Alessandro Masullo
+44 7443061816
alessandromasullo@gmail.com
https://www.alessandromasullo.com

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, theoretical classes, marking reports, helping students with coding assignments.
→ Improving my communication skills and ability to exemplify complex concepts.
→ 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 (IXP) 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.

TEACHING

08/2020 – 09/2020 **Image Processing and Computer Vision (COMS30030)**
University of Bristol, Bristol

Two lectures designed and presented:

→ Edge detection using image gradients.
→ Shape detection using the Hough Transform.

Alessandro Masullo
+44 7443061816
alessandromasullo@gmail.com
https://www.alessandromasullo.com

09/2014 – 01/2017 **Experimental Aero Particle Image Velocimetry Lab**
University of Bristol, Bristol

→ Introduction to Particle Image Velocimetry.
→ Theory of Image Analysis for wind speed measurements.

02/2015 – 02/2017 **Experiments Fluids 1-2 Lab (AENG11101)**
University of Bristol, Bristol

→ Introduction to Fluid Dynamics.
→ Introduction to drag, lift and pressure measurements.

02/2016 – 02/2017 **Combustion Engine Lab (MENG11202)**
University of Bristol, Bristol

→ Working principles of combustion engines.
→ Measurements and evaluation of engines efficiency.

02/2016 – 02/2017 **Compressible Flow Lab (AENG21100)**
University of Bristol, Bristol

→ Working principles of a supersonic wind tunnel.
→ Basic flow visualization concepts.
→ Understanding of different types of shockwaves and their behaviour.

10/2016 **Thermodynamics Lab (MENG11202)**
University of Bristol, Bristol

→ Functioning of an air cooler system.
→ Introduction to basic temperature and air flow measurements.

09/2016 **Introduction to Scientific Computing Lab (AENG11600)**
University of Bristol, Bristol

→ Introduction to C programming language.
→ Fundamentals of programming and MATLAB.

02/2016 **Aeronautics and Mechanics MATLAB Lab (AENG11301)**
University of Bristol, Bristol

→ Introduction to aerodynamics.
→ Evaluation of wing performances in MATLAB.

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.

Alessandro Masullo
+44 7443061816
alessandromasullo@gmail.com
https://www.alessandromasullo.com

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.

Alessandro Masullo
+44 7443061816
alessandromasullo@gmail.com
https://www.alessandromasullo.com

PUBLICATIONS

Research Associate (SPHERE)

→ *No Need for a Lab: Towards Multi-Sensory Fusion for Ambient Assisted Living in Real-World Living Homes*
Masullo A., Perrett T., Damen D., Burghardt T. & Mirmehdi M.
February 2021, Conference on Computer Vision Theory and Applications

→ *Meta-Learning with Context-Agnostic Initialisations*
Perrett T., Masullo A., Damen D., Burghardt T. & Mirmehdi M.
September 2020, Asian Conference on Computer Vision

→ *Person Re-ID by Fusion of Video Silhouettes and Wearable Signals for Home Monitoring Applications*
Masullo A., Burghardt T., Damen D., Perrett T. & Mirmehdi M.
May 2020, Sensors (MDPI)

→ *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 (ICIAR).

→ *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