PERSONAL INFORMATION   Jonathan Simeone

Sex | Date of birth | Nationality

WORK EXPERIENCE

2019 - Ongoing

Senior Data Analyst

Datasound SRL, C.da Fonte Lappone, 86090, Pesche (IS), Italy

- Design and development of machine learning based recommender systems
- Development and deployment of Unity web, mobile, PC and VR applications
- Development and deployment of web and mobile applications
- Management of small development teams

TEACHING ACTIVITIES

Jan 2022 – Mar 2022

Mastering Unity: From Setup to Interactive Project Creation

Veteran Defense Center, Ministry of Defense, Rome, Italy

Training Course for Researchers of the Gait Laboratory of the Veteran Defense Center

Duration: 20 hours

Ago 2023 – Jan 2024

VR Development Essentials: Unity and OpenXR

Veteran Defense Center, Ministry of Defense, Rome, Italy

Training Course for Researchers of the Gait Laboratory of the Veteran Defense Center

Duration: 12 hours

EDUCATION AND TRAINING

2019-2022

Master's degree in "Software system security"

Università degli Studi del Molise, Pesche (IS), Italy

Thesis title: "EDISON: a Time-Oriented Context and Application Adaptive Continuous-Authentication Framework*"*

Final grade: 110/110 *Cum Laude*

2016-2019

Bachelor's degree in "Computer science"

Università degli Studi del Molise, Pesche (IS), Italy

Thesis title: "VI.MEN.T: un sistema videoludico terapeutico per bambini con ADHD*"*

Final grade:110/110 *Cum Laude*

PERSONAL SKILLS

Mother tongue(s)   Italian

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2

Communication skills	Good communication skills gained through my experience in Datasound during face-to-face meetings with customers. I have also improved my communication skills by providing tutoring sessions to my peers throughout my university studies.

Organisational / managerial skills

I enhanced my organizational and managerial skills at Datasound, where I successfully led small teams of developers. Additionally, I further developed these skills by co-tutoring the following master's and bachelor's thesis:

- Student: Martina Buro
  Master's thesis title: "Enhancing Edison: automatic setting of engine parameters in the continuous authentication pipeline" *(pending)*
  University: Università degli Studi del Molise, Pesche (IS), Italy
  Tutor: Prof. Stefano Ricciardi
  To be defended on: April 2024
- Student: Antonio Antenucci
  Master's thesis title: "Empirical Assessment of Different Security Threat Models on Real Applications"
  University: Università degli Studi del Molise, Pesche (IS), Italy
  Tutor: Prof. Rocco Oliveto
  To be defended on: February 2024
- Student: Domenico Carlini
  Bachelor's thesis title: "Un Sistema software per il monitoraggio remoto dei parametri climatici di una vigna"
  University: Università degli Studi del Molise, Pesche (IS), Italy
  Tutor: Prof. Rocco Oliveto
  Defended on: October 2023
- Student: Alessio Di Giovanni
  Bachelor's thesis title: "Da IoRianimo a React: una nuova app per la creazione di una rete di primo soccorso"
  University: Università degli Studi del Molise, Pesche (IS), Italy
  Tutor: Prof. Rocco Oliveto
  Defended on: February 2023

Job-related skills

- Proficient in key technologies used in Datasound, demonstrating a comprehensive understanding and application of industry-relevant tools and systems.
- Strong expertise in quality control processes, ensuring high standards of work through meticulous oversight and effective implementation of best practices.
- Exceptional teamwork abilities, characterized by effective collaboration, communication, and a commitment to collective success in diverse team settings.

Computer skills

- Excellent knowledge of the OOP paradigm
- Excellent knowledge of the Java programming language
- Good knowledge of the Python programming language
- Good knowledge of Matlab
- Standard knowledge of the C programming language
- Good knowledge of the HTML, CSS, Javascript and PHP
- Good knowledge of WordPress
- Good knowledge of relational and non-relational databases
- Good knowledge of mobile applications development
- Excellent knowledge of Git versioning control system
- Excellent knowledge of Docker and Gitlab CI/CD
- Good knowledge of machine learning
- Excellent knowledge of the Unity engine and Unity Version Control
- Excellent knowledge of C# applied in Unity

Main Frameworks:
- Springboot (Java backend applications)
- JPA (Object-Relational Mapping)
- Angular (Frontend applications)
- Ionic (Hybrid mobile apps)

Driving licence   B

PUBLICATIONS

Journal publications

2Vita-B Physical: An Intelligent Home Rehabilitation System Based on Microsoft Azure Kinect
(Human and Artificial Collaboration for Medical Best Practices / Frontiers in Human Dynamics · 28 set 2021)
https://www.frontiersin.org/articles/10.3389/fhumd.2021.678529/full

Postural control assessment via Microsoft Azure Kinect DK: An evaluation study
(Computer Methods and Programs in Biomedicine / Elsevier · 10 ago 2021)
https://www.sciencedirect.com/science/article/abs/pii/S0169260721003989?via%3Dihub

Conference publications

A Virtual Assistant for Home Rehabilitation: the 2Vita-B Physical Project
(Institute of Electrical and Electronics Engineers · 10 set 2021)
https://ieeexplore.ieee.org/document/9584548

MIPHAS: Military Performances and Health Analysis System
(Proceedings of the 13th International Joint Conference on Biomedical Engineering Systems and Technologies - (Volume 5, Health Informatics) / Scitepress Digital Library · 1 feb 2020)
https://www.scitepress.org/Link.aspx?doi=10.5220/0008989401980207

ADDITIONAL INFORMATION

Personal projects

EDISON
Edison (gEneralized aDaptive contInuouS authenticatiOn eNgine) is my research project for my master's thesis in Software Systems Security and involved the development of a novel generalizable, adaptive, reliable and time-oriented multibiometric continuous authentication framework equipped with context and anomaly detection mechanisms. The generalizability of the approach lies in its independence from specific hardware or biometric architectures. In addition, I created a possible implementation of the approach through an Android mobile app written in Java and a backend written in Python and Matlab. For this implementation, I used state-of-the-art machine learning-based approaches to handle face, voice, and gait authentication.

LUST
In the course of a machine learning exam I created LUST, a predictive model that can classify the topic of a legal question. I built the dataset developing a crawler that extracted legal questions from various websites and I trained the model obtaining good results through Support Vector Machine (SVM) and a pre-trained Neural Network on which I performed fine tuning on my dataset that I balanced with text augmentation techniques.

ZeroTwo: my Cryptolocker Ransomware
As a project for a security exam I developed ZeroTwo, a cryptolocker ransomware written in C# effective against an up-to-date Windows system with virus protection. ZeroTwo presents itself as a simple image. In fact, once opened, nothing happens except for the image itself opening. Yet, once the file is executed, the system is infected with malicious and absolutely "silent" extraction of destructive code and infected registry keys. The lack of suspicious video output is manageable through the use of various VBS and batch scripts. Once the computer is accessed again, however, the malware activates, encrypts the user's files and extracts a reverter with instructions to pay the ransom. In addition, once the damage is done, the malware self-deletes from the system, leaving no trace. I made the malware undetectable by antivirus software through antivirus evasion techniques, such as encrypting and encoding the malicious payload. Also, thanks to some heuristics, I was able to point out some vulnerabilities specific to Windows Defender, especially with regard to avoiding its cloud analysis.

Teaching Unity to Italian Defense

In Datasound, we conducted a home rehabilitation project that involved implementing a motion capturing and analysis system using a Microsoft Azure Kinect and a predictive model based on machine learning to evaluate the correctness of rehabilitation exercises. The project, based on Unity technology, has been carried out in collaboration with the Defense Veterans Center and Atlantica. Following the project, I provided theoretical and practical lessons to illustrate the basic operation of the engine to militaries. The lectures took place via videoconference and, in addition, there was a final in-person workshop at the Rome "Celio" Military Hospital.

CTR

CTR is a crawler capable of clustering Tweets by topic. For each cluster, moreover, a set of labels identifying the main topics is automatically assigned. Sentiment analysis is also performed for each tweet within the cluster. The main purpose of the project was to provide a useful tool for tourism agencies, which could easily identify trends or negative situations to better design tour packages, but obviously the approach can be considered quite generic and adaptable to any social network analysis context.

VIMENT

As an experimental thesis for my computer science degree, I developed using the Unity engine a video game for children with ADHD (Attention-Deficit/Hyperactivity Disorder). The project contains two challenges: a revised version of the stroop test (with a variant for children not yet able to read) and a "mind race." In the latter challenge, it is necessary to make a car move as fast as possible on a circuit and the car maintains a speed directly proportional to the child's concentration, which is measured through a mindband that can capture brain waves. During both challenges, heart rate is also continuously captured through a finger sensor that communicated with the application through an Arduino board.

Horror videogames development

During my spare time I develop horror videogames in Unity. In my games, I often use survival mechanics: the player is in a hostile and gloomy environment and he has to find some objects in order to leave it. An enemy entity is always present scouting and searching for the player. The player usually has no weapons to defend himself and he has to avoid contact with the enemy or hide when possible. If detected, the player must run away until his tracks are lost.