

Dario Pasquini, Ph.D.

19/09/1991, Rome, Italy.

email: pasquini.dario.1991@gmail.com

personal page: <https://pasquini-dario.github.io/me/>

Bio: *Driven security researcher specializing in the intersection of deep learning and cybersecurity. Focused on fortifying digital ecosystems through ML-driven solutions, safeguarding against emerging threats.*

Experience:

- [**10/2021 - today**] **Postdoctoral Researcher:**
École Polytechnique Fédérale de Lausanne (EPFL), Switzerland
Security and Privacy Engineering Laboratory (SPRING)
Lab lead: *Carmela Troncoso*.
- [**02/2021 - 09/2021**] **Research Fellow:**
National Research Council (CNR), Italy.
Institute for applied mathematics “Mauro Picone” (IAC); Rome/Naples.
- [**07/2021**] **Ph.D. in Computer Science:**
Sapienza University of Rome, Italy
Advisor: *Massimo Bernaschi*.
(Fellowship winner).
- [**03/2019 - 03/2020**] **Visiting Researcher:**
Stevens Institute of Technology, USA
Advisor: *Giuseppe Ateniese*.
- [**2018**] **Master’s degree in Computer Science:**
Sapienza University of Rome, Italy
Final Grade: *110/110 cum laude*
Program of Study: *Network and Security*

Research topics and Expertise:

- Security & Privacy in Machine Learning:
 - Collaborative Learning.
 - **(active)** Large Language models.
 - Password Security (via ML).
 - **(active)** Practical Security & Privacy Crypto-systems (via ML).
 - HPC; General-purpose computing on graphics processing units.
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Tools:

- **ML/Deep Learning:** TensorFlow, PyTorch, and surrounding ecosystem.
- **HPC/Scripting:** C, CUDA C++, MPI, Python, Perl.

Languages:

- English, Italian (mother tongue).

Publications

Top-Conferences (acceptance rate $\sim 15\%$):

- [1] **Dario Pasquini**, Giuseppe Ateniese, Carmela Troncoso. *Universal Neural-Cracking-Machines: Self-Configurable Password Models from Auxiliary Data*. 45th IEEE Symposium on Security and Privacy (S&P '24), San Francisco, CA, USA, May 2024
- [2] **Dario Pasquini**, Mathilde Raynal, Carmela Troncoso. *On the (In)security of Peer-to-Peer Decentralized Machine Learning*. 44th IEEE Symposium on Security and Privacy (S&P '23), San Francisco, CA, USA, May 2023
- [3] **Dario Pasquini**, Danilo Francati, Giuseppe Ateniese. *Eluding Secure Aggregation in Federated Learning via Model Inconsistency*. ACM Conference on Computer and Communications Security (CCS '22), Los Angeles, CA, USA, November 2022
- [4] **Dario Pasquini**, Giuseppe Ateniese, Massimo Bernaschi. *Unleashing the Tiger: Inference Attacks on Split Learning*. ACM Conference on Computer and Communications Security (CCS '21), Seoul, Republic of Korea, November 2021
- [5] **Dario Pasquini**, Marco Cianfriglia, Giuseppe Ateniese, Massimo Bernaschi. *Reducing Bias in Modeling Real-world Password Strength via Deep Learning and Dynamic Dictionaries*. 30th USENIX Security Symposium (USENIX Sec '21), August 2021
- [6] **Dario Pasquini**, Ankit Gangwal, Giuseppe Ateniese, Massimo Bernaschi, Mauro Conti. *Improving Password Guessing via Representation Learning*. 42th IEEE Symposium on Security and Privacy (S&P '21), San Francisco, CA, USA, May 2021.

Other:

- [7] Etienne Salimbeni, Nina Mainusch, **Dario Pasquini**. *Your Email Address Holds the Key: Understanding the Connection Between Email and Password Security with Deep Learning*. 6th Deep Learning Security and Privacy Workshop, May 2023
- [8] **Dario Pasquini**, Giuseppe Ateniese, Massimo Bernaschi. *Interpretable probabilistic password strength meters via deep learning*. 25th European Symposium on Research in Computer Security (ESORICS '20), September 2020.
- [9] **Dario Pasquini**, Marco Mingione, Massimo Bernaschi. *Adversarial out-domain examples for generative models*. IEEE European Symposium on Security and Privacy Workshops, EuroS&P Workshops '19
- [10] Massimo Bernaschi, Pasqua D'Ambra, **Dario Pasquini**. *AMG based on compatible weighted matching for GPUs*. Parallel Computing, 2020.
- [11] Massimo Bernaschi, Pasqua D'Ambra, **Dario Pasquini**. *BootCMatchG: An adaptive Algebraic MultiGrid linear solver for GPUs*. Software Impacts, 2020.