Michele Guerra

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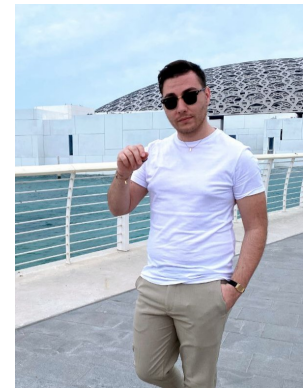
Summary

I am a passionate and accomplished researcher with a PhD in Computer Science from the University of Molise, Italy, specializing in mobile user privacy and security. In July 2024, I successfully defended my dissertation titled "Enhancing Mobile User Privacy through a Context-Aware Permission Model" earning the highest praise from the academic committee. My PhD has been marked by the publication of numerous research papers, effective presentations at international conferences, and active contributions as a reviewer in the research community. My passion for mentorship is evident in my co-supervision of over 15 students during their thesis projects and my involvement in several funded research initiatives. In addition to my academic achievements, I have gained valuable international experience, having spent research periods at the Università della Svizzera Italiana and the CSP-Lab in Abu Dhabi. My educational foundation includes a MSc in Software Systems and Security (cum laude) and a Bachelor's degree in Computer Science, both from the University of Molise. Throughout my PhD journey, I was advised by esteemed professors Fausto Fasano and Rocco Oliveto, whose guidance has been instrumental in shaping my research and professional growth.

Education

2021 – 2024   🔖 **Ph.D. in Computer Science,** University of Molise - Italy.
Thesis title: *Enhancing Mobile User Privacy through a Context Aware Permission Model.*
Advisors: *Prof. Fausto Fasano, Prof. Rocco Oliveto.*
Final grade: *PhD with highest honors.*

2018 – 2020   🔖 **M.Sc. in Software Systems Security,** University of Molise - Italy.
(This thesis was conducted during a study period at the *__Università della Svizzera Italiana__*.)
Thesis title: *TensorBot: a Conversational Assistant for the TensorFlow Library to Support Developers.*
Advisors: *Prof. Rocco Oliveto, Prof. Gabriele Bavota*, and Prof. Simone Scalabrino*
Final grade: *110/110 cum Laude*

2015 – 2018   🔖 **B.Sc. Computer Science,** University of Molise - Italy.
(Results from this thesis led to a publication in proceedings of the 33rd ACM/IEEE International Conference on Automated Software Engineering)
Thesis title: *OCELOT: a search-based test-data generation tool for C.*
Advisors: *Prof. Rocco Oliveto, Prof. Simone Scalabrino*
Final grade: *110/110 cum Laude*

Academic and Teaching Experience

2024 – Ongoing 📑 **Research fellowship** – University of Molise, Italy.
I'm currently working in the Mosaic Lab at the University of Molise on identifying Android users' privacy and security issues and proposing solutions to prevent users from being compromised.

2021 – Ongoing 📑 **Teaching Assistant,** University of Molise – Italy.

- **Undergraduate**-level course of **Mobile programming** taught by Fausto Fasano, – *Computer Science program.*

- **Undergraduate**-level course of **Software Engineering** taught by Fausto Fasano, – *Computer Science program.*

- **Graduate**-level course of **Software Project Management** taught by Fausto Fasano, – *Software Systems Security program.*

Sep 2023 – Dec 2023 📑 **Visiting PhD Student in the CSP-lab** – NYU Abu Dhabi, United Arab Emirates.
During my three-month doctoral research stay abroad, I had the opportunity to contribute to a research project at the Center for Cyber Security at New York University in Abu Dhabi. Under the expert guidance of Professor Christina Pöpper, my efforts were dedicated to developing a security framework for Android User Equipment (UE) in the context of 5G Standalone (SA) networks, essentially crafting a 5G Standalone User Side Security Testing Framework. My primary contribution to the project was developing an automated system for generating test cases, focusing on the uplink and downlink communications in 5G SA networks, with particular attention to NAS (Non Access Stratum) and RRC (Radio Resource Control) messages. Parallelly, I explored the application of Large Language Models (LLMs), such as ChatGPT and Llama2, for the automatic evaluation and validation of test case outputs (pcap files).

Feb 2020 – Apr 2020 📑 **Visiting MSc Student at SEART lab** – Università della Svizzera Italiana, Swiss.
During this period, I was a guest of the University of the Italian Swiss in Lugano, where I developed my master's thesis with Prof. Gabriele Bavota and Prof. Rocco Oliveto on developer support from virtual assistants based on Machine Learning models. In this period, I have grown my skills related to Artificial Intelligence & Machine Learning aspects, working with Keras, TensorFlow, and PyTorch.

2019 – 2020 📑 **Research fellowship** – University of Molise, Italy.
During my MSc, I received a research fellowship from the University of Molise. I worked in the Stake-Lab in the Computer Science department.

Research Publications

Journal Articles

1 **M. Guerra**, S. Scalabrino, F. Fasano, and R. Oliveto, "An empirical study on the effectiveness of privacy indicators," *IEEE Transactions on Software Engineering*, vol. 49, no. 10, pp. 4610–4623, 2023. 🔗 DOI: 10.1109/TSE.2023.3308392.

Conference Proceedings

1   **M. Guerra**, R. Milanese, M. Deodato, V. Perozzi, and F. Fasano, "Visual attention and privacy indicators in android: Insights from eye tracking," in *Proceedings of the 10th International Conference on Information Systems Security and Privacy, ICISSP 2024, Rome, Italy, February 26-28, 2024*, G. Lenzini, P. Mori, and S. Furnell, Eds., SCITEPRESS, 2024, pp. 320–329. DOI: 10.5220/0012437600003648.

2   S. Khandker, **M. Guerra**, E. Bitsikas, R. P. Jover, A. Ranganathan, and C. Pöpper, "Astra-5g: Automated over-the-air security testing and research architecture for 5g sa devices," in *Proceedings of the 17th ACM Conference on Security and Privacy in Wireless and Mobile Networks*, ser. WiSec '24, Seoul, Republic of Korea: Association for Computing Machinery, 2024, pp. 89–100, ISBN: 9798400705823. DOI: 10.1145/3643833.3656141.

3   F. Fasano, **M. Guerra**, R. Milanese, and R. Oliveto, "A dynamic approach to defuse logic bombs in android applications," in *Data and Applications Security and Privacy XXXVII: 37th Annual IFIP WG 11.3 Conference, DBSec 2023, Sophia-Antipolis, France, July 19–21, 2023, Proceedings*, Sophia-Antipolis, France: Springer-Verlag, 2023, pp. 358–365, ISBN: 978-3-031-37585-9. DOI: 10.1007/978-3-031-37586-6_21.

4   **M. Guerra**, R. Milanese, R. Oliveto, and F. Fasano, "Rpcdroid: Runtime identification of permission usage contexts in android applications," in *Proceedings of the 9th International Conference on Information Systems Security and Privacy, ICISSP 2023, Lisbon, Portugal, February 22-24, 2023*, P. Mori, G. Lenzini, and S. Furnell, Eds., SciTePress, 2023, pp. 714–721. DOI: 10.5220/0011797200003405.

5   F. D. Tommaso, **M. Guerra**, F. Martinelli, *et al.*, "User authentication through keystroke dynamics by means of model checking: A proposal," in *2019 IEEE International Conference on Big Data (Big Data)*, 2019, pp. 6232–6234. DOI: 10.1109/BigData47090.2019.9006227.

6   S. Scalabrino, G. Grano, D. Di Nucci, *et al.*, "Ocelot: A search-based test-data generation tool for c," in *Proceedings of the 33rd ACM/IEEE International Conference on Automated Software Engineering*, ser. ASE '18, Montpellier, France: Association for Computing Machinery, 2018, pp. 868–871, ISBN: 9781450359375. DOI: 10.1145/3238147.3240477.

Accepted and To Appear papers

1   **M. Guerra**, R. Milanese, M. G. Ciobanu, M. Deodato, and F. Fasano, *Seeing is Believing: Assessing and Enhancing Android Privacy Indicators through Eye-Tracking Analysis*. Communications in Computer and Information Science, 2024. DOI: ToAppear.

Research Fundings & Grants

2024   **StartUp-24 – Dynamic authorisation management in Android using artificial intelligence models.**
University of Molise Computer Science Research Section.
Role: Co-PI

2024-2027   **SINTIA – Innovative Telemedicine Systems with Artificial Intelligence.**
Italian Ministry of Business and Made in Italy, PNRR funding
Role: Co-PI within the University of Molise partnership

2022-2024   **Secure digitisation and traceability of the forest-wood supply chain through mobile application development and blockchain implementation**
CURSA – University Consortium for Socioeconomic and Environmental Research
Role: Member of the research group within the University of Molise partnership.

2021-2023   **e-Creha – Education for Climate Resilient European Architectural Heritage**
Erasmus+ program of the European Union, Research project
Role: Leader of the technician staff within the University of Molise partnership.

Miscellaneous Experience

Awards and Achievements

2024   **Journal First Selection at ICSE 2024**
The paper [1] has been selected as the journal's first presentation at the International Conference on Software Engineering in Lisbon.

ICISSP 2024 High-Quality paper
The paper [2] was considered to be one of the highest-quality papers for post-publication selection.

ACNS 2024 Student Support Grant
An award of $2,000 for selected candidates.

2022   **Department Prize for Outstanding PhD Student poster**
University of Molise.

Paper Peer Reviewer

2024   ACM Transactions on Software Engineering and Methodology (TOSEM)

IEEE/ACM International Conference on Automated Software Engineering (ASE-NIER)

2023   IFIP Conference on Data and Applications Security and Privacy (DBSec)

External, IEEE Transactions on Software Engineering (TSE)

2022   International Conference on Information Systems Security and Privacy (ICISSP)

Skills

Languages	**Italian** (*Native*). Strong reading, writing, and speaking competencies in **English**.
Coding	Java, php, Python, R, sql, xml/xsl, LaTeX, …
Databases	Mysql, Postgresql, hsql, sqlite, MongoDB.
Web Dev	Html, css, JavaScript, Apache Web Server, Tomcat Web Server, Docker.
Misc.	Academic research, teaching, training, consultation, LaTeX typesetting and publishing, effective communication, UX/UI expert, teamwork, leadership, adaptability, problem solving.

References

Available on Request