# Luciano Melodia

Curriculum vitae

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Gebbertstraße 95, 91058 Erlangen

O Born on 27.03.1994

Bavaria, Germany

#### **EDUCATION**

2021–24, B.Sc. Mathematics, Computer Science, FAU Erlangen-Nürnberg.

2018–21 Graduate Program in Computer Science, FAU Erlangen Nürnberg.

2015–18, M.A. Information Science, Regensburg University.

2012–15, B.A. German Philology, Italian Philology,

Information Science, Media Informatics, Regensburg University.

2012–13 Web Developer Certificate, Rechenzentrum Regensburg University.

Abitur, Albertus-Magnus-Gymnasium, Regensburg.

## **PROFESSIONS**

2021–22 Working Student Corscience GmbH & Co. KG, Erlangen.

2020–21 Researcher Professorship for Evolutionary Data Management, FAU Erlangen-Nürnberg.

Researcher Chair of Computer Science 6, FAU Erlangen-Nürnberg.

2020–21 Researcher Siemens Energy AG, Erlangen.

2019–20 Researcher Siemens Gas and Power GmbH & Co. KG, Erlangen.

Data Scientist at mb Support GmbH, Regensburg.
Working Student mb Support GmbH, Regensburg

2015–17 Working Student mb Support GmbH, Regensburg.

Research Assistant Chair of German Linguistics, Regensburg University.

Student assistant Chair of German Linguistics, Regensburg University.

2012–15 Chef in Event Gastronomy Apostelkeller, Regensburg.

2012–15 Staff-based Services Trademarketing Service GmbH, Salzgitter.

<sup>2012–14</sup> Translator for Italian and English at Anatol GmbH & Co. KG, Regensburg.

2010 Compassion Project, Alten- und Pflegeheim St. Josef, Regensburg.

# CONFERENCES ATTENDED

LOG, virtual.

2018-21

2020

2019

ICLR, virtual.

ML4ITS, Bilbao, Spain. ICPR, Milano, Italy.

TDA and Beyond, NeuRIPS, Vancouver, Canada.

ICPMD, Kerala, India.
IWCIA, Novi Sad, Serbia.

ECML/PKDD, Gent, Belgium.

ECML/PKDD, Würzburg, Germany.

2019 SIGMOD/PODS, Amsterdam, Netherlands.

TCLS, Regensburg, Germany.

2013 (De-)S/S&SSP, Prague, Czech Republic.

## LECTURES HELD

FAU 2021 Knowledge Discovery in Databases.
FAU 2020 Persistent Homology in Data Analytics.

FAU 2020 Topological Data Analysis.

FAU 2019–2020 Process Oriented Information Systems.
FAU 2018–2021 New Technologies in Data Management.

FAU 2018–2020 Computer Science for Engineers.

FAU 2018–2019 Big Data Seminar.
FAU 2018 Conceptional Modeling.

2020

### TALKS GIVEN

Homological Time Series Analysis of Sensor Signals from Power Plants, ML4ITS.
Homological Inference of Embedding Dimension in Neural Networks, IMTA, Milano.

Simplicial Databases, Schemas and Realisations, FAU Erlangen-Nürnberg.

Tools for Schema Inference, Siemens AG.

Introduction to Persistent Homology, Christ Nagar College, Kerala, India.

Stop Interpolation Topologically, IWCIA, Novi Sad.

Homological Perspective on Data, FAU Erlangen-Nürnberg.
Literature and Tools for Topological Data Analysis, Siemens AG.

Topological Data Analysis in Machine Learning, FAU Erlangen-Nürnberg.

The Scientific Social Network *punc.space*. Regensburg University.
Brauchen mit zu und Infinitiv. Univerzita Karlova, Prague.

## PUBLIC SERVICE

Reviewer, Learning on Graphs, LOG.

Reviewer, Geometrical and Topological Representation Learning, ICLR.

Reviewer, TDA and Beyond, NeuRIPS.

Reviewer, ECML/PKDD.

2019–20 Member Gesellschaft für Informatik e.V.

Member Computational Intelligence and Machine Learning Group.

Student Representative Information Science, University of Regensburg.

## SUPERVISION

2021, B.Sc. D. Hahn: Classification of Sensor Signals from Power Plants.

2021, M.Sc. C. Sauerhammer: A Classification Dashboard for Sensor Signals from Power Plants.

2021, B.Sc. J. Schäfer: Learning Validation Models from Sensors of a Power Plant.

M. Seidel: Classification of Microbes using Time Series Gas Sensor Array Data.
M.R. Siddiqui: Extraction of Fetal and Maternal Heartbeats from ECG Signals.

# PAPERS

Luciano Melodia and <u>Richard Lenz</u>: Homological Time Series Analysis of Sensor Signals from Power Plants. Machine Learning for Irregular Time Series. Machine

Learning and Principles and Practice of Knowledge Discovery in Databases. In Michael Kamp, Irena Koprinska, Adrien Bibal et al. (ed.): Communications in Computer and Information Science. Springer Nature, Switzerland.

Luciano Melodia and <u>Richard Lenz</u>: Estimate of the Neural Network Dimension Using Algebraic Topology and Lie Theory. Image Mining. Theory and Applications VII. Pattern Recognition and Information Forensics. In <u>Alberto Del Bimbo</u>, <u>Rita Cucchiara</u>, <u>Stan Sciaroff</u> et al. (ed.): Lecture Notes in Computer Science. Springer Nature, Switzerland.

**Luciano Melodia** and <u>Richard Lenz</u>: Persistent Homology as Stopping-Criterion for Voronoi Interpolation. Proceedings of the International Workshop on Combinatorial Image Analysis. In <u>Tibor Lukić</u>, <u>Reneta Barneva</u>, <u>Valentin Brimkov</u> et al. (ed.): Lecture Notes in Computer Science. Springer, Cham.

**Luciano Melodia**: Deep Learning Schätzung zur absorbierten Strahlungsdosis für die nuklearmedizinische Diagnostik. Library of the <u>University of Regensburg</u>, <u>Master Thesis</u> in Information Science.

**Luciano Melodia**: Zur Verwendung des Paradigmas brauchen mit und ohne zu mit Infinitiv. In <u>Katešina Šichovà</u>, <u>Reinhard Krapp</u>, <u>Rössler Paul</u> et al. (ed.): Standardvarietät des Deutschen – Fallbeispiele aus der sozialen Praxis, Logos, Berlin.

#### INTERESTS

2021, 🚭 💢

2020, 🚭 💢

2018, 🚭 💢

2015, 🚳 💢

Certificates

Code Python, Rust, LATEX, CSS, HTML, XML, JavaScript, PHP, C#, Java.

Software GUDHI, Dionysus, Keras, Theano and Tensorflow.

Language German (native), English C2, Italian C2, Polish B2 and Spanish A2.<sup>1</sup>

Math Homology Theory, Geometry.

Computer science Topological Data Analysis, Neural Networks.

Sports Muay Thai, Table Tennis, Soccer.

Data Visualization with ggplot II • Data Visualization with ggplot I • Deep learning in Python • Text Mining: Bag of Words • Introduction to Machine Learning • Machine Learning Toolbox • Intro to Python for Data Science • Exploratory Data Analysis • Introduction to R • Supervised learning in R: Regression • Supervised Learning in R: Classification • Credit Risk Modeling in R • Data visualization in R • Intermediate R: Practice Course • Intermediate R • Discrete Mathematics • Mathematics for Machine Learning: Linear Algebra • Mathematics for Machine Learning: Multivariate Calculus • Machine Learning from a Mathematical Viewpoint • Lie Groups • Geometry of Manifolds • The Python Mega Course: Build 10 Real World Applications • The Rust Programming Language • Evolutionary Game Theory • Introduction to Complex Analysis.

## SPORTS

2023

• • • • • • pra jiad in Muay Thai.
2022

• • • sash in Weng Chun Kung Fu.
2020–22

Member Weng Chun Kung Fu Erlangen.
2011–13

Member Deutscher Alpenverein e.V.
2006–10

Member SG Walhalla Regensburg e.V.

<sup>1</sup> Language levels are self estimates according to the CEFR standard.