

# Daniele Pannone

Researcher

## Languages

italian: mother tongue  
english: fluent

## Interests

Computer Vision, Pattern Recognition, Machine Learning, Deep Learning, Artificial Intelligence and Human-Computer Interaction.

## Current Position

- 2018 - now **Post-Doc Researcher** Sapienza University of Rome  
Department of Computer Science
- 2019 - 2020 **Research and Development** WSense s.r.l.  
Computer Vision Team

## Education

- 2015 - 2018 **PhD Student** Sapienza University of Rome  
Department Of Computer Science  
Advisor: Luigi Cinque  
Thesis Title: *"Smart Environment Monitoring through Micro Unmanned Aerial Vehicles"*
- 2014 - 2015 **Master Degree** Sapienza University of Rome  
Department Of Computer Science  
Advisor: Luigi Cinque  
Thesis: *"Costruzione di Mosaici e Analisi dei Cambiamenti in Immagini Aeree per la Sorveglianza Attiva"*
- 2009 - 2013 **Bachelor Degree** Sapienza University of Rome  
Department Of Computer Science  
Advisor: Andrea Sterbini  
Thesis: *"Generazione di Effetti Luminosi Sincroni alla Musica con Arduino"*

## Research Projects

- 2019 - now **MEDUSA** Stato Maggiore della Marina (MARISTAT)  
Monitoring maritime areas by a cooperative Distributed Unmanned System made of heterogeneous Assets
- 2019 - now **MUSAS** Beni Culturali  
MUsei di Archeologia Subacquea.
- 2016 - 2018 **SUPREME** Ministry of Defence  
*Proactive vision for advanced UAV systems for the protection of military units, territorial control and environmental prevention.*
- 2015 - 2016 **ADVISOR III** Ministry of Defence  
*An advanced system for automatic deployment and reconfiguration of a network of active sensors placed on UAVs for protecting military convoys and patrols.*

## Teaching Experience

- 2016-2019 **I Semester: Bachelor Degree in Comunicazione Pubblica e d'Impresa**  
Dipartimento di Comunicazione e Ricerca Sociale
- 2015-2019 **II Semester: Bachelor Degree in Comunicazione, Tecnologia e Culture Digitali**  
Dipartimento di Comunicazione e Ricerca Sociale
- 2015-2016 **I Semester: Master Degree in Economia e comunicazione per il management e l'innovazione**  
Dipartimento di Management

## Other Speaker Experience

- 2019 **Ital-IA**  
Paper Title: Deep Learning per Videosorveglianza Aerea in Smart Cities
- 2018 **ICPRAM**
- Session Chair for Session 4B - Graphical and Graph-based Models
  - Oral Presentation of paper "A Rover-based System for Searching Encrypted Targets in Unknown Environments"
  - Poster Presentation of paper "Combining Keypoint Clustering and Neural Background Subtraction for Real-time Moving Object Detection by PTZ Cameras"
- 2016 **ICPRAM**  
Poster Presentation of paper "A Practical Framework for the Development of Augmented Reality Applications by using ARUco Markers"

## Citation Metrics

### Google Scholar

- H-Index: 6
- Citations: 108

### Scopus

- H-Index: 6
- Citations: 84

## Phd Schools

June 2016 **VISMAL Summer School 2016**

Pordenone / Grado, Italy

## Scholarship and Fellowship

- Design and implementation of novel Computer Vision techniques for underwater networks, Department of Computer Science, Sapienza University of Rome
- Research grant for Young Researcher 2018, Sapienza University of Rome
- Sapienza PhD fellowship 2015-2018

## Skills

Programming: C/C++, C#, Java, Python, Matlab

Frameworks: OpenCV, Keras, Tensorflow, Pytorch, Caffe

IDE & Tools: Visual Studio, NetBeans, Eclipse, IntelliJ, Pycharm, Android Studio

Operating Systems: Windows, Linux Ubuntu

Others: Good knowledge of microcontrollers (PIC/ Arduino) and single board computers (Raspberry Pi). Excellent knowledge of micro Unmanned Aerial Vehicles (UAV)

## Publications

- [1] Danilo Avola, Luigi Cinque, Gian Luca Foresti, and Daniele Pannone. "Homography vs similarity transformation in aerial mosaicking: which is the best at different altitudes?" In: *Multimedia Tools and Applications* (2020).
- [2] Danilo Avola, Luigi Cinque, and Daniele Pannone. "Design of a 3D Platform for Immersive Neurocognitive Rehabilitation". In: *Information* 11.3 (2020), p. 134.
- [3] Danilo Avola, Luigi Cinque, Alessio Fagioli, Gian Luca Foresti, Cristiano Massaroni, and Daniele Pannone. "Feature-Based SLAM Algorithm for Small Scale UAV with Nadir View". In: *Image Analysis and Processing – ICIAP 2019*. Ed. by Elisa Ricci, Samuel Rota Bulò, Cees Snoek, Oswald Lanz, Stefano Messelodi, and Nicu Sebe. Lecture Notes in Computer Science. Cham: Springer International Publishing, 2019, pp. 457–467.
- [4] Danilo Avola, Luigi Cinque, Gian Luca Foresti, and Daniele Pannone. "Automatic deception detection in rgb videos using facial action units". In: *Proceedings of the 13th International Conference on Distributed Smart Cameras*. 2019, pp. 1–6.
- [5] Danilo Avola, Luigi Cinque, Gian Luca Foresti, and Daniele Pannone. "Visual Cryptography for Detecting Hidden Targets by Small-Scale Robots". In: *Pattern Recognition Applications and Methods*. Ed. by Maria De Marsico, Gabriella Sanniti di Baja, and Ana Fred. Lecture Notes in Computer Science. Cham: Springer International Publishing, 2019, pp. 186–201.
- [6] D. Avola, L. Cinque, G. L. Foresti, N. Martinel, D. Pannone, and C. Piciarelli. "Low-level feature detectors and descriptors for smart image and video analysis: a comparative study". In: *Bridging the semantic gap in image and video analysis*. Springer, 2018, pp. 7–29.
- [7] Danilo Avola, Luigi Cinque, Gian Luca Foresti, Marco Raoul Marini, and Daniele Pannone. "A Rover-based System for Searching Encrypted Targets in Unknown Environments." In: *ICPRAM*. 2018, pp. 254–261.
- [8] Danilo Avola, Luigi Cinque, Gian Luca Foresti, Marco Raoul Marini, and Daniele Pannone. "VRheab: a fully immersive motor rehabilitation system based on recurrent neural network". In: *Multimedia Tools and Applications* 77.19 (2018), pp. 24955–24982.
- [9] Danilo Avola, Luigi Cinque, Gian Luca Foresti, Niki Martinel, Daniele Pannone, and Claudio Piciarelli. "A UAV video dataset for mosaicking and change detection from low-altitude flights". In: *IEEE Transactions on Systems, Man, and Cybernetics: Systems* (2018).
- [10] Claudio Piciarelli, Danilo Avola, Daniele Pannone, and Gian Luca Foresti. "A vision-based system for internal pipeline inspection". In: *IEEE Transactions on Industrial Informatics* 15.6 (2018), pp. 3289–3299.
- [11] Danilo Avola, Luigi Cinque, Gian Luca Foresti, Cristiano Massaroni, and Daniele Pannone. "A keypoint-based method for background modeling and foreground detection using a PTZ camera". In: *Pattern Recognition Letters* 96 (2017), pp. 96–105.
- [12] Danilo Avola, Gian Luca Foresti, Niki Martinel, Christian Micheloni, Daniele Pannone, and Claudio Piciarelli. "Aerial video surveillance system for small-scale UAV environment monitoring". In: *2017 14th IEEE International Con-*

*ference on Advanced Video and Signal Based Surveillance (AVSS)*. IEEE, 2017, pp. 1–6.

- [13] Danilo Avola, Gian Luca Foresti, Niki Martinel, Christian Micheloni, Daniele Pannone, and Claudio Piciarelli. “Real-time incremental and geo-referenced mosaicking by small-scale UAVs”. In: *International Conference on Image Analysis and Processing*. Springer, 2017, pp. 694–705.
- [14] Danilo Avola, Luigi Cinque, Gian Luca Foresti, Cristina Mercuri, and Daniele Pannone. “A Practical Framework for the Development of Augmented Reality Applications by using ArUco Markers.” In: *ICPRAM*. 2016, pp. 645–654.