Marius Leordeanu

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Curriculum Vitae

Education:

PhD in Robotics/Computer Science, 2009

Specialization in Computer Vision / Machine Learning / Artificial Intelligence, **GPA 3.92/4.0**

Ph.D. Advisor: Professor Dr. Martial Hebert.

Carnegie Mellon University, USA.

Master of Science in Robotics/Computer Science, 2006

Specialization in Computer Vision / Machine Learning / Artificial Intelligence

Carnegie Mellon University, USA.

Bachelor's degrees in Computer Science and Mathematics, 2003

Hunter College - City University of New York, USA. **GPA 3.88/4.0**

Freshman in Computer Science and Engineering (Rom. Calculatoare)

Technical University of Cluj-Napoca (UTCN), **GPA 9.85/10.0** (2nd out of more than 120 students).

Publications:

Total Citations (source: Google Scholar)**: 2390, h-index: 12.**

Google Scholar Profile: http://scholar.google.ro/citations?user=se9kni0AAAAJ

Cumulated Impact Factor: 14.43

Selected Journal Papers:

1. R. Collins, Y. Liu and M. Leordeanu, *Online Selection of Discriminative Tracking Features,* IEEE TPAMI, **Impact factor: 4.80. Google scholar citations: 1120.**

2. M. Leordeanu, R. Sukthankar and M. Hebert, *Unsupervised Learning for Graph Matching*, International Journal of Computer Vision (IJCV), 2012**. Impact factor: 3.62. Citations: 50.**

3. M. Leordeanu, R. Sukthankar and C. Sminchisescu, *Generalized Boundaries from Multiple Image Interpretations,* IEEE TPAMI. July 2014. **Citations: 2. Impact factor: 4.80.**

4. PK Allen, A. Troccoli, B. Smith, S. Murray, I. Stamos and M. Leordeanu, *New Methods for Digital Modeling of Historic Sites,* Computer Graphics and Applications, **Impact factor: 1.23. Citations: 76.**

Selected Conference Papers:

1. M. Leordeanu and M. Hebert, *A Spectral Technique for Correspondence Problems Using Pair-wise Constraints*, International Conference on Computer Vision (ICCV), 2005. **Citations: 437.**

2. I. Stamos and M. Leordeanu, Automated Feature-Based Registration of Urban Scences of Large Scale, IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2003. **Citations: 134.**

3. M Leordeanu, M. Hebert, R. Sukthankar, *Beyond Local Appearance: Category Recognition from Pairwise Interactions of Simple Features,* CVPR, 2007. **Citations: 132.**

4. J. Mairal, M. Leordeanu, F. Bach, M. Hebert and J. Ponce, *Discriminative Sparse Image Models for Class-Specific Edge Detection and Image Interpretation,* ECCV, 2008. **Citations: 119.**

5. J. Hays, M. Leordeanu, A. Efros and Y. Liu, *Discovering Texture Regularity as a Higher-order Correspondence Problem,* ECCV, 2006 **Citations: 100.**

4. M. Leordeanu, M. Hebert and R. Sukthankar, *An Integer Projected Fixed Point Method for Graph Matching and MAP Inference*, Neural Information Processing Systems (NIPS), 2009. **Citations: 58.**

5. M. Leordeanu and R. Collins, Unsupervised Learning of Object Features from Video Sequences, IEEE Computer Vision and Pattern Recognition (CVPR), 2005. **Citations: 29.**

8. M. Leordeanu and M. Hebert, Efficient MAP Approximation for Dense Energy Functions, International Confernence on Machine Learning, USA, 2006. **Citations: 19.**

9. M. Leordeanu and M. Hebert, Smoothing-based Optimization, Computer Vision and Pattern Recognition (CVPR), USA, 2008. **Citations: 12.**

10. M. Leordeanu, A. Zanfir and C. Sminchisescu, Semi-supervised Learning and Optimization for Hypergraph Matching, International Conference on Computer Vision (ICCV), Barcelona, 2011. **Citations: 11.**

11. M. Leordeanu, R. Sukthankar and C. Sminchisescu, Efficient Closed-Form Solution to Generalized Boundary Detection, ECCV, Florence, 2012. **Citations: 12.**

Honors and Awards:

Awarded the highly competitive Intel PhD Fellowship, USA, 2007-2009 (less than 30 in USA per year).

Honorable Mention, Computing Research Association (CRA) Outstanding Undergraduate Award, USA, 2003.

Joseph A. Gillet Memorial Prize in Mathematics, USA, 2003.

National Science Foundation Scholarship, USA, 2002-2003.

Awarded the competitive Exploratory Research Grant, IDEI Competition-2012, Romania (5^{th} place).

Honor Scholar at Hunter College – City University of New York, USA, all semesters.

Prizes at National Physics Olympiad, Romania (Absolute First, '94; Third, '95; Second, '96; Mention, '98).

National Olympiad Finalist in Mathematics, Romania (1997).

Professional Experience:

Senior Research Scientist, August 2010 – present

Institute of Mathematics of the Romanian Academy (IMAR), http://www.imar.ro/

-Worked closely with students and researchers in the field of computer vision.

-Coordinated two students on optical flow, graph matching, occlusion detection and action recognition.

-Written seven (7) papers on: 1) unsupervised learning for graph matching (IJCV 2012); 2) learning and optimization for hyper-graph matching, applied to object matching and tracking (ICCV 2011); 3) efficient hyper-graph clustering (AISTATS 2012); 4) generalized boundary detection from multiple image interpretations (ECCV 2012 and PAMI 2014). 5) optical flow, motion and occlusion estimation (ICCV 2013). 6) action recognition using RGB-D cameras (ICCV 2013).

- Taught a short class in computer vision to students and junior researchers (Fall 2010); covered various topics and algorithms, tutored MATLAB and Machine Learning, Linear Algebra, Probability and Statistics.

- Currently organizing and coordinating a seminar on Computer Vision and Machine Learning.

Adjunct Professor, September 2013 – present

Computer Science Department, Polytechnic University of Bucharest, http://www.upb.ro/

Teaching a graduate level Computer Vision class and advising four graduate students.

Graduate Research, 2003-2009

The Robotics Institute, Carnegie Mellon University, USA, Supervisor: Prof. Dr. Martial Hebert.

- Research focused on computer vision, machine learning and optimization; developed algorithms for learning and inference for object recognition, feature matching and MAP inference in probabilistic graphical models.

- Developed state-of-the-art methods such as spectral graph matching (SM) and the integer projected fixed point method (IPFP). They are currently used by researchers and engineers from all over the world, for various applications on action recognition from video, capturing 3D human performance, 3D scene acquisition, automatic object discovery and symmetry analysis. About **30 Patents** use or cite our work (www.freepatentsonline.com).

- Published articles in top international conferences and journals.

Internship at Intel Research Lab

Pittsburgh, USA, Summer 2006. Supervisor: Dr. Rahul Sukthankar.

- Developed a system for category object recognition and semi-supervised learning of object category models using shape contours and the spectral matching method (CVPR 2007).

Internship at Google

Mountain View, USA, Summer 2005. Supervisor: Dr. Henry Rowley.

- Worked on a project related to face alignment, recognition and eye detection.

3D Registration and Modeling of Large Scale Buildings using 3D Laser Data

Hunter College, New York, 2002-2003, Supervisor: Prof. Dr. Ioannis Stamos.

-Designed and implemented a method that automatically registers large-scale scenes without initialization; St Pierre Cathedral, Beauvais, France, and Thomas Hunter Building, Hunter College, were scanned and registered successfully (CVPR 2003, ICRA 2003, Comp. Graphics Journal, 2003).

-Worked on the surface reconstruction problem from multiple registered 3D point clouds. Developed an algorithm for mesh simplification in the planar areas (appeared in 3DPVT 2004).

Invited/Public Talks, Lectures and Television Appearances:

August 2014: "Printre Stele", half-hour live radio show with Alexandru Mironov on IT, artificial intelligence, computer vision and the world of tomorrow. Radio Romania Actualitati.

February 2014: "Romanian identity in the diaspora", one hour TV discussion with Pr. Nicolae Dima and his guest Mr. Catalin Grosu, Trinitas TV.

December 2013: "Boundary Detection and Feature Matching for Motion and Occlusion Estimation", Oxford University, England.

September 2013: "Tourism of the Future: Computer Vision and Artificial Intelligence for Augmenting the Touristic Experience", invited talk, Academy of the Economic Studies (ASE), Summer School, Brasov, Romania.

July 2013: "Motivation and Performance", Special Guest Talk, Developer's Day, GARMIN, Cluj-Napoca, Romania.

Aug. 2013: "Symbols and Vision in Human Life and the World of Technology", one hour TV discussion with Pr. Dr. Adrian S. Mihalache (PhD in Philosophy, licensed in Mathematics, Theology), "Lumina celui Nevazut", Trinitas TV.

Aug. 2013: Sunday Evening "Special Edition", one-hour TV discussion with Foreign Minister Titus Corlatean and other guests about the American Education and Culture, Antena 3.

November 2012: "Current Trends and Challenges in Artificial Intelligence", one-hour TV discussion with Dr. Adrian S. Mihalache (PhD in Philosophy, licensed in Mathematics and Theology), "Lumina celui Nevazut", Trinitas TV.

August 2012: "Viitorul Suna RO", one-hour live TV discussion with Professor Radu Marinescu and other guests of Adrian Ursu, "Secvential", Antena 3.

July 2009: "Spectral Graph Matching for Computer Vision", invited talk, Univ. of Pennsylvania, Philadelphia, USA.

August 2009: Two invited lectures on "Spectral Graph Matching, Learning and Inference: Theory and Applications" University of Houston, Houston, USA.

June 2007: Oral presentation: "Beyond Local Appearance: Category Recognition from Pairwise Interactions of Simple Features", International Conference on Computer Vision and Pattern Recognition, Minneapolis, USA.

October 2005: Oral presentation: "A Spectral Technique for Correspondence Problems using Pairwise Constraints", International Conference on Computer Vision, Beijing, China.

Co-chair and organizer for Exploratory Workshop: "Rezultate actuale si probleme deschise in perceptia vizuala computationala, robotica si in invatarea automata pe scara larga" (http://www.diaspora-stiintifica.ro/index.php?page=programe-workshop&id=3), Conference "*Diaspora in Cercetarea Stiintifica si Invatamantul Superior din Romania*", Bucharest, 25-28 September, 2012.

In the Program Committee of:

International Conference on Computer Vision (ICCV) – rank A+, International Conference on Computer Vision and Pattern Recognition (CVPR) – rank A+, European Conference on Computer Vision (ECCV) – rank A, Asian Conference on Computer Vision (ACCV), British Machine Vision Conference (BMVC), International Conference on Robotics and Automation (ICRA).

Reviewer for the Following Journals:

IEEE Transactions on Pattern Analysis and Machine Intelligence **(Impact factor 4.80).**
International Journal of Computer Vision **(Impact factor 3.62).**
IEEE Transactions on Image Processing **(Impact factor 3.19).**
IEEE Transactions on Multimedia **(Impact factor 1.75).**
Computational Statistics and Data Analysis **(Impact factor 1.45).**
Journal of Computer Vision and Image Understanding **(Impact factor 1.23).**
Journal of Image and Vision Computing **(Impact factor 1.96).**
Journal of Visual Communication and Image Representation **(Impact factor 1.20).**

Other Activities:

Poetry: http://marius-leordeanu-poems.tumblr.com/. Debut volume: "Povestea unui cuvant" ("The story of a word"), Papirus Media Publishing House, November 2013, https://www.facebook.com/PovesteaUnuiCuvant
Musical compositions: http://leordeanu.tumblr.com/.
Articles in magazines: M. Leordeanu, "Cercetarea Stiintifica – O Investitie in Viitorul Nostru", Income Magazine, April 2013, http://incomemagazine.ro/articole/cercetarea-stiintifica-o-investitie-in-viitorul-nostru.