

Marco La Manna

Summary

Research scientist with specialization in algorithm engineering applied to signal and image processing. Experienced with hardware. Proven leadership, collaborative and communication skills.

Skills

<i>Hardware</i>	Electronic test instruments, RF/optical components, Class 4 lasers (pulsed), time-of-flight cameras, stereo-cameras
<i>Scripting/Programming</i>	MATLAB, C/C++, LabVIEW
<i>Computer</i>	<i>OS:</i> Windows, Mac, Linux <i>Software:</i> Microsoft Word, Excel, Powerpoint, LaTeX

Education

Michigan Technological University <i>PhD, Electrical Engineering</i>	Houghton, MI 2012 - 2016
University of Pisa <i>MS, Telecommunications Engineering</i>	Pisa, Italy 2008 - 2011
University of Pisa <i>BS, Telecommunications Engineering</i>	Pisa, Italy 2005 - 2008

Research Experience

University of Wisconsin - Madison	Madison, WI
Postdoctoral research associate	Oct. 2016 - Present

Project: Revolutionary enhancement visibility by exploiting active light-fields (funded by DARPA). The goal of the project is to see around corners using ultra-fast optical equipment.

- Designed, implemented (MATLAB) and published an iterative algorithm based on backprojection and algebraic reconstruction techniques
- Assembled and tested a multifunctional hardware prototype for fast and reliable data acquisition
- Programmed and debugged the data acquisition scripts and organized the git repository for the scripts
- Mentored, supervised and collaborated with undergraduate and graduate students in the

- realization of simulations and experiments
- Assisted in developing a better theoretical mathematical framework for the non-line-of-sight scenario through a collaboration with group members

Michigan Technological University

Houghton, MI

Graduate research assistant

Feb. 2012 - Aug. 2016

PhD dissertation: Hybrid MIMO phased array radar (HMPAR) receive signal processing (partially funded by the Dave House graduate research fellowship). The goal of the project is to understand how to process the received signal at an HMPAR.

- Conducted literature review on HMPAR
- Derived analytically the Cramer-Rao lower bounds (CRLB) for various HMPAR configurations
- Evaluated the HMPAR CRLB and compared them to the state-of-the-art through MATLAB simulations

Project: An active divide-and-conquer algorithm for sparse support recovery (partially funded by US NSF grant no. EECS-0925881).

- Conducted literature review on compressed sensing
- Analyzed and implemented a novel algorithm for sparse support recovery, based on a divide-and-conquer approach

Awards

- 2016 IEEE radar conference student travel grant May 2016
- Dave House graduate research fellowship 2014 - 2016
- Jonathan Bara award for outstanding graduate teaching assistant Spring 2014

Selected Publications

- M. Laurenzis, **M. La Manna**, et al., “Advanced active imaging with single photon avalanche diodes”, *Proc. SPIE 10799 Security & Defence*, Sep. 2018
- **M. La Manna**, et al., “Error backprojection algorithms for non-line-of-sight imaging”, (Early Access), *IEEE Trans. Pattern Anal. Mach. Intell.*, Jun. 2018
- **M. La Manna**, D. Fuhrmann, “Cramer-Rao lower bound comparison for 2D Hybrid-MIMO and MIMO radar”, *IEEE J. Sel. Topics Signal Proc.*, vol. 11, no. 2, Mar. 2017
- M. La Manna, **M. [Marco] La Manna**, “Cognitive radar waveforms for frequency dense environments”, *2017 Radar conf. (RadarConf)*, May 2017
- **M. La Manna**, D. Fuhrmann, “Hybrid-MIMO and phased array receive signal processing”, *2016 Radar conf. (RadarConf)*, May 2016