

Giacomo Longo

EDUCATION

Sapienza University of Rome , Rome, Italy National Ph.D program in Artificial Intelligence for Security Topics: Cyber security of avionic, marine, and rail systems — Cyber ranges for training and testing.	Enrolled: Nov 2021 — Expected: Nov 2024 EQF8
University of Genoa , Italy Master's Degree in Computer Engineering (LM-32) Grade: 110/110 with Honors	Started: Sep 2019 — Graduated: 23 Jul 2021 EQF7
University of Genoa , Italy Bachelor's Degree in Computer Engineering (L-8) Grade: 101/110	Started: Sep 2016 — Graduated: 29 Nov 2019 EQF6
I.I.S.S. F. Liceti , Italy High School diploma in accounting and programming (ragioniere programmatore) Grade: 98/100	Started: Sep 2011 — Graduated: Jun 2016 EQF4

WORK EXPERIENCE

North Atlantic Treaty Organization (NATO) <i>Science for Peace and Security (SPS) board of experts member</i> Anti-drone technologies — LPI Radars	Brussels, Belgium Jul 2024 - Ongoing
European Defence Agency <i>CapTech non-Government Expert (CnGE)</i> "Modeling and Simulation" Capability Technology Group (CapTech)	Brussels, Belgium Jun 2024 - Ongoing
Procura della repubblica di Napoli <i>Forensic Investigator</i> Cyber Physical Systems	Naples, Italy May 2024 - Ongoing
Federal Office for Defence Procurement — armasuisse <i>Visiting Researcher</i> Avionic systems security — SDR for wireless security — Secondary radar systems — Electromagnetic Warfare	Thun, Switzerland Mar 2023 - Aug 2023
Ericsson Telecomunicazioni S.p.A. <i>Intern</i> Development of a behavior-driven testing framework for the FH6000 product series.	Genoa, Italy Apr 2020 - Oct 2020

PUBLICATIONS

Balancing Privacy and Security in Industrial Infrastructure: a Data Anonymization Approach for Security Operation Centers G. Longo, F. Lupia, A. Merlo, F. Pagano, E. Russo <i>Information Sciences</i>	Submitted
On a Collision Course: Unveiling Wireless Attacks to the Aircraft Traffic Collision Avoidance System (TCAS) G. Longo, M. Strohmeier, E. Russo, A. Merlo, V. Lenders <i>USENIX Security 2024</i>	Aug 2024
Attacking Maritime Control Systems Through Process Mining G. Longo, F. Lupia, A. Pugliese, E. Russo <i>SEBD 2024: 32nd Symposium on Advanced Database Systems</i>	Jul 2024
Understanding Emerging Cyber Attacks and Vulnerabilities Targeting Maritime Systems G. Longo <i>SEBD 2024: 32nd Symposium on Advanced Database Systems - Doctoral Consortium</i>	Jul 2024
Work-In-Progress: Consistent and Tamper-Proof Acquisition of Automatically Verifiable Forensic Web Evidence A. Cantelli-Forti, G. Longo, E. Russo <i>IEEE Euro S&P 2024</i>	Jul 2024
Physics-Aware Targeted Attacks Against Maritime Industrial Control Systems G. Longo, F. Lupia, A. Pugliese, E. Russo <i>Journal of Information Security and Applications</i>	Feb 2024
Adversarial waypoint injection attacks on Maritime Autonomous Surface Ships (MASS) collision avoidance systems G. Longo, M. Martelli, E. Russo, A. Merlo, R. Zaccone <i>Journal of Marine Engineering & Technology</i>	Dec 2023
Cyber Range and Cyber Defense Exercises: Gamification Meets University Students E. Russo, M. Ribauda, A. Orlich, G. Longo, A. Armando <i>2nd International Workshop on Gamification in Software Development, Verification, and Validation</i>	Dec 2023
Cloud-Native Application Security Training and Testing with Cyber Ranges E. Russo, G. Longo, M. Guerar, A. Merlo <i>Proceedings of the 15th International Conference on Ubiquitous Computing & Ambient Intelligence (UCAmI 2023)</i>	Nov 2023
Electronic Attacks as a Cyber False Flag against Maritime Radars Systems G. Longo, A. Merlo, A. Armando, E. Russo <i>2023 IEEE 48th Conference on Local Computer Networks (LCN)</i>	Oct 2023
LiDiTE: A Full-Fledged and Featherweight Digital Twin Framework E. Russo, G. Costa, G. Longo, A. Armando, A. Merlo <i>IEEE Transactions on Dependable and Secure Computing (TDSC)</i>	Jan 2023
Attacking (and Defending) the Maritime Radar System G. Longo, E. Russo, A. Armando, A. Merlo <i>IEEE Transactions on Information Forensics and Security (TIFS)</i>	Jun 2023
MaCySTe: A virtual testbed for maritime cybersecurity G. Longo, A. Orlich, S. Musante, A. Merlo, E. Russo <i>SoftwareX</i>	Jun 2023
Enabling Real-Time Remote Monitoring of Ships by Lossless Protocol Transformations G. Longo, A. Orlich, A. Merlo, E. Russo <i>IEEE Transactions on Intelligent Transportation Systems (TITS)</i>	Mar 2023
Collision-avoidance Capabilities Reduction After a Cyber-Attack to the Navigation Sensors G. Longo, M. Martelli, E. Russo, R. Zaccone <i>Conference Proceedings of iSCSS (International Ship Control Systems Symposium)</i>	Nov 2022

TEACHING

Virtualization and Cloud Computing — 2023, 2022, 2021 (40h each) University of Genova
 Virtualized networking (VLAN, VXLAN, Virtual IPs, SDN, NAT) — Virtualized storage (Block, File, Object Storage) — Computing abstractions (VMs, containers, “serverless”) — Automated provisioning and configuration — Idempotency — Horizontal scalability — High availability — Instrumentation, monitoring, and logging

Network Forensics — 2023, 2022, 2021 (18h each) STELMILIT: Scuola Telecomunicazioni Forze Armate
 Practical investigation in a cyber range of own development — NetFlow/IPFIX/sFlow — Acquisition of remote evidence — Large-scale log analysis — Coding for artifact processing — Web client passive fingerprinting

Network security for cloud-native applications — 2023 (9h) IT-Alert: Sistema nazionale di allarme pubblico
 Security of overlay networks — Kubernetes networking model — Service meshes — Monitoring — Tracing

Statistical analysis and data mining — 2020 (20h) L.S. Leonardo da Vinci

Coding and robotics — 2020 (20h)

EVENTS AND SEMINARS

RF Attacks on Aviation’s Last Line of Defense Against Mid-Air Collisions (TCAS II) DEFCON 32, 9 Aug 2024
Single Sign On with the OAuth / OpenID protocol suites Invited seminar University of Genoa, 18 Dec 2023
NATO Locked Shields Italian-Slovenian forensics team member Rome, 2023
Leonardo-UniGe Cybersecurity Scholarship Program Red team member, scenario designer 2021,2022,2023,2024

PATENTS

WIPO PCT/IT2022/000036 — Method and system for detecting anomalies in a radar system on board of a ship

PROJECTS

Innovative concept to detect, recognize and track “killer-drones” (AI4CUAV) NATO - Science for Peace and Security (SPS) 2024
Innovative collision prevention system for safe navigation (SafeNav) Horizon Europe 2022
Federated Advanced Cyber physical Test range (FACT) European Defence Fund (EDF) 2022

SKILLS

Programming Bash — C — C++ — C# — Java — JavaScript — Lua — Modelica — Python — Rust — Typescript
Software Apache Guacamole — Docker — eBPF — FluentBit — Gitea/Forgejo — Godot — Grafana — HAProxy — keepalived — Kubernetes — Linux (Arch, Debian, Fedora, Ubuntu) — Loki — MongoDB — NATS — Nextcloud — NGINX — OpenModelica — OpenSearch — podman — PostgreSQL — Prometheus — Proxmox VE — QEMU — QGIS — Terraform/OpenTofu — Vagrant — systemd

MISCELLANEOUS

Own car and driving license — Willing to travel for work — Open to collaboration with military/governmental institutions

Awards

3rd place — Boeing CTF Cybersecurity Contest - 3rd edition Dec 2019
 2nd place — Boeing CTF Cybersecurity Contest - 2nd edition Mar 2019
 Winner — H-ACK SCHOOL Hackaton Mar 2015

Languages (Common European Framework of Reference for Languages)

Italian (Understanding C2 Speaking C2 Writing C2) — English (u. C2 s. C2 w. C2) — German (u. A1 s. A1 w. A1)