





Curriculum Vitae – 5th November 2024

VIVIANA PENTANGELO

 vipenti.github.io

 vpentangelo@unisa.it  linkedin.com/in/vivianapentangelo/  github.com/vipenti

Viviana Pentangelo is a Ph.D. Student in Computer Science at the University of Salerno. Her research interests primarily revolve around Metaverse Engineering, intending to define theories, frameworks, and best practices that can guide its development. Specifically, she focuses on analyzing machine learning techniques for automatically generating 3D environments to promote the creation and dissemination of metaverse solutions. Furthermore, she has the E-Health context as a case study to study the potential benefits that metaverse platforms could bring to the medical field.

Personal Information

- **Date of Birth:** May 26, 2000
- **Current Location:** Salerno (SA) - Italy
- **Place of Birth:** Torino (TO) - Italy
- **Nationality:** Italian

Education

Doctor of Philosophy

Nov. 2023 – Present

University of Salerno — Salerno (SA) - Italy

Ph.D. course in Computer Science at Software Engineering Salerno (SeSa) Lab

Advisor: Prof. Fabio Palomba

Master's Degree (cum laude)

Sep. 2021 – Sep. 2023

University of Salerno — Salerno (SA) - Italy

Master's Degree in Computer Science with final grade 110/110 cum laude

Thesis title: “The Metaverse Classroom: Development and Evaluation of an Engineered Educational Metaverse”

Supervisor: Prof. Fabio Palomba

Bachelor's Degree (cum laude)

Sep. 2018 – Sep. 2021

University of Salerno — Salerno (SA) - Italy

Bachelor's Degree in Computer Science with final grade 110/110 cum laude

Thesis title: “Automated Generation of 3D Human Models for Virtual Fitting”

Supervisors: Prof. Andrea F. Abate, Dr. Ignazio Passero

Research Areas

Her main research areas are Metaverse Engineering, with a particular focus on Machine Learning techniques for the generation of 3D environments, and Metaverse for E-Health.

- **Metaverse Engineering:** Emerging metaverse applications are complex platforms that require expertise from various fields. To promote their development and dissemination, her research focuses on developing frameworks, theories, guidelines, and best practices that guide the community in developing such platforms.
- **Machine Learning for Computer Graphics:** 3D computer graphics form the foundation of metaverse platforms. Efficiently developing environments, avatars, and 3D objects on a large scale is a lengthy process accessible only to those with the right technical expertise. Her research aims to study and define strategies and techniques based on Machine Learning, especially computer vision, to support a more efficient and accessible creation of such environments.
- **Metaverse for E-Health:** The case study she focuses on pertains to potential metaverse solutions in the medical field. Its collaborative and highly immersive nature can bring significant benefits to medical personnel training activities, breaking free from the constraints of physical space availability and the lack of dedicated equipment. The boundless ability to create 3D objects and scenes and make them interactable in real time paves the way for unprecedented scenarios and simulations for diagnostic and surgical procedures. Therefore, her research aims to study and develop metaverse platforms that can effectively support these activities.

Publications

V. Pentangelo, C. Gravino and F. Palomba. “From Zero to Hero: A Scoping Review of the Emergence of the Metaverse in the Virtual Environments History.” October 2024, Preprint available at Research Square. (Submitted at Journal of Virtual Reality)

V. Pentangelo, D. Di Dario, V. De Martino, M. Dello Buono, and S. Lambiase. “Accelerating 3d scene development for the metaverse: Lessons from photogrammetry and manual modeling.” Proceedings of the 2nd International Conference on Intelligent Metaverse Technologies Applications (iMETA2024) 2024.

V. Pentangelo, D. Di Dario, S. Lambiase, F. Ferrucci, C. Gravino and F. Palomba. “SENEM: A software engineering-enabled educational metaverse.” Information and Software Technology. Page 107512, 2024.

D. Di Dario, **V. Pentangelo**, M. I. Colella, F. Palomba and C. Gravino. “Collecting and implementing ethical guidelines for emotion recognition in an educational metaverse” Adjunct Proceedings of the 32nd ACM Conference on User Modeling, Adaptation and Personalization, UMAP Adjunct '24, page 549–554, New York, NY, USA, 2024. Association for Computing Machinery.

D. Di Dario, G. Sellitto, **V. Pentangelo**, M. L. Fede and F. Ferrucci. “Breaking barriers in the metaverse: A comprehensive exploration of accessibility for users with disabilities.” Artificial Intelligence with and for Learning Sciences. Past, Present, and Future Horizons, pages 45–55, Cham, 2024. Springer Nature Switzerland.

G. Voria, **V. Pentangelo**, A. Della Porta, S. Lambiase, G. Catolino, F. Palomba, F. Ferrucci, “Community Smell Detection and Refactoring in SLACK: The CADOCS Project”, *IEEE International Conference on Software Maintenance and Evolution (ICSME)*, 2022, doi: 10.1109/ICSME55016.2022.00061.

Teaching Activities

Guest Lecturer for Software Engineering For Artificial Intelligence **2024**
University of Salerno — Salerno (SA) - Italy

Guest Lecturer in the course of Prof. Fabio Palomba at the Master’s Degree of Computer Science at the University of Salerno.

Teaching Assistant of Fundamentals of Artificial Intelligence **2023**
University of Salerno — Salerno (SA) - Italy

Teaching Assistant in the course of Prof. Fabio Palomba at the Bachelor’s Degree of Computer Science at the University of Salerno.

Thesis Co-Supervising

Giovanni Casaburi, Bachelor’s Degree **October 2024**
Prof. Fabio Palomba

Thesis title: “MedAid: A Metaverse Platform for the Training of Diabetes Diagnosis”

Luigi Turco, Bachelor’s Degree **October 2024**
Prof. Fabio Palomba

Thesis title: “Smart Students Simulation in the Metaverse”

Rosa Carotenuto, Bachelor’s Degree **October 2024**
Prof. Fabio Palomba

Thesis title: “Diabetes Prediction using Genomic Data and Explainable Machine Learning”

Fabio Caruso, Bachelor’s Degree **September 2024**
Prof. Fabio Palomba

Thesis title: “A Systematic Literature Review on the Metaverse for Medicine from an Ethical Perspective”

Francesco Matteis, Bachelor’s Degree **June 2024**
Prof. Fabio Palomba

Thesis title: “A Novel Approach for the Automated Generation of Mesh and Textures from a Single Image”

Marco Dello Buono, Master’s Degree **February 2024**
Prof. Fabio Palomba

Thesis title: “Image to Metaverse: A technique for the creation of real scenes in the Metaverse”

Talks & Seminars

2nd International Conference on Intelligent Metaverse Technologies & Applications **2024**
Dubai, UAE

Paper Presentation titled “Accelerating 3D Scene Development for the Metaverse: Lessons from Photogrammetry and Manual Modeling”, *at the 2nd International Conference on Intelligent Metaverse Technologies (iMETA 2024)*.

15th Seminar on Advanced Techniques & Tools for Software Evolution **2023**
University of Salerno — Salerno (SA) - Italy

Presentation titled “Conversational Agents for the Detection Of Community Smells: The CADOCS Project”, at the 15th Seminar on Advanced Techniques & Tools for Software Evolution (SATToSE).

Organizing Committee Member

Security Testing for Complex Software Systems **2024**
Salerno, Italy

Web & Publicity Chair for the 1st Workshop on *Security Testing for Complex Software Systems* (SECUTE 2024).

Evaluation and Assessment in Software Engineering **2024**
Salerno, Italy

Local Arrangement Committee Member for the 28th Conference on *Evaluation and Assessment in Software Engineering* (EASE 2024).

International Summer School on Software Engineering **2024**
Salerno, Italy

Student Volunteer for the 17th *International Summer School on Software Engineering* (ISSSE 2024).

Reviewer Service

SoftwareX **2024**

Reviewer for the *SoftwareX* Journal

Computer-Supported Cooperative Work & Social Computing **2024**

Reviewer for the 28th ACM SIGCHI Conference on *Computer-Supported Cooperative Work & Social Computing* (CSCW2024)

Artificial Intelligence with and for Learning Sciences **2024**

Reviewer for the 1st Workshop on *Artificial Intelligence with and for Learning Sciences* (WAILS2024)

Multimedia Tools & Applications **2023**

Reviewer for *Multimedia Tools & Applications* International Journal

Reviewer for *Multimedia Tools & Applications Special Issue: Metaverse and E-Learning Platforms*

Academic Projects

The Metaverse Classroom | *Unity3D, Photon, C#, Blender* **2023**

A collaborative 3D virtual environment for academic and educational purposes developed with Unity3D
github.com/vipenti/Metaverse_Classroom

CADOCS | *Python, Slack* **2022**

A conversational agent for the detection of community smells
github.com/gianwario/CADOCS

AI Plays Tetris | *Unity3D, C#* **2022**

An Unity3D and ML-Agents project with neural network trained by reinforcement learning that plays the Tetris game
github.com/vipenti/Tetris-MLAgents

ASL Alphabet Recognition | *Python* **2022**

A Convolutional Neural Network that can recognize the ASL Alphabet live with a webcam
github.com/vipenti/ASL-Alphabet-Recognition-RealTime

3D Human Body Generator | *Python, Blender, HTML* **2021**

A web tool to create a fully customizable 3D human body with given the body measurements
github.com/vipenti/3D-Human-Body-Generator

Biblionet | *HTML, CSS, Java, Javascript, Thymeleaf* **2021**

A Spring Boot web application for library support
github.com/StefanoLambiase/biblionet

English Certifications

Certification of General English at level C1 **Aug. 2018**

University College of Dublin Centre — Dublin, Ireland

Certification obtained after a two-week English school in the University College of Dublin

Certification of General English **Aug. 2017**

Embassy Docklands Centre — London, England

Certification obtained after a two-week English school in the Embassy Docklands of London

Cambridge English Certificate Level B2 **Jun. 2016**

Salerno (SA) - Italy

Cambridge English Level 1 Certificate in ESOL International (Preliminary)

Technical Skills

Languages: Python, C, C#, Java, LaTeX, R

Web: HTML5, CSS, JavaScript, Bootstrap, Thymeleaf

Framework: Spring MVC, Spring Boot, Robot Operating System, Selenium

Tools: Unity3D, Blender, IntelliJ, Eclipse, VS Code, NetBeans, PyCharm, Android Studio, R Studio, Jupyter, Balsamiq, Visual Paradigm

Database: SQL, MongoDB

Versioning: Git, GitHub, GitLab

Privacy Treatment

In compliance with the GDPR and the Italian Legislative Decree no. 196 dated 30/06/2003, I hereby authorize you to use and process my personal details contained in this document.

Fisciano, 5th November 2024

