

Dario Pasquini, Ph.D.

19/09/1991, Rome, Italy.

[Personal Page](#)

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Researcher operating at the bleeding edge of security and machine learning, seeking security and privacy solutions that transcend trust, ideal assumptions, and heuristics (*but, in reality, I spend most of my time either breaking ML models or building ML models to break stuff*).

What I do:

- Security & Privacy in Machine Learning:
 - [current focus] Security in Large Language Models
 - Security & Privacy in Collaborative Learning [S&P'23, CCS'22, CCS'21]
 - Password Security (via ML) [S&P'24a, S&P'21, USENIX'21]
 - Security Crypto Protocols (via ML) [S&P'24b, CCS'22]
 - [inactive] HPC; GPGPU, Multi-GPU [ParComp]
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Experience:

- [current] **Postdoctoral Researcher:**
École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
Security and Privacy Engineering Laboratory (SPRING)
 - [2021] **Research Fellow:**
National Research Council (CNR)
Institute for applied mathematics “Mauro Picone” (IAC), Italy, Rome/Naples.
 - [2019 - 2020] **Visiting Researcher:**
Stevens Institute of Technology, New Jersey, USA
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Education:

- [2018 - 2021] **Ph.D. in Computer Science** (fellowship winner):
Sapienza University of Rome, Italy
Advisor: *Massimo Bernaschi* (*massimo.bernaschi@cnr.it*).
 - [2018] **Master and Bachelor degree in Computer Science:**
Sapienza University of Rome, Italy
Final Grade: *110/110 cum laude*
Program of Study: *Network and Security*
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Tools (I enjoy using):

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

- CCS'23, USENIX'23, SaTML 2024.
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Publications

Top-tier Conferences (acceptance rate ~15%):

- [S&P'24b] **Dario Pasquini**, Danilo Francati, Giuseppe Ateniese, Evgenios M. Kornaropoulos. *Breach Extraction Attacks: Exposing and Addressing the Leakage in Second Generation Compromised Credential Checking Services*. 45th IEEE Symposium on Security and Privacy (S&P'24), San Francisco, CA, USA, May 2024
- [S&P'24a] **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
- [S&P'23] **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
- [CCS'22] **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
- [CCS'21] **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
- [USENIX'21] **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
- [S&P'21] **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 Publications:

- [S&Pw'23] 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
- [ESORICS'20] **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

- [EuroS&Pw'19] **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
- [ParComp] Massimo Bernaschi, Pasqua D'Ambra, **Dario Pasquini**. *AMG based on compatible weighted matching for GPUs*. Parallel Computing, 2020
- [SoftImp] Massimo Bernaschi, Pasqua D'Ambra, **Dario Pasquini**. *BootCMatchG: An adaptive Algebraic MultiGrid linear solver for GPUs*. Software Impacts, 2020