Eugenio Nerio Nemmi

EDUCATION AND TRAINING

[2022 – Current] **Postdoc**

Sapienza University of Rome

City: Rome | **Country:** Italy | **Field(s) of study:** Blockchain and internet measurement.

Winner of 'Dipartimento di Eccellenza' grant.

Winner of 'Avvio alla ricerca 2022' grant.

[2018 – 2022] **PhD**

Sapienza University of Rome

City: Rome | **Country:** Italy | **Field(s) of study:** Web privacy, de-anonimization, user profiling and internet measurement.

Winner of 'Avvio alla ricerca 2019' grant.

[2015 – 2018] **MSc in Computer Science**

Sapienza University of Rome

City: Rome | **Country:** Italy | | **Final grade:** 110/110 cum laude

[2015] **BCs in Computer Science**

Sapienza University of Rome

City: Rome | **Country:** Italy |

WORK EXPERIENCE

[09/2023 – Current] **Contract professor**

Sapienza

City: Rome | **Country:** Italy

Professor, for a total of 3 CFUs, of the course "Informatica Generale" at the Department of Mathematics of Sapienza University of Rome. The goal of the course is to learn how to implement common algorithms and teach problem-solving skills. The final project involves the development of a smart Hex player. All the students' Hex players participate in a tournament against each other. The programming language used throughout the course is C++.

[2022 – Current] **postdoc**

Sapienza University of Rome

City: Rome | **Country:** Italy | **Name of unit/department:** Computer Science

I'm currently working on research topics on the blockchain, focusing on studying crypto-assets frauds

[2018 – 2022] **PhD**

Sapienza University of Rome

City: Rome | **Country:** Italy

I worked mainly on privacy and security, using different techniques, among which Machine Learning and Deep Learning, to de-anonymize users thanks to the application of Natural Language Processing and Authorship Attribu- tion techniques on social platforms. I also worked in the Internet measure- ment field, studying new approaches to detect BGP hijacks.

[2019 – 2019]	### Python-MongoDB teacher

SWS Engineering

City: Trento | **Country:** Italy

Teaching Python and MongoDB for 10 days in two different classes of employees.

[2016 – 2022]	### Collaborator

SystemsLab Sapienza

City: Rome | **Country:** Italy

I worked within the SystemsLab research group of the CS department of Sapienza. I have been involved with designing and programming Android applications, ticketing apps, drafting deliverables, and supervising projects. I also worked on web privacy.

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C2 **READING** C2 **WRITING** C2

SPOKEN PRODUCTION C2 **SPOKEN INTERACTION** C1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

DIGITAL SKILLS

My Digital Skills

Python | c++ | Java | Linux | sklearn | Pandas | MongoDB

PROJECTS

Intellcredit

I supervised the development of a software for the visualization of credit recovery trend parameters for Intellcredit S.P.A. and its data analysis.

ARCHEM

Augmented Reality for Cultural Heritage in Etruria Meridionale: POR FESR 2014-2020. Supervision of the development of the demo Android applica- tion. The application leverage AR technology to enhance museum visits.

Infantia@Digitales

INF@NZIA DIGI.tales 3.6, Smart Cities and Communities and Social Innovation, MIUR, 2014-2016. Design the prototype of a game board and its management software that recognize RFID TAGs position to develop childhood learning games.

Spai

Project Spai: Protecting Privacy in Internet Applications, Italian Ministry of Economic Development, 2015. Collaboration with MISE - Garante Privacy. I was involved in designing and developing a tool for verifying the correct implementation of the new Cookie Law by analyzing the cookies used by the sites and the presence of the appropriate banner.

Tiepolo

Mobile ticketing project with Almaviva. I worked on designing and devel- oping three Android applications: one for sale, one for users, and one for controllers. The applications interact to create a single ecosystem for managing, controlling, and selling travel tickets.

SmartTicket

Development of a ticket management system on smart cards using Java-Card. In particular, I developed a software for iso 7816 compliant smart- cards to manage different ticket types in a contactless scenario.

RESEARCH

Blockchain security and frauds

Implementation of a prototype of Multi-Authority Attribute-Based Encryption schema and Smart Contract on EVM chains (Ethereum, Polygon and Avalanche) and on Algorand blockchain [9]. Detection and characterization of NFT Washtrading on the Ethereum blockchain [10].

BGP hijacks and misconfigurations detection

Collaboration with the University of San Diego (UCSD) and the Massachusetts Institute of Technology (MIT) on the development of new techniques and approaches to detect and profile misconfigurations and hijacks on BGP routing using BGP data and administrative information [7].

Dark Web user profiling and matching

Geographic deanonymization of TOR's users and profile matching on Reddit. First, we show that we can detect the geographic origin of the crowds of different hidden services and the users' native language. Second, we show that we can link Dark Web users to Reddit users, breaking anonymity [5][6].

Twitter Bot, Gender and Author Attribution

Detection of Bot and Gender for Twitter accounts and Authorship Attribution of novels [3][4].

Smart Peephole

I was involved in designing a home access security system prototype based on Face Detection, Face Recognition, and Voice Recognition with key phrases [1][2].

PUBLICATIONS

[2023] **[10] A Game of NFTs: Characterizing NFT Wash Trading in the Ethereum Blockchain**

Reference: M. La Morgia, A. Mei, A. M. Mongardini E. N. Nemmi, ICDCS2023.

[2023] **[9] MARTSIA: Enabling Data Confidentiality for Blockchain-based Process Execution**

Reference: E. Marangone, C. Di Ciccio, D. Friolo, E. N. Nemmi, D. Venturi, I. Weber, EDOC2023.

[2023] **[8] Translated Texts Under the Lens: From Machine Translation Detection to Source Language Identification**

Reference: M. La Morgia, A. Mei, E. N. Nemmi, L. Sabatini, F. Sassi, IDA2023.

[2021] **[7] The parallel lives of Autonomous Systems: ASN Allocations vs. BGP**

Reference: E. N. Nemmi, F. Sassi, M. La Morgia, C. Testart, A. Mei, and A. Dainotti, AMC IMC2021.

[2020] **[6] A Light in the Dark Web: Linking Dark Web Aliases to Real Internet Identities**

Reference: A. Arabnezhad, M. La Morgia, A. Mei, E. N. Nemmi, and J. Stefa, IEEE ICDCS 2020

[2020] **[5] Nationality and Geolocation based Profiling in the Dark (Web)**

Reference: M. La Morgia, A. Mei, E. N. Nemmi, Simone Raponi, and J. Stefa, IEEE TSC, 2020

[2019] **[4] Bot and Gender Detection of Twitter Accounts Using Distortion and LSA**

Reference: A. Bacciu, M. La Morgia, A. Mei, E. N. Nemmi, V. Neri, and J. Stefa, CLEF 2019.

[2019] **[3] Cross-Domain Authorship Attribution Combining Instance Based and Profile-Based Features**

Reference: A. Bacciu, M. La Morgia, A. Mei, E. N. Nemmi, V. Neri, and J. Stefa, CLEF 2019.

[2018] **[2] House in the (biometric) cloud: a possible application**

Reference: M. De Marsico, E. Nemmi, B. Prenkaj, and G. Saturni, IEEE Cloud Computing vol IV, 2018.

[2017] **[1] A Smart Peephole on the Cloud**

Reference: M. De Marsico, E. Nemmi, B. Prenkaj, and G. Saturni, "A smart peephole on the cloud," ICIAP 2017