

# DANIELE PALA

## CURRICULUM VITAE

**Date of birth:** November 3<sup>rd</sup>, 1992 Segrate (Italy)

**Nationality:** Italian

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### CURRENT POSITION

Apr 2023 – Ongoing: **ASSISTANT PROFESSOR (RTDa)**

**Università degli Studi di Pavia**

Department of Electrical, Computer and Biomedical Engineering

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### PREVIOUS POSITIONS

Apr 2022 – Apr 2023: **POSTDOCTORAL RESEARCHER**

**University of Pennsylvania – Perelman School of Medicine**

Development of machine learning-based strategies to predict the progression of Alzheimer's Disease from GWAS data, brain imaging data and environmental exposures.

Shen Lab, Department of Biostatistics, Epidemiology and Informatics

Supervisor: Prof. Li Shen

Apr 2021 – Apr 2023: **ADJUNCT PROFESSOR**

**Università degli Studi di Pavia**

Professor of the course "Principi di Informatica" (Principles of Informatics) at the Faculty of Medicine and Surgery.

Dec 2020 – Mar 2022: **POSTDOCTORAL RESEARCHER**

**Università degli Studi di Pavia**

Creation of machine learning and statistical models based on remote sensing, land use regression and satellite data to assist Multiple Sclerosis patients and study their disease progression related to environmental exposures in the context of the EU BRAINTEASER Project.

Design and development of the European Covid-19 Atlas in the context of the EU PERISCOPE Project.

Laboratory for Biomedical Informatics

Supervisor: Prof. Riccardo Bellazzi

Sep 2018 – Feb 2019: **VISITING PhD STUDENT**

**College of Global Public Health – New York University, New York, USA.**

Integration of multi-source data to study the relations among air pollutants, socioeconomic and demographic factors and asthma and diabetes hospitalizations in the different neighborhoods of New York City; construction of an Agent-Based Model for the simulation of public health interventions to prevent asthma in the city.

Sep 2018 – Feb 2019: **RESEARCH COLLABORATOR**

**Center of Health Innovation – The New York Academy of Medicine.**

Analysis and integration of New York State's SPARCS dataset (Statewide Planning and Research Cooperative System) in the PULSE system.

May 2017 – Sep 2017: **RESEARCH FELLOW**

**Università degli studi di Pavia – Dipartimento di ingegneria industriale e dell'informazione**

Development of matrix trifactorization methods for the computation of patient similarity through integration of highly heterogeneous clinical, genetic, functional and diagnostic data.

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## EDUCATION

Sep 2017 – Nov 2020: **PHD IN BIOENGINEERING AND BIOINFORMATICS**

**Università degli Studi di Pavia**

Dissertation title: Spatial Enablement and Simulation Tools to Improve Public Health and Wellbeing in Big Cities: a New Framework Based on the European PULSE Project.

Laboratory for Biomedical Informatics

Supervisor: Prof. Riccardo Bellazzi

Feb 2015 – Apr 2017: **MASTER'S DEGREE IN BIOENGINEERING**

**Università degli studi di Pavia – Dipartimento di ingegneria industriale e dell'informazione**

Final mark: 110/110

Thesis: "Matrix tri-factorization algorithms for the computation of patient similarity with heterogeneous data: development and applications"

Laboratory for Biomedical Informatics, University of Pavia (Italy)

Advisor: Prof. Riccardo Bellazzi

Sep 2011 – Feb 2015: **BACHELOR'S DEGREE IN BIOENGINEERING**

**Università degli studi di Pavia – Dipartimento di ingegneria industriale e dell'informazione**

Advisor: Prof. Giovanni Magenes

Sep 2006 – Jul 2011: **SCIENTIFIC HIGH SCHOOL DIPLOMA**

**Liceo Scientifico Lorenzo Mossa, Olbia**

Final mark: 100/100 with honors

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## LANGUAGE SKILLS

### ENGLISH

Speaking, writing and listening: fluent

### SPANISH

Speaking, writing and listening: basic knowledge

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## PUBLICATIONS

1. **Pala, D.**, Pagán, J., Parimbelli, E., Rocca, M. T., Bellazzi, R., & Casella, V. (2019). Spatial Enablement to Support Environmental, Demographic, Socioeconomics, and Health Data Integration and Analysis for Big Cities: A Case Study With Asthma Hospitalizations in New York City. *Frontiers in medicine*, 6, 84. <https://doi.org/10.3389/fmed.2019.00084>
2. **Pala, D.**; Caldarone, A.A.; Franzini, M.; Malovini, A.; Larizza, C.; Casella, V.; Bellazzi, R. Deep Learning to Unveil Correlations between Urban Landscape and Population Health. *Sensors* 2020, 20, 2105. <https://doi.org/10.3390/s20072105>
3. **Pala, D.**, Casella, V., Larizza, C., Malovini, A., & Bellazzi, R. (2022). Impact of COVID-19 lockdown on PM concentrations in an Italian Northern City: A year-by-year assessment. *PLoS one*, 17(3), e0263265. <https://doi.org/10.1371/journal.pone.0263265>
4. **Pala, D.**; Parimbelli, E.; Larizza, C.; Cheng, C.; Ottaviano, M.; Pogliaghi, A.; Đukić, G.; Jovanović, A.; Milićević, O.; Urošević, V.; Cerchiello, P.; Giudici, P.; Bellazzi, R. (2022): A New Interactive Tool to Visualize and Analyze COVID-19 Data: The PERISCOPE Atlas. *Int. J. Environ. Res. Public Health*, 19, 9136. <https://doi.org/10.3390/ijerph19159136>
5. Vitali, F.; Marini, S.; **Pala, D.**; Demartini, A.; Montoli, S.; Zambelli, A.; Bellazzi, R.: Patient similarity by joint matrix trifactorization to identify subgroups in acute myeloid leukemia, *JAMIA Open*, 2018, Volume 1, Issue 1, Pages 75-86
6. **D. Pala**, B. Lee, X. Ning, D. Kim and L. Shen, "Mediation Analysis and Mixed-Effects Models for the Identification of Stage-specific Imaging Genetics Patterns in Alzheimer's Disease," *2022 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, Las Vegas, NV, USA, 2022, pp. 2667-2673, doi: 10.1109/BIBM55620.2022.9995405.
7. **Pala, D. et al.** (2019). Agent-Based Models and Spatial Enablement: A Simulation Tool to Improve Health and Wellbeing in Big Cities. In: Riaño, D., Wilk, S., ten Teije, A. (eds) *Artificial Intelligence in Medicine. AIME 2019. Lecture Notes in Computer Science()*, vol 11526. Springer, Cham. [https://doi.org/10.1007/978-3-030-21642-9\\_11](https://doi.org/10.1007/978-3-030-21642-9_11)
8. **Pala, D.**, Rocca, M. and Casella, V. Advantages and Difficulties of using Spatial Enablement to Support Public Health in Cities: The PULSE Case Study. In *Proceedings of the 5th International Conference on Geographical Information Systems Theory, Applications and Management (GISTAM 2019)*, pages 322-329 ISBN: 978-989-758-371-1. DOI: 10.5220/0007900003220329
9. **Pala, D.**; Annovazzi-Lodi, L.; Bellazzi, R.; Fiscante, N.; Franzini, M.; Larizza, C.; Pogliaghi, A.; Raso, L.; Rocca, M. T.; Sapio, F.; and Casella, V. (2020): THE KEY ROLE OF GEOGRAPHIC INFORMATION IN EXPOSOMICS: THE EXAMPLE OF THE H2020 PULSE PROJECT, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XLIII-B4-2020, pages 283–289, <https://doi.org/10.5194/isprs-archives-XLIII-B4-2020-283-2020>.
10. **Pala, D.**; Zurlo, L.; Franzini, M.; Casella, V.; Bellazzi, R.; Vito, D. and Larizza, C.: Preventive healthcare through air pollution exposure modeling: the example of PULSE in Pavia. *Proceedings of the GNB 2020 conference*, ISBN: 2724-2129.
11. **Pala, D.**; Parimbelli, E. ; Rocca, M.T. ; Bellazzi, R. ; Casella, V.; The PULSE Approach to Data Integration Enabling Spatial Analytics for Public Health in Cities. In *proceedings of the AMIA 2019 Informatics Summit*, pages 865-866.

12. Bellazzi, R., Caldarone A.A., **Pala D.**, Franzini M., Malovini A., Larizza C., Casella V. (2019). Transfer Learning for Urban Landscape Clustering and Correlation with Health Indexes. In: Pagán, J., Mokhtari, M., Aloulou, H., Abdulrazak, B., Cabrera, M. (eds) How AI Impacts Urban Living and Public Health. ICOST 2019. Lecture Notes in Computer Science(), vol 11862. Springer, Cham. [https://doi.org/10.1007/978-3-030-32785-9\\_13](https://doi.org/10.1007/978-3-030-32785-9_13)
  13. Parimbelli, E.; **Pala, D.**; Bellazzi, R.; Vera-Munoz, C.; Casella, V.; Integrating Environmental Data, Citizen Science and Personalized Predictive Modeling to support Public Health in Cities: the PULSE WebGIS, AAAI-18 W9 Workshop, New Orleans 2018
  14. Casella, V., Franzini, M., Bellazzi, R., Larizza, C., and **Pala, D.**: DYNAMIC ASSESSMENT OF PERSONAL EXPOSURE TO AIR POLLUTION FOR EVERYONE: A SMARTPHONE-BASED APPROACH, Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci., XLIII-B4-2020, 655-663, <https://doi.org/10.5194/isprs-archives-XLIII-B4-2020-655-2020>, 2020.
  15. Parimbelli, E. ; Larizza, C.; Urosevic, V.; Pogliaghi, A.; Ottaviano, M.; Cheng, C.; Benoit, V.; **Pala, D.**; Casella, V.; Bellazzi, R.; Giudici, P. (2022). The PERISCOPE Data Atlas: A Demonstration of Release v1.2. In: Michalowski, M., Abidi, S.S.R., Abidi, S. (eds) Artificial Intelligence in Medicine. AIME 2022. Lecture Notes in Computer Science(), vol 13263. Springer, Cham. [https://doi.org/10.1007/978-3-031-09342-5\\_41](https://doi.org/10.1007/978-3-031-09342-5_41)
  16. C. Strusi, A. Dagliati, **D. Pala**, C. Larizza, R. Bellazzi and S. Quaglini, "Taking a walk avoiding polluted routes: an application to a virtual coach for cancer," 2022 IEEE 21st Mediterranean Electrotechnical Conference (MELECON), Palermo, Italy, 2022, pp. 1107-1111, doi: 10.1109/MELECON53508.2022.9843091.
  17. V. Urošević, A. Dagliati, M. Ottaviano, N. Vojičić, C. Larizza and **D. Pala**, "Design and Optimization of REST Services for Performance and Scalability in Provision of Big Environmental Data to Exploratory Analytics of their Effects on Progression of ALS and MS," 2022 IEEE 12th International Conference on Consumer Electronics (ICCE-Berlin), Berlin, Germany, 2022, pp. 1-6, doi: 10.1109/ICCE-Berlin56473.2022.9937100.
  18. J. Xu, Y. Xie, Y. Zhang, **D. Pala**, L. Shen, "Identification of the Most Determinant Demographic and Biological Factors for the Phenotypic and Chronological Age Difference Prediction in the NHANES Cohort", Proceedings of the AMIA 2023 Informatics Summit
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## CONFERENCE PRESENTATIONS

"The PULSE Approach to Data Integration Enabling Spatial Analytics for Public Health in Cities." – American Medical Informatics Association (AMIA) Informatics Summit. San Francisco, CA March 2019.

"Agent-Based Models and Spatial Enablement: A Simulation Tool to Improve Health and Wellbeing in Big Cities." – Artificial Intelligence in Medicine (AIME) Conference. Poznan, Poland June 2019.

"Advantages and Difficulties of using Spatial Enablement to Support Public Health in Cities: The PULSE Case Study." – International Conference on Geographic Information System Theory. Heraklion, Greece May 2019.

"Transfer Learning for Urban Landscape Clustering and Correlation with Health Indexes." – International Conference on Smart Living and Public Health (ICOST), New York, NY October 2019.

"Preventive Healthcare through Air Pollution Exposure Modeling: the Example of PULSE in Pavia" – Conference of the Italian National Bioengineering Group, June 2021.

"Mediation Analysis and Mixed-Effects Models for the Identification of Stage-specific Imaging Genetics Patterns in Alzheimer's Disease" – IEEE BIBM 2022 Conference, Las Vegas, NV December 2022.

"Identification of the Most Determinant Demographic and Biological Factors for the Phenotypic and Chronological Age Difference Prediction in the NHANES Cohort" – AMIA Informatics Summit, Seattle, WA March 2023.

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## OTHER ACADEMIC EXPERIENCES

- Teaching assistant for the Biomedical Informatics Course at the Bioengineering faculty in Pavia, Italy (2019-2020, 2020-2021 and 2021-2022)
- Thesis Advisor for undergraduate and graduate students between 2018 and 2022
- Reviewer for conference papers
- Reviewer for the Journal of Biomedical Informatics (>15 journal papers reviewed)
- Invited Speaker at a NYU College of Global Public Health live interview about improving health in big cities in December 2018 (<https://www.youtube.com/watch?v=gK8Ls3igqa0>)
- Invited Speaker at the Center of Excellence in Environmental Toxicology at the University of Pennsylvania in April 2021.
- Program Committee member for the BIBM 2022 Conference
- Chair of the session "Cross-cutting Computational Methods and Bioinformatics of Disease" at the BIBM 2022 Conference.

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Pavia, 13/04/2023