

Alessandro Masullo

EMPLOYMENT

- 08/2017 – Present **Research Associate, SPHERE**
Department of Computer Science, University of Bristol, Bristol
- Investigating the use of Computer Vision algorithms for the detection and analysis of Human Motion aimed at Digital Health Monitoring.
 - Extensively employing Deep Learning and Pattern Recognition techniques to integrate multisensory data for the generation of medically relevant measurements.
 - Designing and developing a novel annotation tool for video monitoring (*MuViLab*, publicly available on GitHub).
- 09/2014 – 08/2017 **Teaching Assistant**
Department of Aerospace Engineering, University of Bristol, Bristol
- Demonstrating laboratories and helping students with coding assignments.
 - Improving my communication skills and my ability to solve problems under pressure in a quick and efficient manner.
- Modules taught: Computer programming (C, Matlab), Aerospace labs (Fluid Dynamics, Aerodynamics, PIV), Mechanics labs (Engines, Thermodynamics)
- 11/2014 – 05/2017 **Individual Explanatory Project mentor**
Department of Aerospace Engineering, University of Bristol, Bristol
- Guiding students during their final year projects, helping them to develop plans and research strategies.
 - Improving my ability to creatively solve problems and communicate with individuals and groups.
- 08/2014 – 09/2015 **Research Assistant**
Department of Aerospace Engineering, University of Bristol, Bristol
- EPSRC-funded project within University of Bristol's Fluid and Aerodynamics Research group to develop CFD meshing techniques applied to experimental image-based measurement algorithms.
 - Enabling me to do research autonomously, presenting and comparing results in a clear and detailed way.

EDUCATION

- 09/2014 – 08/2017 **PhD in Aerospace Engineering (achieved with Faculty of Engineering Commendation)**
University of Bristol, Bristol
- Thesis: *Development of Advanced Algorithms for PIV*
- Developing advanced image processing algorithms to estimate flow velocity through PIV (Particle Image Velocimetry).
 - Experimentally validating novel algorithms with high-speed cameras in the wind tunnel.
 - Statistically analysing and assessing measurement data.

Skills developed:

- Signal processing, image filtering, background analysis.
- Motion detection, feature tracking, optical flow.
- Data statistics, outlier detection, error analysis.

02/2012 – 06/2014 **Master's Degree in Aerospace Engineering (110 Lode/110 with Honour Mention)**
Università degli Studi di Napoli Federico II, Naples (Italy)

Final Dissertation: *"The application of CFD meshing around a rotating cylinder in PIV"*

09/2008 – 01/2012 **Bachelor's Degree in Aerospace Engineering (102/110)**
Università degli Studi di Napoli Federico II, Naples (Italy)

AWARDS

- 05/2018 Faculty of Engineering Commendation for PhD degree
- 05/2018 University Research Degree Examinations Board award (nominee)
- 02/2017 Alumni Foundation Conference Travel Award

CODING

- **Python (Expert)**. Used on a daily basis for Machine Learning and Deep Learning.
- **MATLAB (Expert)**. Used to quickly prototype ideas and develop algorithms when performances and platforms involved do not constitute a limitation.
- **C/C++ (Intermediate)**. Mainly used to develop low level mex functions for MATLAB when high performances constitute a limitation in the of an interpreted language.
- **PHP/MYSQL/HTML/CSS/JS (Intermediate)**. Used to develop dynamics websites for research projects and as a hobby.

LANGUAGES

- ENGLISH – Full proficiency
- ITALIAN – Native
- SPANISH – Basic

VOLUNTEERING

03/2017 – 01/2018 **Volunteer**
At-Bristol Science Centre (We The Curious), Bristol

- Working with 8 to 17 year old children, helping out with workshops and laboratories.
- Allowing me to confront myself with a completely different audience and to gain new skills which are usually far from my field of research.

PUBLICATIONS

Research Assistant (SPHERE)

- *Who Goes There? Exploiting Silhouettes and Wearable Signals for Subject Identification in Multi-Person Environments*
Masullo A., Burghardt T., Damen D., Perrett T. & Mirmehdi M.
October 2019, International Conference on Computer Vision Workshop
- *Sit-to-Stand Analysis in the Wild Using Silhouettes for Longitudinal Health Monitoring*
Masullo A., Burghardt T., Perrett T., Damen D. & Mirmehdi M.
August 2019, Lecture Notes in Computer Science (ICAR).
- *CaloriNet: From silhouettes to calorie estimation in private environments*
Masullo A., Burghardt T., Damen D., Hannuna S., Ponce-López V. & Mirmehdi M.
September 2018, British Machine Vision Conference.
- *Semantically Selective Augmentation for Deep Compact Person Re-Identification*
Ponce-López V., Burghardt T., Hannunna S., Damen D., Masullo A. & Mirmehdi M.
August 2018, European Conference on Computer Vision Workshops.

PhD

- *On dealing with multiple correlation peaks in PIV*
Masullo A. & Theunissen R.
May 2018, Experiments in Fluids
- *Automated mask generation for PIV image analysis based on pixel intensity statistics*
Masullo A. & Theunissen R.
May 2017, Experiments in Fluids
- *On the applicability of numerical image mapping for PIV image analysis near curved interfaces*
Masullo A. & Theunissen R.
Apr 2017, Measurement Science and Technology
- *POD-based Background Removal for Particle Image Velocimetry*
Mendez M. A., Raiola M., Masullo A., Discetti S., Ianiro A., Theunissen R. & Buchlin J-M.
Jan 2017, Experimental Thermal and Fluid Science
- *Improvement of PIV dynamic range in the presence of velocity gradients using multiple correlation peak analysis and self-adaptive windows*
Masullo A. & Theunissen R.
Jul 2016, The International Symposia on Applications of Laser Techniques to Fluid Mechanics
- *Near-wake analysis of perforated disks with varying hole topology*
Theunissen R., Worboys R. & Masullo A.
Jul 2016, The International Symposia on Applications of Laser Techniques to Fluid Mechanics
- *Adaptive vector validation in image velocimetry to minimise the influence of outlier clusters*
Masullo A. & Theunissen R.
Mar 2016, Experiments in Fluids

Research Assistant (Aerospace Engineering)

- *Improvement in universal PIV outlier detection by means of coherence adaptivity*
Masullo A. & Theunissen R.
Sep 2015, 11th International Symposium on Particle Image Velocimetry
- *The feasibility of using CFD meshing in PIV image processing near curvy interfaces*
Masullo A. & Theunissen R.
Sep 2015, 11th International Symposium on Particle Image Velocimetry
- *Improved and robust universal PIV/PTV outlier detection in the presence of clusters*
Masullo A. & Theunissen R.
Jun 2015, 10th Pacific Symposium on Flow Visualization and Image Processing