

Pankaj Mishra (Ph.D.)

Friuli-Venezia Giulia, Italy



Pankajmishra000@gmail.com



+39-3201434039/
+91-7485890567



[pankaj-mishra-86898140](#)



pankajmishra000



[/pankajmishra000](#)



[pankajmishra000.github.io/000/](#)

Summary

I am a recent Ph.D. in the field of Computer vision and Artificial Intelligence with strong commitment to multidisciplinary research. My daily work includes developing models that can do real-life complex tasks, like classification, regression and generation tasks in industrial application domain.

Research area - Artificial Intelligence, Computer Vision, Deep Learning, Machine Learning, Data Analytics, Anomaly Detection

Apart from this I also practices and teaches Yoga regularly and practices a healthy and active lifestyle.

Skills

Machine Learning/ Artificial Intelligence

- Neural networks/Deep learning, metric learning, neural trees, support vector machines, incremental learning, dimensionality reduction, optimization, few shot learning, Classical ML, Deep Anomaly Detection, decision tree, regression model, panoptic segmentation, SLAM etc.
- Environments/Tools: pytorch, keras, python, c/c++, anaconda, spyder, Weka, Rapid miner, OpenCV, ONNX, Tableau, pycharm, SQL and Non-SQL databases, Git, Docker, Linux

Computer Vision

- visual understanding/recognition/detection/tracking, feature learning, feature extraction, feature Matching, anomaly detection, anomaly localization, camera setting, optical flow, classical CV
- Environments/Tools: pytorch, python, c++, spyder, pycharm, matlab, visual studio

Data Analysis

- Statistical Data Analysis, Bayesian Analysis, Data cleaning, data normalization, data transformation, data visualization, predictive analytics
- Environment/Tools: R, Python, MS-Excel, Tableau, WEKA, SciKit, numpy, pandas

Work Experience

Neurala Europe srl

Research Scientist Artificial Intelligence - Jan2022 - Till date

AXISCADES

Assistant Engineer Analyst (Subcontracted by Airbus India)- Jan 2015 - Sept 2016

Safran Engineering Services

R&D Stress Analysis Engineer - Dec 2013 - Jul 2014

Technology Training and Research Centre

Trainee (CAE+CAD) - Aug 2013 - Nov 2013

Certification and Licenses

 **Data Science: R Basics (HarvardX: PH125.1x) - edX**

bb7ef02f64574bebac62c4b1602d691d



Data Science with Data Camp - DataCamp

#4,575,621



DAT236x: Deep Learning Explained - Microsoft

611e36b954b24453b773dedba1cda56d



DEV210x: Introduction to C++ - Microsoft

847cc169f8394c17a0db8085a9ba42e0

Education



Università degli Studi di Udine

Doctor of Philosophy - PhD, Artificial Intelligence and Computer Vision (2018 - 2021)

Supervisor: *Prof. Gian Luca Foresti*

The Ph.D. is intended to develop novel "Deep Neural Network" for complex classification tasks in real world industrial scenarios. Work majorly focuses on anomaly detection and computer vision.

Thesis - "Deep Neural Networks for Image Anomaly Detection: Application in Real World Industrial Scenario"

- *Industrial Sponsored researcher (by beanTech srl)*
- *7 strong publications in 3 years of Ph.D.*



InterMaths : Erasmus Mundus Joint Master Degree & Double Degree Programmes

Master's in Interdisciplinary mathematics in Engineering and Finance. Spent two years in two different universities.

Thesis: "Some transformation of Multivariate Normal Random Vectors and Their Application to Statistics"

Supervisor: *Dr Agnieszka Kulawik*

 **University of Silesia in Katowice (5/5)**

Master's degree, Applied Mathematics in Finance (2017 - 2018)



Università degli Studi dell'Aquila (98/110)

Master's Degree, Mathematical Modelling in Engineering (2016 - 2017)



Uttar Pradesh Technical University

B.Tech, Aeronautical Engineering (2009 - 2013)

Marks: 80.08%



Army School Danapur Cantt, Patna, Bihar

AISSCE- {12TH} CBSE BOARD, Math's + Computers 2007 - 2009

Marks - 83.2%



Army School Danapur Cantt, Patna, Bihar

AISSE {10TH} CBSE BOARD 2006 - 2007

Marks - 88.4%

Honors, Awards and Grants

Ph.D. Grant by External Institution (beanTech srl), 2018 – Grant covers the Ph.D. scholarship and all research cost during the period of my PhD research.

Research Grant from Italian Ministry of defense (171/2016), 2018 – Grant covers the cost of research for developing AI solutions for complex classification task for highly skewed data.

Hackathon Uniud Winner, 2019 - Won Hackathon organized by university of Udine in June 2019 by providing deep learning solution to an industrial problem within 24 hrs.

Erasmus+ Grant - Erasmus grant covers all the expenses of dual master's degree in Italy and Poland.

Erasmus Social - Erasmus Student Network, Nov 2017, awarded for participating in the Social Erasmus programs organized by Erasmus Student Network, Poland.

Achievement of Merit - Feroze Gandhi Institute of Engineering and Technology, Sep 2010, Awarded for the best performance in academics in year 2009-2010.

edX Grant - Received grant from edX which covered 95% of the certification cost for 1) Basic in R - by Harvard University 2) Deep learning Explained and C++ by Microsoft

Member and Association

- IAPR - Italian Association of Pattern Recognition, Italian Chapter 2018 - till date
- Reviewer for Elsevier - Artificial Intelligence in Medicine
- Reviewer for International Journal of Neural Systems
- Reviewer for Springer - Artificial Intelligence Review Journal

Language

- English - Professional Fluency (almost native)
- Hindi /Bhojpuri - native
- Italian - B1
- Polish - A1

Publications

Journals

A Neural Network for Image Anomaly Detection with Deep Pyramidal Representations and Dynamic Routing.

Mishra P., Piciarelli C, Foresti GL.

International Journal of Neural Systems. 2020 Oct;30(10):2050060.

DOI: 10.1142/s0129065720500604.

Supervised Anomaly Detection with Highly Imbalanced Datasets Using Capsule Networks

Piciarelli, C., Mishra P., and G. l. Foresti.

International Journal of Pattern Recognition and Artificial Intelligence

(2021): 2152010. DOI: 10.1142/S0218001421520108

Comparative study of segmentation nets and patch-based methods for anomaly detection in industrial scenarios

Mishra P., R.Verka, C. Piciarelli, G.L. Foresti (2021)

Engineering Applications of Artificial Intelligence, The International Journal of Intelligent Real-Time Automation. (submitted)

MeTAL- Masked Transformer for Anomaly Localization

Axel N., Mishra P., G.L. Foresti, C. Piciarelli (2021)

IJNS, published. (accepted)

Conferences

"VT-ADL: A Vision Transformer Network for Image Anomaly Detection and Localization"

Mishra P., R. Verka, D. Fornasier, C. Piciarelli, G.L. Foresti

30th IEEE/IES International Symposium on Industrial Electronics (ISIE)

Kyoto, Japan, June 20-23, 2021

"Image Anomaly Detection by Aggregating Deep Pyramidal Representations"

Mishra P., Piciarelli C., Foresti G.L.

In: Del Bimbo A. et al. (eds) Pattern Recognition. ICPR International Workshops and Challenges. ICPR 2021. Lecture Notes in Computer Science, vol 12664.

Springer, Cham. https://doi.org/10.1007/978-3-030-68799-1_51, March 05, 2021

Image Anomaly Detection with Capsule Networks and Imbalanced Datasets

Piciarelli C., Mishra P., Foresti G.L. (2019)

In: Ricci E., Rota Bulò S., Snoek C., Lanz O., Messelodi S., Sebe N. (eds) Image Analysis and Processing - ICIAP 2019. ICIAP 2019. Lecture Notes in Computer Science, vol 11751. Springer, Cham. https://doi.org/10.1007/978-3-030-30642-7_23, September 02,2019

Bringing Attention to Anomaly Detection

Axel N., Mishra P., G.L. Foresti, C. Piciarelli (2021), ICIAP, 2022

References

Prof. Gian Luca Foresti (Ph.D. supervisor)

Email: gianluca.foresti@uniud.it

Phone: +39 0432 558402

Prof. Claudio Piciarelli (Ph.D. co-supervisor)

Email: claudio.piciarelli@uniud.it

Phone: +39 0432 558481

Daniele Fornasiere

BU Manager, AI and MV Business, beantech Srl

Email: daniele.fornasier@beantech.it

Phone: +39 345 8383205