SIMONE ZINI

R&D Engineer / Applied Scientist – Ph.D. in Computer Science
Expert in machine learning, signal & image processing, Computer Vision and Digital Camera Piepelines

simonez93@gmail.com | simone.zini@unimib.it | +39 3343245021 | Viale Sarca, 336 - 20126, Milano
Milano, ITALY | thezino.github.io | islab.disco.unimib.it/people | citations?user=JH8KVssAAAAJ
simone-zini-8665b588 | TheZino | 0000-0002-8505-1581

EXPERIENCE

Researcher
Intelligent Sensing Laboratory – University of Milano-Bicocca
January 2025 – Present | Milano, Lombardy, Italy

Applied research and development of machine learning and signal processing algorithms for biomedical signals and imaging systems.
https://islab.disco.unimib.it/

Assistant Professor
University of Milano-Bicocca
January 2024 – Present | Milano, Lombardy, Italy

Research in Machine Learning and Deep Learning approaches for digital signal and image processing, enhancement and restoration.

Researcher
Imaging and Vision Laboratory – University of Milano-Bicocca
January 2018 – January 2025 | Milano, Lombardy, Italy

Research in Machine Learning and Deep Learning field for approaches for Image Processing and Enhancement.
Personal page: http://www.ivl.disco.unimib.it/people/simone-zini/

Postdoctoral Research fellow
National Institute for Nuclear Physics (INFN)
January 2022 – December 2023 | Milano, Lombardy, Italy

Research in Machine Learning and Deep Learning approaches for remote sensing image enhancement and restoration.

Undergraduate Research Fellow
University of Milano - Bicocca
June 2018 – October 2018 | Milano, Italy

Research at Imaging and Vision Laboratory (IVL) on Convolutional Neural Networks for image quality analysis, processing and enhancement.

Research Internship
NEC Central Research Laboratories
January 2018 – May 2018 | Kawasaki, Kanagawa, Japan

- Development of remote sensing methods oriented to image recognition.
- Computer vision algorithms for satellite images enhancement, semantic segmentation and image captioning

ABOUT ME

Computer scientist with a strong background in embedded systems, signal processing and artificial intelligence, specialised in hardware-software prototyping and applied research. Experienced in developing experimental systems and translating advanced algorithms into real-world solutions, from data acquisition to deployment.

SKILLS

Software & Development
Python | Pytorch | Matlab | C++ | C# | LaTex | Linux/Bash | Git | Experimental Pipelines

Machine Learning & Signal Processing
Image & Signal Processing | Computer Vision | Perception Systems | Sensor data processing | Machine Learning | Neural Networks | EEG Signals | Remote Sensing

Hardware & Making
Arduino | FPGA (VHDL/VeriLog) | CAD Drawing | 3D Printing | 3D Modelling | Graphic Design

LANGUAGES

Italian ●●●●●
English ●●●●○

REFEREES

Prof. Paolo Napoletano
University of Milano-Bicocca
paolo.napoletano@unimib.it
Viale Sarca, 336 20126 - Milano, Italy

EDUCATION

Ph.D. in Computer Science

University of Milano - Bicocca

November 2018 – May 2022 | Milano, Italy

Thesis title: ”Image Enhancement and Restoration using Machine Learning Techniques.” Research topics: Image Processing and Enhancement, Computer Vision, Digital Signal Processing , Computational Photography, Image Quality, Machine Learning and Artificial Intelligence.

Ph.D. Visiting Student

Computer Vision Center – Universitat Autònoma de Barcelona

March 2021 – September 2021 | Barcelona, Spain

Research in the topic of unsupervised learning and latent space representation of color image information.

ICVSS 2019

International Computer Vision Summer School

07 – 13 July 2019 | Scicli (Ragusa), Italy

https://iplab.dmi.unict.it/icvss2019/Home

M.Sc. in Computer Science

University of Milano - Bicocca

November 2015 – July 2018 | Milano, Italy

Thesis title: Single Image Super-Resolution using Convolutional Neural Networks

B.Sc. in Computer Science

University of Milano - Bicocca

October 2012 – July 2015 | Milano, Italy

Thesis title: Design of a tool for simulation and analysis of Petri Net’s

Courses and Schools

“Starting a Grant proposal: from idea to practice” Summer School

Lake Como School of Advanced Studies

18-22 July, 2022 | Como,Italia

“Memory Networks”, prof. Alberto del Bimbo, dr. Federico Becattini.

AI Doctoral Academy (AIDA) program.

30 Aprile - 7 Maggio 2021 | Firenze, Italia (online)

PROJECTS PARTICIPATION

Project ANTHEM – AdvaNced Technology for Human centEred Medicine

National Plan for NRRP Complementary Investment

January 2024 - Present

Pignoletto Project – Earth monitoring for precision agriculture adopting remote sensing systems

Call HUB Innovation and Research, promoted by Regione Lombardia.

2021 - 2022

“User Specific Contrast Enhancement Technology for Mobile Platforms”

Research agreement with Huawei Technologies Co. Ltd - Saint-Petersburg Research Center.

2021 - 2023

“Classification-based Automatic White Balancing”

Research agreement with Huawei Technologies Co. Ltd - Moscow Research Center.

2020 - 2021

“Algorithms for semantic indexing and visualization of photo archives”

Research agreement with Canon Europe Ltd.

2018 - 2019

“Food Design Arte - L’Arte del Benessere (FooDesArt)”

Research project promoted by Regione Lombardia.

June - November 2018

”LFP Digital Signal Processing System”

University of Milano - Bicocca

April - September 2016

Development of a hardware-software system for neural signal analysis.

- Design of a signal processing pipeline on FPGA
- Implementation in VHDL for real-time processing
- Development of simulation and interface tools in MATLAB
- Use in biomedical experimental contexts

CONFERENCE AND EVENTS PARTICIPATION

Invited Speaker

Milan Center for Neuroscience meeting – NeuroMi 2025

15th – 17th October 2025 Milano, Lombardy, Italy

Invited speaker at the Milan Center for Neuroscience meeting (NeuroMi) 2025 edition, entitled Artificial Intelligence for Neuroscience: from basic research to clinical practice.
Spotlight talk title: ”AI-driven EEG Analysis for Neuro-degenerative Diseases: trends and horizons”.
https://www.neuromi2025.com/

Invited Speaker

Computational Color Imaging Workshop (CCIW 2024)

11th – 12th November 2021 Milano, Lombardy, Italy

Speaker at Computational Color Imaging Workshop (CCIW) 2024 edition.
Spotlight talk title: ”Brightening the dark: Advances in Low-Light Image Enhancement and Night Photography Rendering”. Talk on the advancement of the research on the topic of Low-Light Image Enhancement and the main contribution proposed by me and my team members in the years.
http://www.ivl.disco.unimib.it/minisites/cciw-2024/index.html

Workshop speaker

Huawei Spectral Color Imaging Technologies Workshop

11th – 12th November 2021 | Moscow, Russia

Speaker at Huawei Spectral Color Imaging Technologies Workshop 2021.
Talk title: ”Video color constancy”. Definition of the Temporal Color Constancy task, analysis of color temporal stability and presentation of lightweight Temporal Color Constancy proposed approach.

Guest lecturer

Advanced Colour and Image Processing COSI course - Comptutational Colour and Spectral Imaging (COSI)

March 2021 and 2022 | Granada, Spain

Lesson on Image Restoration and Enhancment for single images in bad weather conditions.

M2L Summer School Tutor

Mediterranean Machine Learning (M2L) Summer School

Academic Year 2020–2021 | Milano, Lombardy, Italy

Tutor at the summer school Mediterranean Machine Learning (M2L), organized by Deep Mind Lab., in 2020. Preparation and frontal laboratory lessons on Computer Vision and Generative Adversarial Networks.

Invited Speaker

Color: from images to videos - Color & Imaging Conference (CIC) 2021

November 3rd 2021 | New York, United States

Talk about the application of Deep Learning based approaches for Color Constancy in single-image and video scenarios.

AWARDS

NTIRE 2024 - Night photography rendering challenge - 3-rd place

Kharkevich Institute for Information Transmission Problems

NTIRE 2023 - Night photography rendering challenge - 1-st place

Kharkevich Institute for Information Transmission Problems

NVIDIA Academic Grant 2022

Obtained for the project entitled ”Temporal Color Constancy based on CNN and Memory Networks.”

NVIDIA Academic Grant 2018

Obtained for the project entitled ”Single-Image Super-Resolution and Artifact removal with Convolutional Neural Networks for image restoration and enhancement.”

PUBLICATIONS

Journal Articles

- S. Zini, T. Barbera, S. Bianco, and P. Napoletano, “Alzheimer’s disease classification from eeg using a multiscale temporal deep network,” ***Biomedical Signal Processing and Control***, vol. 114, p. 109 321, 2026.
- T. Barbera et al., “On using ai for eeg-based bci applications: Problems, current challenges and future trends,” ***International Journal of Human–Computer Interaction***, pp. 1–20, 2025.
- A. Corsico, G. Rigamonti, S. Zini, L. Celona, and P. Napoletano, “Network-specific models for multimodal brain response prediction,” ***arXiv e-prints***, arXiv–2508, 2025.
- A. Corsico, G. Rigamonti, S. Zini, L. Celona, and P. Napoletano, “The islab solution to the algonauts challenge 2025: A multimodal deep learning approach to brain response prediction,” ***arXiv preprint arXiv:2508.06499***, 2025.
- S. Zini and M. Buzzelli, “Bayesian nights: Optimizing night photography rendering with bayesian derivative-free methods,” ***Pattern Recognition***, vol. 161, p. 111 314, 2025.
- S. Zini, M. P. Barbato, F. Piccoli, and P. Napoletano, “Deep learning hyperspectral pansharpening on large-scale prisma dataset,” ***Remote Sensing***, vol. 16, no. 12, p. 2079, 2024.
- M. Buzzelli, S. Zini, S. Bianco, G. Ciocca, R. Schettini, and M. K. Tchobanou, “Analysis of biases in automatic white balance datasets and methods,” ***Color Research & Application***, vol. 48, no. 1, pp. 40–62, 2023.
- S. Zini, “Image enhancement and restoration using machine learning techniques,” 2022.
- S. Zini and M. Buzzelli, “Laplacian encoder-decoder network for raindrop removal,” ***Pattern Recognition Letters***, vol. 158, pp. 24–33, 2022.
- S. Zini, M. Buzzelli, S. Bianco, and R. Schettini, “Cocoa: Combining color constancy algorithms for images and videos,” ***IEEE Transactions on Computational Imaging***, vol. 8, pp. 795–807, 2022.
- S. Zini, S. Bianco, and R. Schettini, “Deep residual autoencoder for blind universal jpeg restoration,” ***IEEE Access***, vol. 8, pp. 63 283–63 294, 2020.

Conference Proceedings

- A. Corsico, G. Rigamonti, S. Zini, and L. Celona, “Decoding affective states from fmri using automatically labeled,” in ***Image Analysis and Processing-ICIAP 2025 Workshops: 23rd International Conference, Rome, Italy, September 15–19, 2025, Proceedings, Part I***, Springer Nature, p. 89.
- T. Barbera, S. Zini, S. Bianco, and P. Napoletano, “Lightweight graph neural network for dementia assessment from eeg recordings,” in ***2024 IEEE 8th Forum on Research and Technologies for Society and Industry Innovation (RTSI)***, IEEE, 2024, pp. 190–195.
- A. Shutova et al., “Ntire 2023 challenge on night photography rendering,” in ***Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition***, 2023, pp. 1982–1993.
- S. Zini, A. Gomez-Villa, M. Buzzelli, B. Twardowski, A. D. Bagdanov, and J. van de Weijer, “Planckian jitter: Countering the color-crippling effects of color jitter on self-supervised training,” in ***The Eleventh International Conference on Learning Representations, ICLR 2023, Kigali, Rwanda, May 1-5, 2023***, OpenReview.net, 2023. [Online]. Available: https://openreview.net/forum?id=Pia70sP2Oi1
- S. Zini, C. Rota, M. Buzzelli, S. Bianco, and R. Schettini, “Back to the future: A night photography rendering isp without deep learning,” in ***Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)***, 2023, pp. 1465–1473.
- S. Zini, C. Rota, M. Buzzelli, S. Bianco, and R. Schettini, “Shallow camera pipeline for night photography enhancement,” in ***International Conference on Image Analysis and Processing***, Springer Nature Switzerland Cham, 2023, pp. 51–61.
- E. Ershov et al., “Ntire 2022 challenge on night photography rendering,” in ***Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition***, 2022, pp. 1287–1300.
- S. Zini, M. Buzzelli, S. Bianco, and R. Schettini, “A framework for contrast enhancement algorithms optimization,” in ***2022 IEEE International Conference on Image Processing (ICIP)***, IEEE, 2022, pp. 1431–1435.
- S. Bianco, M. Buzzelli, G. Ciocca, R. Schettini, M. Tchobanou, S. Zini, et al., “Analysis of biases in automatic white balance datasets,” in ***Proceedings of the International Colour Association (AIC) Conference 2021***, 2021, pp. 233–238.
- S. Zini and M. Buzzelli, “On the impact of rain over semantic segmentation of street scenes,” in ***International Conference on Pattern Recognition***, Springer International Publishing Cham, 2021, pp. 597–610.

- S. Zini, S. Bianco, and R. Schettini, “Cnn-based rain reduction in street view images,” in ***London Imaging Meeting***, Society for Imaging Science and Technology, vol. 1, 2020, pp. 78–81.
- A. Abdelhamed, R. Timofte, and M. S. Brown, “Ntire 2019 challenge on real image denoising: Methods and results,” in ***Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops***, 2019, pp. 0–0.
- T. Toizumi, S. Zini, K. Sagi, E. Kaneko, M. Tsukada, and R. Schettini, “Artifact-free thin cloud removal using gans,” in ***2019 IEEE International Conference on Image Processing (ICIP)***, IEEE, 2019, pp. 3596–3600.