Giacomo Longo

EDUCATION

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

WORK EXPERIENCE

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

PUBLICATIONS

Balancing Privacy and Security in Industrial Infrastructure: a Data Anonymization Approach for Security Operation Centers — Submitted
G. Longo, F. Lupia, A. Merlo, F. Pagano, E. Russo
Information Sciences

On a Collision Course: Unveiling Wireless Attacks to the Aircraft Traffic Collision Avoidance System (TCAS) — Aug 2024
G. Longo, M. Strohmeier, E. Russo, A. Merlo, V. Lenders
USENIX Security 2024

Attacking Maritime Control Systems Through Process Mining — Jul 2024
G. Longo, F. Lupia, A. Pugliese, E. Russo
SEBD 2024: 32nd Symposium on Advanced Database Systems

Understanding Emerging Cyber Attacks and Vulnerabilities Targeting Maritime Systems — Jul 2024
G. Longo
SEBD 2024: 32nd Symposium on Advanced Database Systems - Doctoral Consortium

Work-In-Progress: Consistent and Tamper-Proof Acquisition of Automatically Verifiable Forensic Web Evidence — Jul 2024
A. Cantelli-Forti, G. Longo, E. Russo
IEEE Euro S&P 2024

Physics-Aware Targeted Attacks Against Maritime Industrial Control Systems — Feb 2024
G. Longo, F.Lupia, A.Pugliese, E.Russo
Journal of Information Security and Applications

Adversarial waypoint injection attacks on Maritime Autonomous Surface Ships (MASS) collision avoidance systems — Dec 2023
G. Longo, M.Martelli, E.Russo, A.Merlo, R.Zaccone
Journal of Marine Engineering & Technology

Cyber Range and Cyber Defense Exercises: Gamification Meets University Students — Dec 2023
E.Russo, M.Ribaudo, A.Orlich, G. Longo, A.Armando
2nd International Workshop on Gamification in Software Development, Verification, and Validation

Cloud-Native Application Security Training and Testing with Cyber Ranges — Nov 2023
E.Russo, G. Longo, M.Guerar, A.Merlo
Proceedings of the 15th International Conference on Ubiquitous Computing & Ambient Intelligence (UCAmI 2023)

Electronic Attacks as a Cyber False Flag against Maritime Radars Systems — Oct 2023
G. Longo, A.Merlo, A.Armando, E.Russo
2023 IEEE 48th Conference on Local Computer Networks (LCN)

LiDiTE: A Full-Fledged and Featherweight Digital Twin Framework — Jan 2023
E.Russo, G.Costa, G. Longo, A.Armando, A.Merlo
IEEE Transactions on Dependable and Secure Computing (TDSC)

Attacking (and Defending) the Maritime Radar System — Jun 2023
G. Longo, E.Russo, A.Armando, A.Merlo
IEEE Transactions on Information Forensics and Security (TIFS)

MaCySTe: A virtual testbed for maritime cybersecurity — Jun 2023
G. Longo, A.Orlich, S.Musante, A.Merlo, E.Russo
SoftwareX

Enabling Real-Time Remote Monitoring of Ships by Lossless Protocol Transformations — Mar 2023
G. Longo, A.Orlich, A.Merlo, E.Russo
IEEE Transactions on Intelligent Transportation Systems (TITS)

Collision-avoidance Capabilities Reduction After a Cyber-Attack to the Navigation Sensors — Nov 2022
G. Longo, M.Martelli, E.Russo, R.Zaccone
Conference Proceedings of iSCSS (International Ship Control Systems Symposium)

Training the Maritime Security Operations Centre Teams Jul 2022
M.Raimondi, G. Longo, A.Merlo, A.Armando, E.Russo
2022 IEEE International Conference on Cyber Security and Resilience (CSR)

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)