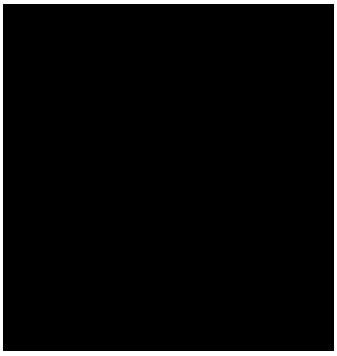
Eugenio Pellis

Curriculum Vitae et Studiorum



Personal

First Name
Last Name
Birth Date
Place of Birth
Nationality
Address
Phone
E-Mail

Languages

Italian	**Native**
English	**Fluent**
Spanish	**Good**

Research Activity

I earned my Ph.D. in Civil and Environmental Engineering at the University of Florence, Italy, with a joint Ph.D. title in Geomatics and Computer Vision at the University of Strasbourg, France. My doctoral research involved the classification of heritage building point clouds through deep learning techniques. Other research interests include automation in 3D and BIM modelling, point cloud acquisition and processing, numerical simulation for civil and structural engineering applications, structural health monitoring, artificial intelligence and computer vision.

Academic Positions

01/02/2024 – 28/02/2025 **Assegnista di Ricerca**
Università degli Studi di Firenze, Italy
Project title: *Development and implementation of machine learning approaches for the documentation, protection and preservation of cultural heritage*
Supervisor: prof. Michele Betti
Activity: Implementation of semantic segmentation techniques for documentary data obtained from point clouds from the perspective of Scan-to-BIM-to FEM, and implementation of machine learning techniques for the documentation of cracks.

01/02/2023 – 01/02/2024 **Assegnista di Ricerca**
Università degli Studi di Firenze, Italy
Project title: *Machine Learning-based Macro-plastic detection on UAV imagery*
Supervisor: prof. Andrea Masiero
Activity: Participation in survey campaigns aimed at detecting macro-plastics in river environments using photogrammetry and laser scanners, supported by unmanned aerial vehicles (UAVs).

01/11/2019 – 31/01/2023 **Ph.D. Student**
International Doctorate in Civil and Environmental Engineering
Università degli Studi di Firenze, Italy
Supervisors: prof. Grazia Tucci, prof. Andrea Masiero, prof. Michele Betti

Visiting

01/09/2021 – 31/06/2022 **Visiting Ph.D. Student**
Institut National des Sciences Appliquées (INSA)
University of Strasbourg, Strasbourg, France
Supervisor: Pierre Grussenmeyer

01/03/2017 – 31/07/2017 **Visiting Master Student**
ICHITEC Structure's Laboratory
Polytechnic University of Valencia, Valencia, Spain
Supervisor: José Adam Miguel Martinez
Activity: Involvement in the construction of a masonry cross-vault subjected to static tests to assess its structural behaviour, and subsequently followed by numerical simulations of the tests through 3D modeling and finite element analyses.

Professional Experiences

01/11/2018 – present **Kobe Innovation Engineering s.r.l.**, Sesto Fiorentino, Italy
Start-up and approved spin-off at the University of Florence dealing with numerical simulation, civil and structural engineering, structural health monitoring and software development.
position: project collaborator

01/08/2018 – 31/10/2018 **DICEA,** Dipartimento di Ingegneria Civile e Ambientale, Firenze, Italy
MOSCARDO Project – ICT technologies for structural monitoring of historical buildings with wireless sensor networks and drones.
position: project collaborator
Activity: 3D modeling from point cloud and structural assessment with FEM analyses of the dome of basilica della Madonna dell'Umilta' in Pistoia.

Education

2019 – 2023 **Ph.D. in Civil and Environmental Engineering**
International Doctorate in Civil and Environmental Engineering
Università degli Studi di Firenze, Italy
Ph.D. in Engineering Sciences – Geomatics and Computer Vision
Ecole Doctorale en Mathématiques, Sciences de l'Information et de l'Ingénieur
University of Strasbourg, France
Joint Ph.D. title
Thesis title: *A Multiview Approach for the Semantic Segmentation of Heritage Building Point Clouds*
Supervisors: Grazia Tucci, Andrea Masiero, Michele Betti, Pierre Grussenmeyer
Graduation date: 25/09/2023
Grade: Excellent

2014 – 2018 **Laurea Magistrale in Ingegneria dei Sistemi Edilizi** (Classe LM-24)
Scuola di Ingegneria
Università degli Studi di Firenze, Italy
Thesis title: *Bóvedas Tabicadas: Analisi Storica e Costruttiva, Prove in Laboratorio su una Volta a Crociera in Muratura Sottoposta a Cedimento Differenziale e Modellazione con Metodo agli Elementi Finiti*
Supervisors: Gianni Bartoli, Michele Betti, Francesco Lensi, José Miguel Martinez
Graduation date: 18/04/2018
Grade: 110/110

2008 – 2014 **Laurea Triennale in Ingegneria Edile** (Classe L-23)
Scuola di Ingegneria
Università degli Studi di Firenze, Italy
Thesis title: *Progetto Architettonico di un Nuovo Complesso Residenziale a Fiesole*
Supervisor: Oswald Zoeggler
Graduation date: 23/07/2014
Grade: 100/110

Publications

- **Journal Articles**

[1] Fiorini, L., Conti, A., **Pellis, E.,** Bonora, V., Masiero, A., Tucci, G. (2024). *Machine Learning-Based Monitoring for Planning Climate-Resilient Conservation of Built Heritage*. Drones 8(6):249. https://doi.org/ 10.3390/drones8060249.

[2] Murtiyoso, A., **Pellis, E.,** Grussenmeyer, P., Landes, T., Masiero, A. (2022). *Towards Semantic Photogrammetry: Generating Semantically Rich Point Clouds from Architectural Close-Range Photogrammetry.* Sensors. 22(3):966. https://doi.org/10.3390/s22030966.

[3] Betti, M., Bonora, V., Galano. L., **Pellis, E**., Tucci, G., Vignoli, A. (2021). *An Integrated Geometric and Material Survey for the Conservation of Heritage Masonry Structures*. Heritage. 4(2), 585-611. https://doi.org/10.3390/heritage4020035

- **Conference Papers**

[4] Gurturk, M., Masiero, A., Toth, C., Dabove, P., Di Pietra, V., Vettore, A., Guarnieri, A., Cortesi, I., **Pellis, E.**, and Soycan, M. (2023). *A Test on Collaborative Vision and UWB-Based Positioning*. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLVIII-1/W2-2023, 1185-1190. https://doi.org/10.5194/isprs-archives-XLVIII-1-W2-2023-1185-2023.

[5] **Pellis, E.**, A., Masiero, A., Cortesi, I., Tucci, G., Betti, M., and Grussenmeyer, P. (2023). *Synthetic Data Generation and Testing for the Semantic Segmentation of Heritage Buildings*. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLVIII-M-2-2023, 1189-1196. https://doi.org/ 10.5194/isprs-archives-XLVIII-M-2-2023-1189-2023.

[6] **Pellis, E.**, A., Masiero, A., Cortesi, I., Tucci, G., Betti, M., and Grussenmeyer, P. (2023). *A Performance Comparison Between SegNet and DeepLabv3+ on the Semantic Segmentation of Heritage Buildings*. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLVIII-1/W1-2023, 379-386. https://doi.org/10.5194/isprs-archives-XLVIII-1-W1-2023-379-2023.

[7] **Pellis, E.**, Murtiyoso, A., Masiero, A., Tucci, G., Betti, M., and Grussenmeyer, P. (2022). *2D to 3D Label Propagation for the Semantic Segmentation of Heritage Building Point Clouds*. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLIII-B2-2022, 861–867. https://doi.org/10.5194/isprs-archives-XLIII-B2-2022-861-2022.

[8] **Pellis, E**., Murtiyoso, A., Masiero, A., Tucci, G., Betti, M., and Grussenmeyer, P. (2022). *An image-based Deep Learning Workflow for 3D Heritage Point Cloud Semantic Segmentation*. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLVI-2/W1-2022, 429–434. https://doi.org/10.5194/isprs-archives-XLVI-2-W1-2022-429-2022.

[9] **Pellis, E.**, Masiero, A., Tucci, G., Betti, M., and Grussenmeyer, P. (2021). *Assembling an Image and Point Cloud Dataset for heritage Building Semantic Segmentation*. Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLVI-M-1-2021, 539–546, https://doi.org/10.5194/isprs-archives-XLVI-M-1-2021-539-2021.

[10] **Pellis, E**., Masiero, A., Tucci, G., Betti, M., and Grussenmeyer, P. (2021). *Towards an Integrated Design methodology for H-BIM.* ARQUEOLOGICA 2.0 – 9th International Congress & 3rd GEORES. 10.4995/arqueologica9.2021.12158.

[11] Kovačević V.C., **Pellis E**., Betti M., Borri C., Tucci G., Milburn A. (2020). *Digital Modelling and Numerical Simulation as an open support for Notre-Dame de Paris Conservation*. - (2020), Proceedings of the Scientific Symposium Building Peace through Heritage - World Forum to Change through Dialogue, pp. 337-352, Firenze 13-15 Marzo.

Conference Talks

- *A deep learning multiview approach for the semantic segmentation of heritage building point clouds*
  GeoAI 2023, December 14-15, Turin, Italy.
  https://sites.google.com/view/geo-ai-2023/home
- *Synthetic Data Generation and Testing for the Semantic Segmentation of Heritage Buildings*
  CIPA 2023 Symposium, June 25-30, Florence, Italy.
  https://www.cipa2023florence.org/
- *A Performance Comparison Between SegNet and DeepLabv3+ on the Semantic Segmentation of Heritage Buildings*
  12th International symposium on Mobile Mapping Technology 2023, May 24-26, Padua, Italy.
  https://www.cirgeo.unipd.it/mmt/
- *2D to 3D Label Propagation for the Semantic Segmentation of Heritage Building Point Clouds*
  ISPRS CONGRESS 2022, June 6-11, Nice, France.
  https://www.isprs2022-nice.com/
- *An image-based Deep Learning Workflow for 3D Heritage Point Cloud Semantic Segmentation*
  9th International Workshop 3D ARCH, 2-4 March 2021, Mantua, Italy.
  http://www.3d-arch.org/
- *Assembling an Image and Point Cloud Dataset for heritage Building Semantic Segmentation*
  CIPA 2021 Symposium, August 28 – September 1, Beijing, China, hybrid format conference
  https://www.cipa2021.org/
- *Towards an Integrated Design methodology for H-BIM*
  ARQUEOLOGICA 2.0 & GEORES 2021, 26-28 April, Valencia, Spain, virtual conference
  https://arqueo9-geores3.webs.upv.es/

Invited Talks

- *A Deep Learning Multiview Approach for the Semantic Segmentation of Heritage Building Point Clouds*
  2GG – Due Giorni di Geomatica, Italian National Workshop, 2024 July 15-16, L'Aquila, Italy.

- *A Multiview Approach for the Semantic Segmentation of Heritage Buildings*
  Digitization in the Built Environment, International Doctoral Workshop, 2022 December 1, Florence, Italy.
  https://www.indicee.unifi.it/vp-183-archive-2022

Awards

- **AUTeC Ph.D. Thesis Award 2024**
  http://www.autec-geomatica.it/

Educational Activity

- **Seminars**

25/10/2022 **Intelligenza Artificiale ed HBIM**
Un approccio per l'automatizzazione dei processi costruttivi di modelli BIM per edifici storici
course: Analisi Strutturale di Costruzioni Storiche
professor: Michele Betti

Review

2025 Geomatica
Invitation email from Andrea Masiero (em@editorialmanager.com)

2024 Journal on Computing and Cultural Heritage
Invitation email from Michele Betti (onbehalfof@manuscriptcentral.com)

2024 Journal on Computing and Cultural Heritage
Invitation email from Michele Betti (onbehalfof@manuscriptcentral.com)

2024 Journal on Computing and Cultural Heritage
Invitation email from Michele Betti (onbehalfof@manuscriptcentral.com)

2022 International Journal of Applied Earth Observation and Geoinformation
Invitation email from Andrea Masiero (em@editorialmanager.com)

In compliance with the GDPR and the Italian Legislative Decree no. 196 dated 30/06/2033, I hereby authorize the use and processing of my personal details contained in this document.

[redacted]

[redacted]