one exam missing*)

Relevant coursework

- *Advanced algorithms*: Pattern matching and compression algorithms, Randomized algorithms, Kolmogorov Complexity

- *Automatic system verification: theory and applications*: Labelled transition systems, Büchi automata, Temporal logics, Verification and validation of reactive systems, Model checking, Symbolic model checking, Bounded model checking, Applications to AI and Cybersecurity

- *Complexity and information theory*: Main results on time and space complexity theory, Compression, Kolmogorv complexity

- *Languages and compilers*: Functional programming, Top down and bottom up parsers, Attribute grammar, SDD L-attributed and S-attributed, Three address code, Optimizations and error recovery

- *Logic for applications*: Finite model theory, Game theory, Descriptive complexity theory

- *Quantum computing and communication*: Quantum circuits, Quantum Fourier transform, Quantum search algorithms

2017 – 2021	**University of Udine** – Udine, Italy
	BSc in Computer Science
	Thesis: "Discretizzazione e analisi automatica di modelli di crescita tumorale"
	Supervisors: Prof. Carla Piazza (*Weighted mean: 26.482, Final Grade: 105/110*)
	Sapo is a tool for the analysis of discrete-time polynomial dynamical systems, capable of computing reachability and parameter synthesis. The aim of the thesis is to implement a set of well-known growth models in Sapo and compare results against tumor growth data.
2012 – 2017	**Istituto Tecnico Industriale "Città della Vittoria"** – Vittorio Veneto, Italy
	High school leaving qualification in "Informatica e telecomunicazioni"

Publications

2021	**Speeding up Answer Set Programming by Quantum Computing**
	Romanello R., Della Giustina D., Pessotto S., Piazza C.
	QUASAR 2024 - Proceedings of the ACM Workshop on Quantum Search and Information Retrieval, Part of: HPDC 2024 - 33rd International Symposium on High-Performance Parallel and Distributed Computing.

Research experience

March 2025 – Present	**University of Udine**
	Mentors: Prof. Luca Geatti (University of Udine)
	Study of the Safety and Liveness fragments in the finite setting and its impact on model checking. This has now been submitted to TIME 2025 and is awaiting confirmation.

Teaching experience

2024	**Web Security Tutor for CyberChallenge.IT (University of Udine)**
	Laboratory activities teaching web security.
2023	**Web Security Tutor for CyberChallenge.IT (University of Udine)**
	Laboratory activities teaching web security.

| 2022 | **Web Security Tutor for CyberChallenge.IT (University of Udine)**
Laboratory activities teaching web security. |

Industry experience

April 2018 – October 2019	**Structura Technology & Innovation s.r.l. (Firmware developer)** – Vittorio Veneto, Italy Firmware development for embedded systems and testing activities.
July 2017 – September 2017	**I.R.C.A. S.p.A. - Zoppas Industries Heating Element Technologies (Intern)** – Vittorio Veneto, Italy Development of system architecture for an embedded system and mock up, testing activities and training on firmware development and APQP.
September 2016	**Techocad S.R.L. (Intern)** – Vittorio Veneto, Italy Computer assembly and laptop repairs.
June 2016	**G2G Communities CIC (Intern)** – Rhyl, Wales Teaching activities and development of new learning resources.

Talks and tutorials

November 2024	Recognizing Safety and Liveness *Coursework seminar on the Safety and Liveness fragments of LTL.*
June 2024	Introduction to Web Security *Presentation on the fundamentals of web security at University of Udine.*
December 2023	HighSchools CTF Workshop *Presentation on web security for the HighSchools workshop @ Udine. Author of 6 introductory web-challenges.*
January 2022	Teorema di Fagin *Coursework presentation on Fagin theorem.*

Other activities

2024	**Organizer of SnakeCTF Finals 2024** *Author of 1 unsolved web security challenge, co-author of 1 real-world interacting challenge, co-author of 1 challenge written during the event and event organizer.*
2024	**Organizer of SnakeCTF Quals 2024** *Author of 2 web security challenges and event organizer.*
2023	**Organizer of SnakeCTF 2023** *Author of 4 web security challenges, co-author of 1 real-world interacting web challenge and event organizer.*
2022 - present	**Member of a Quality Assurance Commission in the University of Udine**
2020 - present	**Member of MadrHacks** *Member of the academic cybersecurity team MadrHacks (University of Udine).*
2016	**Erasmus+ VET-PRISE 2015** *Scholarship in the project of Erasmus+ VET-PRISE for the year 2015-2016.*

Technical skills

Programming languages
Proficient in: Python, C, PHP, Java, Haskell, SQL, Javascript
Familiar with: C++, Julia , . . .

Software
LaTeX, Git, Linux, Proxmox, . . .

Languages
Italian (mother tongue), English (fluent)

Other interests

Interest in the Linux community, homelab enthustiast