Curriculum Vitæ

Matteo Maggioni

Employment

2015-present **Research Associate** at **Imperial College London (UK)**
Research and development of signal processing methods for image / video upscaling and super-resolution. The main technologies were MATLAB for research and C++ for implementation. Developed soft skills in mentoring, product development, as well as hard skills in applied research, linear algebra, and software engineering.

2010-2015 **Researcher** at **Tampere University of Technology (Finland)**
Research on image processing algorithms for multi-dimensional data restoration, which resulted in a patent, a commercialized product, and several academic papers. The main technologies were MATLAB for development and C/C++ for implementation. Developed skills in digital signal processing, linear algebra, statistics, machine learning, computer vision, computational photography, and functional optimization.

2013 **Visiting Researcher** at **Northwestern University (Evanston, IL, USA)**
Research on image classification using machine learning methods resulting in an academic paper. Developed skills in machine learning, classification, regression, and parallel computing.

2009 **Software Engineer** at **CEFRIEL (Milan, Italy)**
Full-stack web software engineer, administering, developing, and maintaining a B2B web-application fed by different REST services. Developed skills in server management, software version control, database administration, and software engineering.

Academic Career

2010-2015 Ph.D. in Signal Processing, Tampere University of Technology (Finland).
Ph.D. awarded with honors. Advisor: Alessandro Foi.

2004-2010 B.Sc. and M.Sc. in Computer Engineering, Politecnico di Milano, (Italy).
Exchange M.Sc. programme in Tampere University of Technology. Final grade 110/110.

Skills

Software Development

Platform	Ability to develop on Unix (GNU/Linux and Mac OS X), as well as Microsoft systems. Exposure to multicore (NVidia CUDA and OpenCL) and embedded (ARM and NVidia Tegra K1) programming.
IDE	Experience with Eclipse, Visual Studio, and XCode (comfortable coding in rich text editor such as TextMate).

Programming Technologies

Matlab	5+ years of experience. Used for research and algorithm development. Proficient in MEX programming.
C / C++	5+ years of experience. Knowledge of different compilers (gcc, Clang, MSVC). Proficient in using standard (STL) and scientific (BLAS/LAPACK) libraries. Understanding of multi-threaded application, SIMD, and memory management. Exposure to OpenCV.
Java	2 years of experience. Familiarity with SE and EE programming. Experience with Apache Tomcat server. Used in personal and academic projects.
Ruby / Python	Good proficiency. Used in personal projects.
SQL	Ability to design, use, and maintain a relational database. Best familiarity with MySQL. Exposure to NoSQL (MongoDB).
PHP	Familiarity with both object-oriented and procedural programming. Experience with Apache server.
XHTML / CSS	Vast knowledge of the standards. Ability to manage cross-browser compatibility.
JavaScript	Familiarity with different frameworks (JQuery, Prototype, Bootstrap).
LaTeX	Used for scientific, professional, and personal publishing.

Scientific Experience

Computer science	Functional / procedural / object-oriented programming, data structures, computational complexity theory, algorithm analysis, parallel computing, Montecarlo simulation, software engineering, algorithm design, debugging, subversioning.
Signal processing	Imaging, computational photography, transform domain techniques, super-resolution, sampling theory, thermal sensors, numerical methods, linear algebra, dimensionality reduction.
Machine learning	Pattern recognition, classification, clustering, regression, statistics, neural networks, learning methods.

Awards, Scholarships & Certifications

2014 Academy of Finland and TUT President's doctoral programme scholarship.

2014 Nokia Foundation Scholarship, Finland.

2013 KAUTEsäätiö Scholarship, Finland.

2013 Tampere University of Technology young researcher achievements award (Finland).

2011-2013 Tampere Doctoral Programme in Information Science and Engineering (TISE) Scholarship.

2012 First prize - IEEE ISBI Challenge.

2007 ETS iBT TOEFL Certification.

Publications & Patents

[1] A. Foi, **M. Maggioni**, A. Pepe, S. Rueda, J. A. Noble, A. Papageorghiou, and J. Tohka, "*Difference of Gaussians Revolved Along Elliptical Paths For Ultrasound Fetal Head Segmentation*", to appear in Computerized Medical Imaging and Graphics, 2014.

[2] **M. Maggioni**, G. Jin, A. Foi, T.N. Pappas. "*Structural Texture Similarity Metric Based on Intra-class Variances*". In Proceedings of the IEEE International Conference on Image Processing (ICIP), Oct. 2014.

[3] **M. Maggioni**, E. Sánchez-Monge, A. Foi. "Joint Removal of Random and Fixed-pattern Noise Through Spatiotemporal Video Filtering", IEEE Transactions on Image Processing, Vol. 23, No. 10, Oct. 2014

[4] S. Rueda, S. Fathima, C. Knight, M. Yaqub, A. Papageorghiou, B. Rahmatullah, A. Foi, **M. Maggioni**, A. Pepe, J. Tohka, R.V. Stebbing, J.E. McManigle, A. Ciurte, X. Bresson, M.B. Cuadra, C. Sun, G.V. Ponomarev, M.D. Gelfand, M.D. Kazanov, C. Wang, H. Chen, C. Hung, J.A. Noble, "*Evaluation and Comparison of Current Fetal Ultrasound Image Segmentation Methods for Biometric Measurements: A Grand Challenge*", IEEE Trans. on Medical Imaging, Vol. PP, No. 99, Aug. 2013.

[5] A. Foi, **M. Maggioni**, "*Methods and systems for suppressing noise in images*", Patent, Docket No. 70052.496, Filed Jul. 2013.

[6] **M. Maggioni**, V. Katkovnik, K. Egiazarian, A. Foi, "*A Nonlocal Transform-Domain Filter for Volumetric Data Denoising and Reconstruction*", IEEE Transaction on Image Processing, Vol. 22, No. 1, Jan. 2013.

[7] **M. Maggioni**, G. Boracchi, A. Foi, K. Egiazarian, "*Video Denoising, Deblocking and Enhancement Through Separable 4-D Nonlocal Spatiotemporal Transforms*", IEEE Transaction on Image Processing, Vol. 21, No. 9, Sep. 2012.

[8] A. Foi, **M. Maggioni**, A. Pepe, J. Tohka, "*Head Contour Extraction from Fetal Ultrasound Images by Difference of Gaussians Revolved Along Elliptical Paths*", in Proceedings of IEEE International Symposium on Biomedical Imaging (ISBI), May 2012, Barcelona, Spain.

[9] **M. Maggioni**, A. Foi, "*Nonlocal Transform-Domain Denoising of Volumetric Data With Groupwise Adaptive Variance Estimation*", in Proceedings of SPIE Electronic Imaging (EI), Jan. 2012, San Francisco, CA, USA.

[10] **M. Maggioni**, G. Boracchi, A. Foi, K. Egiazarian, "*Video Denoising Using Separable 4D Nonlocal Spatiotemporal Transforms*", in Proceedings of SPIE Electronic Imaging (EI), Jan. 2011, San Francisco, CA, USA.

[11] **M. Maggioni**, R. Mysore, E. Coffey, and A. Foi, "*Four-Dimensional Collaborative Denoising and Enhancement of Timelapse Imaging of Mcherry-Eb3 in Hippocampal Neuron Growth Cones*", in Proceedings of BioPhotonics and Imaging Conference (BioPIC), Oct. 2010, Meath, Ireland.