

# Ola Ahmad

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## Personal

- Syrian nation
- Married, with one child

## Current Position

- 2013** Postdoc fellow in statistical image processing at ICUBE laboratory, CNRS UMR 7357, University of Strasbourg, France.  
**Research project in collaboration with Merck Millipore industry.**

## Educations

- 2010–2013** PhD degree from École Nationale Supérieure des Mines de Saint-Etienne. LGF UMR CNRS 5307 Laboratory, ENSM-ST, Saint-Etienne, France.  
**Subject :** *"Stochastic representation and analysis of rough surface topography by random fields and integral geometry–Application to the total hip arthroplasty"*  
**Speciality :** Image, Signal, Vision
- 2009–2010** Research Master (MS) in vision, image and signal processing from University of Jean Monnet Saint-Etienne, France.
- 1997–2002** Engineering diplomat in Electronic systems and automatics from HIAST (High Institute of Applied Science & Technology), Damascus, Syria.
- 1996** Scientific baccalaureate, Syria.

## Publications

### Books

- O. Ahmad. "Stochastic representation and analysis of rough surface topography", *LAP LAMBERT Academic Publishing*, pp 168, 2013.

### Journal papers

- O. Ahmad, J. Debayle, and J.-C. Pinoli. "A geometric-based method for recognizing overlapping polygonal-shaped and semi-transparent particles in gray tone images", *Pattern Recognition Letters* 32(15), 2068–2079, 2011. doi : "10.1016/j.patrec.2011.09.004"
- O. Ahmad, J. Debayle, N. Gherras, B. Presles, G. Févotte, and J.-C. Pinoli. "Quantification of overlapping polygonal-shaped particles based on a new segmentation method of in situ images during crystallization.", *Journal of Electronic Imaging*, 21(2), 021115, 2012. doi : "10.1117/1.JEI.21.2.021115"
- O. Ahmad and J.-C. Pinoli. "On the linear combination of the Gaussian and student's  $t$  random field and the integral geometry of its excursion sets", *Statistics & Probability Letters*, 83(2), 559–567, 2013. doi : "10.1016/j.spl.2012.10.022"
- O. Ahmad and J.-C. Pinoli. "Lipschitz-Killing Curvatures of the Excursion Sets of Skew Student's  $t$  Random Fields.", *Stochastic Models - Taylor & Francis*, 2013.

### Book's chapters

- Y. Gavet, Ola. Ahmad and J.-C. Pinoli. "Integral geometry of linearly combined Gaussian and Student's  $t$ , and skew-student's  $t$  random fields". In *First International Conference on Geometric Science of Information (GSI2013)*, Lecture notes in Computer Science, Springer Berlin Heidelberg, 8085, pp 449-456, Paris, France, August 28-30, 2013.

### Conference and proceeding's papers

- O. Ahmad, J. Debayle, N. Gherras, B. Presles, G. Févotte, and J.-C. Pinoli. "Recognizing overlapped particles during a crystallization process from in situ video images for measuring their size distributions.", In *10th SPIE International Conference on Quality Control by Artificial Vision (QCAV)*, Saint-Etienne, France, June 2011.
- O. Ahmad, N. Gherras, J. Debayle, B. Presles, G. Févotte, and J.-C. Pinoli. "Recognizing overlapped particles during a crystallization process from in situ video images for measuring their size distributions.", In *International Symposium on Industrial Crystallization (ISIC)*, Zurich, Switzerland, 2011.
- O. Ahmad, J. Debayle, N. Gherras, G. Févotte, and J.-C. Pinoli. "Mesure de la distribution granulométrique de cristaux aciculaires par analyse d'images acquises à l'aide d'une sonde vidéo in situ.", In *Proceedings of the SFGP*, 2011.
- O. Ahmad and J.-C. Pinoli. "On the linear combination of the Gaussian and student's  $t$  random field and the integral geometry of its excursion sets", *Proceedings of The World Congress on Engineering and Computer Science*, San Francisco, USA, 2012, pp604-608.
- O. Ahmad and J.-C. Pinoli. "Lipschitz-Killing Curvatures of the Excursion Sets of Skew Student- $t$  Random Fields", *Proceedings of 2nd Annual International Conference on Computational Mathematics, Computational Geometry & Statistics*, Singapore, 2013, pp140-147. doi : "10.5176/2251 – 1911\_CMCGS13.05"
- O. Ahmad, Y. Gavet, J. Geringer and J.-C. Pinoli. "Roughness variability estimation of microscopic surfaces during engineering wear process—Application to total hip implant", In *11th International Conference on Quality Control by Artificial Vision*, Fukuoka, JAPAN, 2013.

### Awards

Best student paper award from the 2nd Annual International Conference on Computational Mathematics, Computational Geometry & Statistics, CMCGS 2013.

Professional experience

- **At HIAST, Damascus, Syria, from 2003 to 2009 :**

Developments in automation :

- Guide and control of two axis gyroscopic platform.

Image and signal processing developments :

- Path estimation and modeling of flying plans from sequences of video images. (methods based on Kalman filter & Markov model) developed and executed using C++ and CBuilder.

- Vehicles's tracking. (Real time matching algorithms) developed and executed using C++ and CBuilder.

- Enhancement and restoration of atmospherically blurred images. (Deconvolution methods based on wiener filter and atmospheric PSF function modeling) developed and executed using C++ and CBuilder

- Image stabilization of moving video cameras. (Optical flow techniques) developed and executed using C++ and CBuilder.

- Detection and recognition of the platform of moving vehicles's. (Pattern recognition methods) developed and executed using C++ and CBuilder.

Academic achievements :

- Projects management in image and signal processing fields using Matlab and C++.

- Teaching : Image processing, pattern recognition, and signal processing.

- **Master research internship at Ecole Nationale Supérieure des Mines de Saint-Etienne, Saint-Etienne, France, 2010 (6 months) :**

Morphological and geometrical characterization by 2D image analysis of the size distribution of anisotropic overlapped particles during crystallization process. (segmentation, pattern recognition, feature extraction, histogram analysis) developed using Matlab.

- **During the PHD period at Ecole Nationale Supérieure des Mines de Saint-Etienne, Saint-Etienne, France from 2010 to 2013 :**

- Experimental developments in the laboratory of biomechanics and biomaterials for the in-vitro wear process simulation on the hip implant :

- \* Experimental setup and experience on the hip walking simulator machine (858 Mini Bionix<sup>®</sup> II test system (MTS)).

- \* Experimental experience on the optical device instruments (optical microscopy, and white light interferometry).

- Supervision of Master research internship.

- Project supervision : Image processing, informatics (language C under Linux).

- Supervision of practical work : Image processing, signal processing, informatics (language C under Linux)

## Computer experience

- **Software development :** Web development, C++, C Builder, Visual C, Java, Delphi, Matlab, R and Latex.
- **Software experience :** Unix and Windows.

## Languages

- French : fluent

- English : very good level.
- Arabic : Native language.

## Interests & Activities

- Reading : psychological and philosophic books, children stories, romans, and others
- Sport : gym, walking, running.
- Music and cinema.