Anxhelo Diko

Ph.D. Fellow, Department of Computer Science, Sapienza University of Rome

PERSONAL DETAILS

Birth February 19, 1997

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PERSONAL STATEMENT

I am a highly skilled and experienced computer scientist specializing in machine learning and computer vision. With a Master of Science degree in Computer Science and ongoing enrollment in a Ph.D. program in Computer Science focused on action recognition/anticipation and vision transformers at the Sapienza University of Rome, I possess a deep understanding of these fields. Throughout my academic and professional journey, I have gained valuable experience in laboratory and industrial settings, working on challenging problems essential from research and business perspectives. Also, based on my past experiences in the academy or industry, I have strong software engineering background and a solid foundation in building and training deep learning models for computer vision-related problems. In addition, I possess knowledge also for low-level computer vision tasks like computing homography or camera calibration.

EDUCATION

Ph.D. in Computer Science

2021-2025

Sapienza University of Rome

- Research argument: Human egocentric/activity understanding and anticipation from RGB sensors and depth estimation.
- Advisor: Prof. Luigi Cinque

• Co-advisor: Prof. Danilo Avola

MSc. Computer Science

2018-2020

Sapienza University of Rome

Graduated as top 1% of the class.

- Thesis: Ensemble methods for efficient resource optimization in clinical rehabilitation settings. (The project won a 1 year research grant from Sapienza University of Rome)
- Advisor: Prof. Luigi Cinque
- Co-advisor: Prof. Danilo Avola
- Co-advisor: Prof. Massimiliano Mangone
- Grade: Cum laude

BSc. Business Computer Science

2015-2018

University of Tirana

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raduated as top 1% of the class.

- Thesis: Application of machine learning algorithms for affiliate marketing campaign optimization.
- Advisor: Prof. Ezmolda Barolli
- Grade: 10/10

WORK EXPERIENCE

Contracted Researcher

2021-Ongoing

Sapienza University of Rome (24 months)

- Researching and designing computer vision solutions applied to video understanding, image recognition, object detection, and semantic segmentation.
- Researching and designing computer vision solutions applied to UAV smart autonomous agents for navigation and surveillance.
- Designing computer vision solutions for gait analysis through RGB videos that assist physicians in diagnosing patients with mobility disorders.
- Designing machine learning approaches for medical image processing.

Skills: Machine learning, Deep learning, Gait analysis, Data analysis, Python, PyTorch, NumPy, SciPy, OpenCV

Machine learning specialist

2020-2021

MedLea Srls, (16 months)

- Designing machine learning algorithms for respiratory diagnosis and prognosis by applying classification, regression, and segmentation techniques on CT images and patient medical history. The implemented solutions would provide MedLea with a suite of algorithms that could analyze patient data for different respiratory problems.
- Deploying machine learning models at scale.
- Designing a parallel and scalable Ray-Tracing algorithm for GPUs for discretizing 3D mesh representation of geometries into a volumetric representation. The implemented algorithm would cut the computational costs of the services offered by MedLear by 30% in the preparation phase.

Skills: Deep learning, Parallel computing, Rendering, Medical Imaging, Workload Managing, Python, C++, CUDA, PyTorch, VTK, ITK, MPI, NumPy, SciPy, Docker, AWS, Slurm

Applied machine learning specialist

2018-2018

PaperClicks, Internship (6 months)

Responsible for designing and implementing a machine learning algorithm for the optimization of affiliate marketing campaigns enabling automated profits.

Skills: Data analysis, Machine learning, Python, NumPy, Tensorflow, Pandas

AWARD AND FELLOWSHIPS

- 1. Research Fellowship, Sapienza University of Rome, IT (2021).
- 2. Research Fellowship, Sapienza University of Rome, IT (2022) (Ph.D. grants).
- 3. Research Fellowship, Sapienza University of Rome, IT (2023) (Ph.D. grants).

RESEARCH PROJECTS

SEARCHER – Smart unmannEd AeRial vehiCles for Human likE monitoRing 2022-Ongoing Italian Ministry of Defense

Senior

R&D Engineer

- Study and analysis about state of the art on anomaly detection, novelty detection, and UAV attention mechanism algorithms.
- Design and development of novel deep learning algorithms for UAV application in navigation and surveillance.
- Engineering the execution pipeline of the deep learning software on edge.

The project has raised 600K euros from the Ministry of Defense.

PUBLICATIONS

Research articles

Note: First 3 articles have authors ordered in alphabetical order.

- Avola, D.; Cinque, L.; Di Mambro, A.; Diko, A.; Fagioli, A.; Foresti, G.L.; Marini, M.R.; Mecca, A.; Pannone, D. Low-Altitude Aerial Video Surveillance via One-Class SVM Anomaly Detection from Textural Features in UAV Images. Information 2022, 13, 2. https://doi.org/10.3390/info13010002.
- Avola, D.; Cannistraci, I.; Cascio, M.; Cinque, L.; Diko, A.; Fagioli, A.; Foresti, G.L.; Lanzino, R.; Mancini, M.; Mecca, A.; Pannone, D. A Novel GAN-Based Anomaly Detection and Localization Method for Aerial Video Surveillance at Low-Altitude. Remote Sens. 2022, 14, 4110. https://doi.org/10.3390/rs14164110.
- 3. Avola, D.; Cinque, L.; **Diko, A.**; Fagioli, A.; Foresti, G.L.; Mecca, A.; Pannone, D.; Piciarelli, C. MS-Faster R-CNN: Multi-Stream Backbone for Improved Faster R-CNN Object Detection and Aerial Tracking from UAV Images. Remote Sens. 2021, 13, 1670. https://doi.org/10.3390/rs13091670.
- 4. Pratim B.; Succi S.; Sterpone F.; Pérot F.; **Diko A.**; Melchionna S. In-silico analysis of airflow dynamics and particle transport within a human nasal cavity. Journal of Computational Science, 2021, 54, 101411, https://doi.org/10.1016/j.jocs.2021.101411.
- 5. Agrimi, E., Diko, A., Carlotti, D., Ciardiello, A., Borthakur, M., Giagu, S., Melchionna, S. and Voena, C., 2023. COVID-19 therapy optimization by AI-driven biomechanical simulations. The European Physical Journal Plus, 138(2), p.182.

SKILLS

Hard Skills

- Languages: Albanian (mother tongue), Italian (proficient), English (proficient).
- Professional Competences: Algorithms, computer vision, image processing, video processing, machine learning, deep learning, visual recognition, object detection, semantic segmentation, homography, programming, parallel computing, optimization algorithms, transformer neural networks, convolutional neural networks, action recognition, Unit testing, CI/CD, deployment.
- **Programming Languages:** Python 3, C++, CUDA, SQL.
- Tools and Frameworks: PyTorch, PyTorch-Lightning, Tensorflow (Keras Backend), HuggingFace, OpenCV, NumPy, CuPy, SciPy, Scikit-learn, Pandas, Matplotlib, PlotLy, Scikit-Image, MongoDB, MySQL, VTK, ITK, PoreSpy, Docker, Bash, git, MPI, OpenMP, AWS, Jenkins.
- Operating System: Debian-based Linux (Ubuntu, Mint).

Soft Skills

• Communication, teamwork, attention to detail, problem-solving, adaptability, time management, work ethic, perseverance, consistency, and persistence.