

Emanuel Aldea

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BACKGROUND

Since 2013 Assistant professor, **Université Paris Sud** : research in the team Methods and Tools for Signals and Systems, SATIE Laboratory ; lectures in the Faculty of Science, mainly in the Master E3A (Electronics, Electrical Energy and Automation).

2012-2013 Postdoctoral position, **Imperial College London** with Professor Maria Petrou : work on large scale multi-camera analysis for high density crowd modelling.

2010-2012 Research engineer, **SYSNAV** (startup supported by Ecole des Mines-ParisTech) : robotic vision for real-time cartography, IMU-vision data fusion .

2009-2010 Short-term lecturer position, Computer Science Laboratory (LIP6), **Université Paris 6** (Jussieu).

2006-2009 PhD at **Télécom-ParisTech** : Structured data learning for image interpretation, supervised by Professor Isabelle Bloch. Teaching assistant at Université Paris 6 (Jussieu).

2005-2006 2nd year Research Master in Computer Science, “Artificial Intelligence and Decision”, **Université Paris 6** (Jussieu).

2005-2006 Application school at **ENST Paris** (currently Télécom-ParisTech) ; registered in the 3rd year

2002-2006 **École Polytechnique**, Major in Computer Science .

2000-2005 **Polytechnic University of Bucharest**, Major in Computer Science.

2000 Baccalaureate in Mathematics-Physics.

RESEARCH INTERESTS

Image processing and robotic vision : SLAM, pose estimation and 3D reconstruction, , data fusion (cameras, inertial sensors, depth cameras)
Camera networks, tracking : multi-camera detection and tracking, self-calibration, multi-modal tracking
Statistical learning : high-dimensional structured data, statistical inference, graphical models, kernel methods

TEACHING RESPONSIBILITIES

Université Paris Sud First year Master (E3A) :
— Signal and image processing
— OOP Programming
Second year Master (E3A), specialization “Embedded systems and Information Processing” :
— Refresher course in C++
— Robotic vision
— Ethical aspects of research in Robotics
First year Master of Ergonomics :
— Vision and colorimetry
Polytech Paris-Sud, fifth year :
— Image Processing

CURRENT AND PAST PROJECTS

2017 - 2020	Franco-German program SEBM (Future and Security in Urban Area) funding, “Safety and Security of Urban Crowded Environments”
2015 - 2018	French National Research Agency (ANR) young researcher funding, “Towards Modelling High-density Crowds for Assisting Planning and Safety”
2012-2013	In charge of the image processing tasks for the National Priorities Research Program (NPRP) Grant of Qatar Foundation “Herding and Panic in Human Crowds : Hajj as a Case Study”
2006-2009	Ecole polytechnique PhD scholarship (AMX)
2003-2006	Eiffel program scholarship of French Ministère des Affaires Étrangères
1995-2000	Six prizes at Physics National Olympiads, Romania

STUDENT SUPERVISION

- 2015-2018, Nicola Pellicanò, PhD topic : “Dense crowd analysis for planning and security”
- 2015-2018, Jennifer Vandoni, PhD topic : “Coupling tracking and detection for crowd analysis”
- 10 Master internships supervised since 2012

SELECTED PUBLICATIONS

- Marie Lachaize, Sylvie Le Hégarat-Masclé, Emanuel Aldea, Aude Maitrot and Roger Reynaud - Evidential multi-class classification from binary classifiers : application to waste sorting quality control from hyperspectral data - *Proceedings of the 13th International Conference on Quality Control by Artificial Vision (QCAV)*, 2017
- Nicola Pellicanò, Emanuel Aldea and Sylvie Le Hégarat-Masclé - Robust crack detection strategies for aerial inspection - *Proceedings of the International Conference on Pattern Recognition (ICPR)*, 2016
- E. Aldea and S. Le Hégarat - Robust crack detection for unmanned aerial vehicles inspection in an a-contrario decision framework - *Journal of Electronic Imaging*, 2015
- E. Aldea and K. Kiyani - Hybrid Focal Stereo Networks for Pattern Analysis in Homogeneous Scenes - *ACCV 2014 Workshop on Human Identification for Surveillance*, 2014
- E. Aldea, D. Marastoni and K. Kiyani - Spatio-temporal Consistency for Head Detection in High-Density Scenes - *ACCV 2014 Workshop on Human Identification for Surveillance*, 2014
- G. Florentz and E. Aldea - SuperFAST : Model-Based Adaptive Corner Detection for Scalable Robotic Vision - *International Conference on Intelligent Robots and Systems (IROS)*, 2014
- N. Zarrouati, E. Aldea and P. Rouchon - Robust depth regularization explicitly constrained by camera motion - *International Conference on Pattern Recognition (ICPR)*, 2012
- N. Zarrouati, E. Aldea and P. Rouchon - $SO(3)$ -invariant asymptotic observers for dense depth field estimation based on visual data and known camera motion - *American Control Conference (ACC)*, 2012
- N. Widynski, E. Aldea, S. Dubuisson and I. Bloch - Object tracking based on particle filtering with multiple appearance models - *International Conference on Computer Vision Theory and Applications (VISAPP)*, 2011
- E. Aldea, J. Atif and I. Bloch - Image classification using marginalized kernels for graphs - *Graph-Based Representations in Pattern Recognition (GbrPR)*, 2007