

## Personal information

Surname(s) / First name(s)

Telephone(s)

Email(s)

Nationality(-ies)

Date of birth

Website

**Ruffaldi Emanuele**

+393291610680

emanuele.ruffaldi@gmail.com

Italian

7th May, 1978

<http://www.eruffaldi.com>



## Activity

Research and Development on high-end interaction systems between humans and robots in Augmented and Virtual Environments. Expertise in the underlying software infrastructure involving networking, system-level optimization and data analysis using computer vision and machine learning.

## Work Experience

Dates

Occupation or position held

Name and address of employer

Research Topics

Main activities and responsibilities

May 2007 - May 2018

Assistant Professor

Scuola Superiore Sant'Anna, Pisa, Italy - PERCRO laboratory

Computer Vision (2014-); Human-Centered Robotics (2012-) Wearable Systems for Ergonomics (2011-); Machine Learning for industrial environment and robotics (2010-); Virtual Environments for Human Training (2006-); Virtual and Augmented Reality: software, systems and interaction (2003-); Haptic Rendering (2002-2010);

- Team manager as leader of the "Sensing, Modeling and Learning Group" at SSSA comprising 3 PhDs, 1 postdoc and 1 engineer as of July 2017
- Software development and system design for research and industrial projects
- Principal Investigator of research grants with financial responsibility: currently 1 European projects, 1 national, 1 industrial one (300k€/ year in average)
- Effort estimation, break down and coordination of activities
- Grant writing at European, national and industrial level, both as PI or as contributor
- Scientific service to community: review for conference and journals, Co-Chair of IEEE Technical Committee on Haptics. Organization of international events (IEEE Program Chair, workshop organization)
- Tutoring of PhD and master students (9 PhDs and 20 master)
- Lecturing at PhD and master level

Research Results

Publications in the areas of virtual reality, haptic rendering, haptic devices, human training in virtual environments, wearable sensing: 24 ISI Journal papers, 90 peer-reviewed conference papers (54 IEEE/ACM), 10 book chapters, 29 posters and workshops, 9 invited talks, 2 patents. H-Index: 15 ([Scholar](#)), 12 (Scopus), Erdos number 5. Best poster award at MMVR14. Visual listing of publications available [here](#)

|                                      |  |
|--------------------------------------|--|
| Dates                                | July 2006 - April 2007   |
| Occupation or position held          | Research Fellow  |
| Name and address of employer         | Scuola Superiore Sant'Anna, Pisa, Italy - PERCRO laboratory  |
| Main activities and responsibilities | Contribution to the definition of the system architecture of a haptic simulation of interaction of textiles ( <a href="#">HAPTEX</a> ). Development of a framework in C++/OpenGL/Chai3D for the design of haptic-enabled games and applications under supervision of Prof. Frisoli.                  |
| Dates                                | August 2005 - June 2006  |
| Occupation or position held          | Visiting Student   |
| Name and address of employer         | Stanford University, BioRobotics Laboratory  |
| Main activities and responsibilities | Research activity funded by grant AO 04-G66 "Virtual Reality Planning In Reconstructive Trauma Surgery" of MD. Sabine Girod, under the tutoring of Prof. Ken Salisbury and Federico Barbagli. Research on haptic collision detection for supporting the operation planning <a href="#">JA1 PO7</a> . |
| Dates                                | June 2003 - August 2003  |
| Occupation or position held          | Visiting Scholar   |
| Name and address of employer         | University College of London, Computer Science Department  |
| Main activities and responsibilities | Research period on evaluation of haptic experiments and CAVE   |

## Education and training

|                        |  |
|------------------------|--|
| Dates                  | January 2003 - June 2006   |
| Title of qualification | PhD  |
| Principal subjects     | PhD in Perceptual Robotics at PERCRO Laboratory with a Thesis entitled "Multirate and Perceptual Techniques for Haptic Rendering in Virtual Environments", tutor Prof. Massimo Bergamasco. Defended with Honors on 6th June 2006 |
| Organization           | Scuola Superiore Sant'Anna, Pisa, Italy  |
| Dates                  | October 1997 - September 2003  |
| Title of qualification | Diploma  |
| Principal subjects     | Five year grant with tight selection in parallel to Master studies. Thesis on "Haptic Scripting for setup of experiments". Defended with Honors on 10th September 2003.  |
| Organization           | Scuola Superiore Sant'Anna, Pisa, Italy  |
| Dates                  | October 1997 - October 2002  |
| Title of qualification | Master   |
| Principal subjects     | Master in Computer Engineering with a Thesis on "Integration of Database and interactivity in a visualization system based on the Information Landscape approach". Completed with Honors on 8th October 2002.                    |
| Organization           | Università di Pisa, Italy  |

## Research Topics

|          |  |
|----------|--|
| Dates    | 2017-2018  |
| Activity | Research on Human Activity based on Cameras and Deep Learning  |
| Details  | Multiscale modeling of people behavior from body motion to patterns across timescale. Research carried out in then INAIL project.  |
| Dates    | 2015-2018  |
| Activity | Research on Intention Recognition for Autonomous Driving   |
| Details  | As part of an industrial project for an automotive company aimed at estimating the behavior of vehicles in highway. Research on methods for modeling intention prediction using probabilistic graphical models and deep learning using sensor fusion data. |

|          |  |
|----------|--|
| Dates    | 2018-2020  |
| Activity | Research on Virtual and Mixed Reality for supporting physical pre-operative planning   |
| Details  | Mixed Reality and Human Computer Interaction. Research carried out in then Health Ministry 3D Virtual Baby Hearth project.   |
| Dates    | 2012-2018  |
| Activity | <b>Ergonomic Assessment using Wearable Systems</b> - <a href="#">website</a>   |
| Details  | Research, development and management of a system ( <a href="#">project page</a> ) for the real-time assessment of workload based on a wearable system capable of precision reconstruction of arm motion and EMG workload. Reconstruction algorithm core development based on UKF in C++/Eigen, co-development and optimization of the firmware STM32 in C. Experiment design and component selection. <a href="#">J19</a> <a href="#">C50</a> <a href="#">J16</a> <a href="#">C76</a>  |
| Dates    | 2015-2017  |
| Activity | Research on Diagnostician User Interface for Haptic Remote Medicine  |
| Details  | Research and Development on a new Augmented Reality interface for interacting with a remote USG and palpation robot based on encountered haptic paradigm. Leading research on the interaction, component selection, core development in C++/OpenGL leading a new component framework for Mixed Reality interaction (CoCo). Papers: <a href="#">C63</a> , <a href="#">C66</a> .   |
| Dates    | November 2013 to December 2015   |
| Activity | Human-Robot Interaction and Augmented Reality  |
| Details  | Research on a Baxter robot based system for the transfer of human abilities through robotics. Multi-camera sensor fusion, trajectory learning and AR feedback. <a href="#">??</a> <a href="#">C67</a>  |
| Dates    | March 2014 to November 2014  |
| Activity | Pano-stereoscopic system for tele-presence   |
| Details  | System definition, component selection, core development (C++/OpenGL) and optimization for a system based on 5 pairs of cameras for real-time tele-presence and HMD. See <a href="#">J22</a>   |
| Dates    | October 2006 to December 2011  |
| Activity | <b>Platform for Sport Training in Virtual Environments</b>   |
| Details  | Research, development and team coordination on a system for training Rowing in Virtual Environments ( <a href="#">SPRINT</a> ) based on a multimodal platform. The system employed audio feedback, vibrotactile feedback, motion capture, integration of sensors such as VO2. Architecture design, interaction design, definition of feedback, 3D graphics development. Supervision of a PhD during the period and coordination of the team involving multiple partners for the development of the platform and execution of experiments. <a href="#">J9</a> . |
| Dates    | March 2009-2016  |
| Activity | <b>Mobile Haptic Platform for Rehabilitation</b>   |
| Details  | Research and development of the MOTORE mobile rehabilitation device, currently being commercialized. Software platform design and development in C++/Qt, contribution to the design of the haptic rendering, co-development and optimization of the firmware in Simulink and C, communication protocol, project management. Papers: <a href="#">C49</a> , <a href="#">J13</a> , <a href="#">C80</a> , <a href="#">C81</a> .  |
| Dates    | 2011-2015  |
| Activity | Machine Learning Anomaly Detection for Industry  |
| Details  | Research and team management for the creation of new algorithms, development and plant integration of systems for the identification of anomalies in data. Applied in a C++ software for the Italian electric utility.   |
| Dates    | January 2010-March 2011  |
| Activity | Haptic Rendering and Interaction for Virtual Textiles  |

|          |   |
|----------|---|
| Details  | Development of an interaction system for the haptic interaction with virtual textiles simulated using a FEM model. Algorithm and interaction design, development in C++ and OpenCL <a href="#">CH10</a> .                     |
| Dates    | January 2008-September 2008   |
| Activity | Haptic Virtual Laboratory   |
| Details  | Design and development of a system for the execution of multi user experiments involving haptic rendering and physics based simulation. Implemented in C++, OpenGL and XVR. <a href="#">C13</a> .                             |
| Dates    | 2002-2010   |
| Activity | Information Landscape Visualization System  |
| Details  | Research and development of a system for immersive data visualization. The system has been developed in C++/ OpenGL and designed to work in different types of Virtual Environments, from CAVE to HMDs. <a href="#">C15</a> . |

## Research Grants

This section presents the research grants of which I have been Principal Investigator or Fund Manager. Total raised funding 1.4M€.

|            |   |
|------------|---|
| Dates      | 2018-2020 (3 years)   |
| Name       | 3D Virtual Baby Hearth GR-2016-02365072   |
| Sponsor    | Ministry of Health (Finalizzata 2016)   |
| Grant Size | 351k€ for the 2-partners project, 53k€ as SSSA  |
| Details    | Principal Investigator for SSSA of the Ministry of Health funded project on Human-Computer Interaction with 3D printed baby hearths using Virtual and Mixed Reality.  |
| Dates      | 2017-2019 (2 years)   |
| Name       | SailPORT  |
| Sponsor    | INAIL BRIC 2016 ID 24   |
| Grant Size | 528k€ for the 10-partners project, 200k€ direct   |
| Details    | Scientific Coordinator of a project funded by the Italian National Institute for Insurance against Accidents at Work (INAIL) on safety of workers in sea ports. Dealing with deep-learning based computer vision for people flow and accident analysis, biomechanical analysis for safety at work using Wearable sensors. SSSA coordinates other 9 local health entities (ASL). |
| Dates      | 2015-2018 (3 years)   |
| Name       | MMRISK  |
| Sponsor    | Industrial  |
| Grant Size | 240k€   |
| Details    | PI of an Industrial research project on providing autonomous cars understanding of external vehicle and obstacle behavior. This activity is associated to the interest in general, probabilistic based, modeling of behavior.   |
| Dates      | 2015-2018 (3.5 years)   |
| Name       | RAMCIP <a href="http://www.ramcip-project.eu/">http://www.ramcip-project.eu/</a>  |
| Sponsor    | EU H2020  |
| Grant Size | 335k€, 8 partners   |
| Details    | PI and Task Leader in an European Research project coordinated by CERTH (GR) on Robotic Assisted Living for MCI people. Research on (1) estimation of biomechanical state of the user from the point of view of the robot, (2) quantification of user's skills and their progress along time, (3) human-robot interaction based on innovative AR.                               |
| Dates      | 2014-2017 (3 years)   |
| Name       | PELARS <a href="http://www.pelars.eu">http://www.pelars.eu</a>  |
| Sponsor    | EU FP7 Technology Enhanced Learning   |

|            |   |
|------------|---|
| Grant Size | 370k€, 12 partners  |
| Details    | PI,WP Leaderm Technology Manager and Scientific Board member in an European project coordinated by CIID (DK) on Learning Analytics in Projectual-based learning. Research on (1) activity recognition based on vision (2) Learning Analytics methods for student profiling.   |
| Dates      | 2015 (1 year)   |
| Name       | SMOOTI - <a href="#">press</a>  |
| Sponsor    | Industrial funded by Telecom Italia   |
| Grant Size | 35k€  |
| Details    | PI in an Industrial research project on prototyping a wearable system for real-time ergonomics during work activity. This activity continues and consolidates the previous ERGANE project.  |
| Dates      | 2012-2015 (3 years)   |
| Name       | ERGANE  |
| Sponsor    | Italian CCM Ministry of Health - <a href="#">final workshop</a>   |
| Grant Size | 105k€   |
| Details    | PI in a Research project aimed at designing a wearable system based on inertial and EMG sensors for the ergonomic assessment in selected working activity. Leading the design on the motion reconstruction algorithms   |
| Dates      | 2011-2013,2014,2016   |
| Name       | Anomaly Detection in Industrial Plants  |
| Sponsor    | Italian Electric Utility  |
| Grant Size | 110k€   |
| Details    | PI on two research projects funded by the Italian electric utility on the identification of anomalies in power plants.The most recent is related to the anomaly detection on a coal miller based on Machine Learning applied to large amount of historical data.The older was based on leakage detection based on the data recorded in an array of microphones. |
| Dates      | 2015-2016 (15 months)   |
| Name       | Future Challenges <a href="#">website</a>   |
| Sponsor    | H2020 CSA   |
| Grant Size | 25k€, 3 partners  |
| Details    | PI in an European project for selection of research Inducement Prizes coordinated by NESTA (UK). Consulting on the selection of the technologies to be investigated for the preparation of the challenges.  |

## Participated Projects

### Main participated projects:

1. Industrial Continental funded WELDLOOK (2017-2018): innovative computer vision for assessment of injector laser welding
2. Industrial Trenitalia funded VIGILANTE (2016-2017): computer vision face-based health status assessment
3. Regional Project SMARTGEO (2017-2018): machine learning for geothermal plant monitoring
4. EU Project FP7 REMEDI (2014-2017): managing the AR Diagnostician User Interface
5. EU Project FP6 SKILLS (2006-2011): Workpackage Leader for the Demonstrator on Rowing Learning and transfer, researcher on the digital representation of skills
6. EU Project FET HAPTEX IST-2004-6549 (2004-2007): contributor to this research project in the area of haptic and tactile feedback for the interaction with textiles - [Brochure](#)
7. EU Enactive NoE IST-2004-002114 (2005-2009)
8. AO 04-G66 "Virtual Reality Planning in Reconstructive Trauma Surgery" Stanford University - research activity during the PhD period abroad

### Other participated projects:

1. Industria 2015 DOC (2012-2014) - vibrotactile for blind people
2. PRIN AIDA 2006 - "Advances in haptic Interfaces Design and Applications: soft contact, multi-point and multi-modal integration"
3. Regione Toscana POR-CREO Mantes (2009-2010)
4. EU Project FP7 BEAMING (2012-2013)
5. EU Project FP5 PureForm IST-2000-29580 (2003-2004)
6. EU Project FP5 CREATE IST-2001-34231 (2001)
7. FIRB ViCoM (2002-2005) - "Virtual Immersive Communications"

## Scientific Community

### Community Service

- Vice Chair of Information Dissemination of the IEEE TC (2011-2017) on Haptics managing <http://www.worldhaptics.org/> and contributing to the meetings of the technical meeting. In this period the TC has won the prize as most active TC in the IEEE Robotics and Automation Society (RAS).
- Founding member of the Technical Committee on Human Motion Understanding and Motion Synthesis of IEEE RAS.
- Contributed to the "Future Media and 3D Internet Task Force" of the Networked Media Unit of European Commission ([whitepaper](#), doi:10.2759/11972)

## Referee

- Journal Reviewer: mainly IEEE journals in robotics area, e.g. IEEE Transaction on Haptics (2008-2017), IEEE Transaction on Robotics (2013-2014), Frontiers in Robotics and AI (2015-2017), Elsevier Multimedia Systems Journal (2008-2015)
- Committee Member of Conferences: robotics conferences IEEE ICORR, RO-MAN and IROS, review of several robotics conferences, mainly WorldHaptics, and IEEE IROS

## Memberships Scientific Events

IEEE Robotics and Automation Society (>10 yrs), EuroHaptics Society

## Conferences

1. Publication Chair of [EuroHaptics 2018](#) in Pisa
2. Publication Chair of [IEEE WorldHaptics 2017](#) in Munich
3. Publicity Chair of [IEEE WorldHaptics 2015](#) in Evanston
4. Program Chair of IEEE RO-MAN, 19th IEEE International Symposium in Robot and Human Interactive Communication, 2010 in Viareggio
5. General Chair of ENACTIVE08, 5th Enactive International Conference on Enactive Interfaces , 2008 in Pisa

## Workshops and Special Sessions

1. Co-Chair of the Workshop on "[Multimodal Learning Analytics](#)" (MMLA) inside LAK 2017, Canada
2. Co-Chair of the Special Session on "Challenges of R&D in Robotics", R&D Management Conference 2015, Pisa
3. Co-Chair of the Special Session on "Robotics and Automation for Health", MED14, 2015
4. Program Chair of the Workshop on "Learning Analytics for Project-based Learning", 17th International Conference on Artificial Intelligence in Education (AIED 2015)
5. Program Chair of the Workshop on "Feedback from Multimodal Interactions in Learning Management Systems", 7th, International Conference on Educational Data Mining (EDM 2014), London, [Website](#)
6. Co-Chair of the Workshop on "Skills Capture And Transfer" at IEEE RO-MAN 2008, Munich
7. Co-Chair of the Tutorial on "Skills" at RSS 2008, Zurich

In addition Session Chair of several IEEE conferences, like IEEE IROS 2015.

## Students Tutoring

- Active PhD Students: 3
- Graduated PhD Students: 6
- PhD Discussion Committees: 6
- Active Master Thesis: 2
- Past Master Thesis: 18

Details are in Appendix

## Courses

### Full Courses

1. Course on "Computer Visions for Robots and Humans" for PhD at SSSA,3CFU (2016-2018)
2. Course on "Interaction in Virtual Environments" for PhD and master students at SSSA, 6CFU 50 hours (2012-2016, 4 years)
3. Course on "Information Visualization" at UNIPI, 5 CFU (2009-2011, 3 years)
4. Course on "Elements of Matlab and Simulink" (2008)
5. Course of "Haptics and haptic rendering" in the International Master on Virtual Environments Technologies for Industrial Applications at SSSA together with Dr. Avizzano (2009)
6. Course on "Physical Based Modeling" for master students at SSSA (2007)
7. Course in Vision Based Posture Tracking for PhD (2 CFU, 2016 and 2017)

### Lectures in PhD Courses, Postgraduate or Summer Schools

Recent lectures, older are in Appendix

1. (2017-2018) Lectures on Autonomous Driving Perception and Planning in the Professional Development course by Maserati held at University of Modena-Reggio Emilia (4h)
2. (2017) Lectures on Artificial Intelligence and Robotics for Power Plants in the Master Enel (6h)
3. (2017) Lecture on Deep Learning for Computer Vision in the PhD course "Neural Networks" of Prof. Buttazzo, SSSA

### Lectures in Master Courses

Recent lectures, older are in Appendix

1. (2016) Module of 10 hours in the course "Component Based Development" at SSSA-UNIPI on Multicore and GPU computing (Prof Buttazzo)
2. (2016-2018) Module of 5 hours in the course "Introduction to Matlab and Simulink" of (Prof. Ciaramella)

## Personal skills and competences

Mother tongue(s)

Other language(s)

*Self-assessment  
European level<sup>(\*)</sup>*

**English**

## Italian

| Understanding |         | Speaking           |                   | Writing |
|---------------|---------|--------------------|-------------------|---------|
| Listening     | Reading | Spoken interaction | Spoken production |         |
| C1            | C1      | C1                 | C1                | C1      |

<sup>(\*)</sup> Common European Framework of Reference (CEF) level



## Management skills and competences

- Activity coordination in the team, and at the level of consortium as Workpackage leader
- Presentation of results at Review meeting
- Effort estimation, break down, reporting
- Financial accounting rules for projects funded by national or European calls

## Technical skills and competences

Listing of Open Source contributions: [here](#)

- Main Programming Language: C++ and cross-platform programming. Use of C++ since 1995 in networked, multi-threaded applications ranging from robotics, virtual reality and machine learning. Library and tools development.
- Component-based, concurrent and soft real-time programming
- Secondary Languages: Python and Matlab used for tooling and data analysis. Talk at EuroPython [PO10](#) [PO8](#)
- Languages used in the past: x86 assembler, PHP, Java, C#, Delphi
- C++ Libraries: Qt, Eigen, boost, OpenCV, Aruco, PCL
- Parallel and GPU computing: OpenMP (paper [C72](#)) and CUDA
- Programming Tools: cmake, Doxygen, graphviz
- Unit Testing tools: catch
- Version control systems: git, previously subversion and mercurial
- Software Management Tools: Jenkins, rhodecode
- Use of Web technologies (HTML5, REST and Javascript) mainly for exposing software functionalities
- Daily usage of LaTeX for reporting and documentation, automatic report generation
- Architecture Tools: interest in SysML (paper [C78](#))

## 3D and Virtual Reality Technologies

- Display with Oculus HMD and HTC Vive, experience in CAVE
- Motion Capture with Vicon and Xsens
- Application development with custom framework (XVR, CoCo) and Unity
- OpenGL API: 2.x and 3.3, WebGL
- Research and development experience with haptic interfaces: worked with Phantom, custom Exoskeleton, custom desktop devices
- Disciplined approach in Transformation Graphs for telepresence systems

## Data Processing

- Deep learning using Python frameworks
- Mainly Matlab/Simulink with C++ adaptation, machine learning methods with interest in probabilistic graphical models for static and dynamic models.
- Sensor fusion based on non-linear Kalman filtering
- Interest in data management software with provenance for traceable research

## Platforms

- Operating Systems: OSX (main), Linux (development) and in the past Windows (low level), with some exposure to OpenVMS
- Multiplatform and cross-platform development with C++
- Knowledge of internal structure of operating systems (Windows and Linux) and the system stack
- Use of Virtualization technologies for improving software development: Vagrant and Docker
- Embedded systems: some experience with ARM solutions in particular STM32, and in the past use of TI C2000
- Network programming at various levels
- Robotic development using ROS - [github](#) - papers [C53](#) [C62](#) [C67](#) [C75](#) [C76](#) [C78](#) [C83](#) [C87](#) [C88](#) [C90](#) ??

## Annexes

- 1 List of publications
- 2 List of students
- 3 List of referee roles
- 4 Lecture listing

Torre del Lago Puccini, February 22, 2018

Emanuele Ruffaldi

## Appendix: List of publications

- ORCID [0000-0001-6084-6938](https://orcid.org/0000-0001-6084-6938)
- Google Scholar [Profile](#)

Underlining marks co-authors who were funded members of my research group *Italics* marks co-authors who I supervised or co-supervised being member's of another research group Visual listing is available at this [link](#).

### Journal Papers

#### 2018

J24) *Bassani Giulia*, Filippeschi Alessandro & **Ruffaldi Emanuele** (2018). Non-Resonant Kinetic Energy Harvesting using Macro-Fiber Composite Patch. *IEEE Sensors Journal* 1530-437X, 18 (pp. 2068-2076). DOI (pdf) IF: 2.51

#### 2017

J23) *Brizzi Filippo*, *Peppoloni Lorenzo*, *Graziano Alessandro*, Di Stefano Erika, Avizzano Carlo Alberto & **Ruffaldi Emanuele** (2017). Effects of augmented reality on the performance of teleoperated industrial assembly tasks in a robotic embodiment. *IEEE Transactions on Human-Machine Systems* 2168-2291, inpress DOI (pdf) (video) IF: 2.49

J22) Tripicchio Paolo, **Ruffaldi Emanuele**, Gasparello Paolo, Eguchi Shingo, Kusuno Junya, Kitano Keita, Yamada Masaki, Argiolas Alfredo, Niccolini Marta, Ragaglia Matteo & Avizzano Carlo Alberto (2017). A Stereo-Panoramic Telepresence System for Construction Machines. *Procedia Manufacturing* 2351-9789, 11 (), (pp. 1552 - 1559). DOI (pdf) (video)

J21) Di Cesare Giuseppe, Sparaci Laura, Pelosi Annalisa, Mazzone Luigi, Giovagnoli Giulia, Menghini Deny, **Ruffaldi Emanuele** & Vicari Stefano (2017). Differences in action style recognition in children with autism spectrum disorders. *Frontiers in Psychology* 1664-1078, 8 (pp. 1456). DOI (pdf)

J20) *Peppoloni Lorenzo*, Lawrence EmilyL., **Ruffaldi Emanuele** & Valero-cuevas FranciscoJ. (2017). Characterization of the disruption of neural control strategies for dynamic fingertip forces from attractor reconstruction. *PLOS ONE* 1932-6203, 12 (2), (pp. 1-23). DOI (pdf) IF: 2.81

J19) *Filippeschi Alessandro*, Schmitz Norbert, Miezal Markus, Bleser Gabriele, **Ruffaldi Emanuele** & Stricker Didier (2017). Survey of motion tracking methods based on inertial sensors: a focus on upper limb human motion. *Sensors* 1424-8220, 17 (6), DOI (pdf) IF: 2.68

#### 2016

J18) Johard Leonard & **Ruffaldi Emanuele** (2016). Self-organizing trajectories. *Pattern Recognition Letters* 0167-8655, 84 (pp. 177-184). DOI (pdf) IF: 2.00

J17) Di Cesare Giuseppe, Valente Giancarlo, Di Dio Cinzia, **Ruffaldi Emanuele**, Bergamasco Massimo, Goebel Rainer & Rizzolatti Giacomo (2016). Vitality forms processing in the insula during action observation: a multivoxel pattern analysis. *Frontiers in Human Neuroscience* 1662-5161, 10 (267), DOI (pdf) IF: 3.42

J16) *Peppoloni Lorenzo*, *Filippeschi Alessandro*, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2016). A novel wearable system for the online assessment of risk for biomechanical load in repetitive efforts. *International Journal of Industrial Ergonomics* 0169-8141, 52 (), (pp. 1-11). DOI (pdf) IF: 1.42

#### 2015

J15) **Ruffaldi Emanuele**, *Peppoloni Lorenzo* & *Filippeschi Alessandro* (2015). Sensor fusion for complex articulated body tracking applied in rowing. *Journal of Sport Engineering and Technology* 1754-3371, 229 (2), (pp. 92-102). DOI (pdf) IF: 0.46

#### 2014

J14) Tripicchio Paolo, Loconsole Claudio, Piarulli Andrea, **Ruffaldi Emanuele**, Tecchia Franco & Bergamasco Massimo (2014). On multiuser perspectives in passive stereographic virtual environments. *Computer Animation and Virtual Worlds* 1546-4261, 25 (1), (pp. 69-81). DOI (pdf) IF: 0.42

J13) Avizzano Carlo Alberto, Satler Massimo & **Ruffaldi Emanuele** (2014). Portable haptic interface with omni-directional movement and force capability. *IEEE Transactions on Haptics* 1939-1412, 7 (2), (pp. 110-120). DOI (pdf) IF: 2.00

J12) Hoffmann CharlesP., Filippeschi Alessandro, **Ruffaldi Emanuele** & Bardy Benoit (2014). Energy management using virtual reality improves 2000-m rowing performance. *Journal of Sports Sciences* 1546-4261, 32 (6), (pp. 1-9). DOI (pdf) (video) IF: 0.42

## 2013

J11) Filippeschi Alessandro & **Ruffaldi Emanuele** (2013). Boat Dynamics and Force Rendering Models for the SPRINT System. *Human-Machine Systems, IEEE Transactions on* 2168-2291, 43 (6), (pp. 631-642). DOI (pdf) IF: 2.49

J10) Varlet Manuel, Filippeschi Alessandro, Ben-sadoun Gregory, Ratto Michael, Marin Ludovic, **Ruffaldi Emanuele** & Bardy Benoit (2013). Virtual Reality as a Tool to Learn Interpersonal Coordination: Example of Team Rowing. *Presence: Teleoperators and Virtual Environments* 1054-7460, 22 (3), (pp. 202-2015). DOI (pdf) (video) IF: 0.75

## 2012

J9) **Ruffaldi Emanuele** & Filippeschi Alessandro (2012). Structuring a virtual environment for sport training: A case study on rowing technique. *Robotics and Autonomous Systems* 0921-8890, 61 (4), (pp. 390-397). DOI (pdf) (video) IF: 1.95

## 2011

J8) **Ruffaldi Emanuele**, Filippeschi Alessandro, Avizzano Carlo Alberto, Bardy Benoit, Gopher Daniel & Bergamasco Massimo (2011). Feedback, affordances, and accelerators for training sports in virtual environments. *Presence: Teleoperators and Virtual Environments* 1054-7460, 20 (1), (pp. 33-46). DOI (pdf) IF: 0.75

J7) **Ruffaldi Emanuele**, Tripicchio Paolo, Avizzano Carlo Alberto & Bergamasco Massimo (2011). Haptic rendering of juggling with encountered type interfaces. *Presence: Teleoperators and Virtual Environments* 1054-7460, 20 (5), (pp. 480-501). DOI (pdf) (video) IF: 0.75

## 2009

J6) Filippeschi Alessandro, **Ruffaldi Emanuele**, Frisoli Antonio, Avizzano Carlo Alberto, Varlet Manuel, Marin Ludovic, Lagarde Julien, Bardy Benoit & Bergamasco Massimo (2009). Dynamic models of team rowing for a virtual environment rowing training system. *International Journal of Virtual Reality* 1081-1451, 8 (4), (pp. 49). (pdf)

## 2008

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- C11) Portillo-Rodriguez Otniel, Sandoval-gonzalez Oscar Osvaldo, **Ruffaldi Emanuele**, Leonardi Rosario, Avizzano Carlo Alberto & Bergamasco Massimo (2008) Real-Time Gesture Recognition, Evaluation and Feed-Forward Correction of a Multimodal Tai-Chi Platform In *Haptic and Audio Interaction Design (HAID 2008)* (pp. 30-39). Springer Berlin Heidelberg. [DOI](#) isbn:978-3-540-87882-7 ([pdf](#))
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- C9) Frisoli Antonio, **Ruffaldi Emanuele**, Bagnoli Leonardo, Filippeschi Alessandro, Avizzano Carlo Alberto, Vanni Federico & Bergamasco Massimo (2008) Preliminary Design of Rowing Simulator for In-door Skill Training In *Proceedings of the 2008 Ambi-Sys Workshop on Haptic User Interfaces in Ambient Media Systems* (pp. 9:1-9:8). ICST (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering). [DOI](#) ([pdf](#))
- C8) **Ruffaldi Emanuele**, Morris Dan, Barbagli Federico, Salisbury Ken & Bergamasco Massimo (2008) Voxel-Based Haptic Rendering Using Implicit Sphere Trees In *Haptic interfaces for virtual environment and teleoperator systems, 2008. haptics 2008. symposium on* (pp. 319-325). . [DOI](#) ([pdf](#)) ([video](#))

## 2007

- C7) Boeck JoanDe, **Ruffaldi Emanuele**, Carrozzino Marcello, Raymaekers Chris, Coninx Karin & Bergamasco Massimo (2007) Designing an Enactive Interface for Virtual Prototyping: a Case Study In *4th International Conference on Enactive Interfaces* (pp. 77-80). . ([pdf](#))
- C6) Sani Elisabetta, **Ruffaldi Emanuele**, Faste Hakoon & Bergamasco Massimo (2007) Business Model for Enactive Interfaces In *Proceedings of ENACTIVE/07. 4th International Conference on Enactive Interfaces* (pp. 251-254). Acroe. ([pdf](#))

## 2006

- C5) **Ruffaldi Emanuele**, Frisoli Antonio, Gottlieb Chris, Tecchia Franco & Bergamasco Massimo (2006) A Haptic toolkit for the development of immersive and Web enabled games In *ACM symposium on Virtual reality software and technology (VRST)* (pp. 320-323). . [DOI](#) ([pdf](#))
- C4) Frisoli Antonio, Barbagli Federico, **Ruffaldi Emanuele**, Bergamasco Massimo & Salisbury Ken (2006) A Limit-Curve Based Soft Finger god-object Algorithm In *Haptic Interfaces for Virtual Environment and Teleoperator Systems. The 14th IEEE Symposium on* . [DOI](#) ([pdf](#))
- C3) **Ruffaldi Emanuele**, Morris Dan, Edmunds T., Barbagli Federico & Pai Dinesh (2006) Standardized Evaluation of Haptic Rendering Systems In *Haptic Interfaces for Virtual Environment and Teleoperator Systems, 2006 14th Symposium on* (pp. 225-232). . [DOI](#) ([pdf](#))

## 2005

- C2) Bergamasco Massimo, Perotti S., Avizzano Carlo Alberto, Angerilli Micheal, Carrozzino Marcello & **Ruffaldi Emanuele** (2005) Fork-lift truck simulator for training in industrial environment In *Emerging Technologies and Factory Automation, ETFA. The 10th IEEE International Conference on* . DOI (pdf)
- C1) **Ruffaldi Emanuele** & Bergamasco Massimo (2005) Explorative information spaces with the Virtual TeXt-o-Graphic Library (VTEXGL) In *VR International in HCI* .

## Books

- B1) Future Media Internet Task Force (2009). Research on Future Media Internet.: European Commission Luxembourg: Office for Official Publications of the European Communities, DOI (pdf) isbn:978-92-79-12810-3

## Chapters in Books

### 2012

- CH10) Fontana Marco, **Ruffaldi Emanuele**, Salsedo Fabio & Bergamasco Massimo (2012). On the Integration of Tactile and Force Feedback.In Abdulmotaleb El Saddik (Eds.), *Haptics Rendering and Applications* (pp. 47-74).. : In-Tech DOI (pdf) isbn:978-953-307-897-7
- CH9) **Ruffaldi Emanuele**, Filippeschi Alessandro, Varlet Manuel, Hoffmann Charles & Bardy Benoit (2012). Design and Evaluation of a Multimodal Virtual Reality Platform for Rowing Training.In (Eds.), *Skill Training in Multimodal Virtual Environments* (pp. 173-186).. : CRC Press DOI (pdf) isbn:978-1-4398-7895-8
- CH8) **Ruffaldi Emanuele** (2012). Data Management for Evaluation and Training in Virtual Environments.In (Eds.), *Skill Training in Multimodal Virtual Environments* (pp. 155-170).. : CRC Press DOI isbn:978-1-4398-7895-8
- CH7) Avizzano Carlo Alberto, Gosselin Florian, Gutierrez Teresa, Preusche Carsten, **Ruffaldi Emanuele**, Sanchez Emilio & Bergamasco Massimo (2012). Haptic Interfaces for Skills Training.In (Eds.), *Skill Training in Multimodal Virtual Environments* (pp. 91-110).. : CRC Press DOI isbn:978-1-4398-7895-8

### 2010

- CH6) *Sani Elisabetta*, **Ruffaldi Emanuele** & Bergamasco Massimo (2010). Interactive Technology Maps for Strategic Planning and Research Directions Based on Textual and Citation Analysis of Patents.In (Eds.), *Handbook on Business Information Systems* (pp. 487-514).. : DOI isbn:978-981-283-605-2
- CH5) Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2010). Training Skills with Virtual Environments.In Fredric Danion and Mark Latash (Eds.), *Motor Control: Theories, Experiments, and Applications* (pp. 314-346).. : Oxford University Press DOI (pdf) isbn:978-0195-395-273
- CH4) Portillo-Rodriguez Otniel, Sandoval-gonzalez Oscar Osvaldo, Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2010). Capturing and Training Motor Skills.In Abdulmotaleb El Saddik (Eds.), *Human-Robot Interaction* (pp. 225-246).. : DOI (pdf) isbn:9789533070513

### 2008

- CH3) Frisoli Antonio, Bergamasco Massimo, **Ruffaldi Emanuele**, Talaba Doru & Admitis Angelos (2008). Haptic Systems: Advanced Haptic Systems for Virtual Reality.In Doru Talaba,Angelos Amditis (Eds.), *Virtual Reality, Applications and Tools for Intelligent Manufacturing Systems* (pp. 145-168).. : Springer DOI isbn:978-1-4020-8199-6
- CH2) Frisoli Antonio, Bergamasco Massimo & **Ruffaldi Emanuele** (2008). Advanced Haptic Systems for Virtual Reality.In Talaba, Doru and Amditis, Angelos (Eds.), *Product Engineering* (pp. 145-168).. : Springer Netherlands DOI isbn:978-1-4020-8199-6

### 2005

- CH1) Frisoli Antonio, Bergamasco Massimo, Wu Suel. & **Ruffaldi Emanuele** (2005). Evaluation of Multipoint Contact Interfaces in Haptic Perception of Shapes.In Barbagli, Federico and Prattichizzo, Domenico and Salisbury, Kenneth (Eds.), *Multi-point Interaction with Real and Virtual Objects* (pp. 177-188).. : Springer Berlin Heidelberg DOI (pdf) isbn:978-3-540-26036-3

## Patents

- P1) Scoglio Andrea, Cappiello Giovanni, Curto Zoran, Rossi Fabio, Avizzano Carlo Alberto, Satler Massimo & **Ruffaldi Emanuele** (2012). *Haptic system and device for man-machine interaction*.WO2012114274 (A3), IT1406207 (B1) ([pdf](#))

## Proceedings of Events

### 2010

- PE2) Avizzano Carlo Alberto, **Ruffaldi Emanuele**, Carrozzino Marcello, Fontana Marco & Bergamasco Massimo (Eds.). (2010). *Proceedings of the 19th IEEE Robot-Human Communication Conference, RO-MAN IEEE* isbn:9781424479894

### 2008

- PE1) **Ruffaldi Emanuele** & Fontana Marco (Eds.). (2008). *Proceedings of the 5th International Conference on Enactive Interfaces* Edizioni ETS ([pdf](#)) isbn:978-884-672-2522

## Posters and Presentations in Workshops

### 2017

- PO31) Bassani Giulia, Jean-mistral C. & **Ruffaldi Emanuele** (2017). Energy harvesting from a backpack with an auxetic dielectric elastomer generator. In *7th international conference on Electromechanically Active Polymer (EAP) transducers and artificial muscles*. :
- PO30) Bassani Giulia, Jean-mistral C. & **Ruffaldi Emanuele** (2017). Development of an auxetic frame for scavenging human kinetic energy. In *Journées Nationales sur la Recuperation et le Stockage d'Energie*. : ([pdf](#))
- PO29) Peppoloni Lorenzo, Lawrence E., **Ruffaldi Emanuele** & Cuevas V. (2017). Inference of differences in neural control strategies from attractor reconstruction of dynamic fingertip forces. In *27th Annual Meeting of the Neural Control of Movement*. :

### 2016

- PO28) Filippeschi Alessandro & Others (2016). Preliminary usability assessment for a novel robotic interface for remote Doppler-echocardiography. In *European Society of Cardiology Congress*. : ([pdf](#))
- PO27) Peppoloni Lorenzo, **Ruffaldi Emanuele** & Valero-cuevas FranciscoJ. (2016). The strength dexterity test quantifies age-related differences in the sensorimotor control dynamics. In *Neuromechanics*. :

### 2015

- PO26) **Ruffaldi Emanuele** (2015). Future Challenges: Designing ICT Prizes for Europe. In *IROS Workshop on Robot Competitions: What did we learn?*. : ([pdf](#))
- PO25) **Ruffaldi Emanuele** (2015). Reconstruction and Analysis in the ERGANE system. In *ERGANE Final Workshop*. :

### 2014

- PO24) Di Cesare Giuseppe, Di Dio C. & **Ruffaldi Emanuele** (2014). Aggressive-neutral-gentle: looking through the style of action. In *9th FENS Forum of Neuroscience*. : ([pdf](#))
- PO23) Peppoloni Lorenzo, Filippeschi Alessandro & **Ruffaldi Emanuele** (2014). Sensor fusion for complex articulated body tracking applied in rowing. In *ICRA Workshop on Latest Advances on Natural Motion Understanding and Human Motion Synthesis*. : ([pdf](#))
- PO22) Angelika Peer, **Ruffaldi Emanuele** & Others (2014). Towards a Remote Medical Diagnostician for Medical Examination. In *Medicine Meets Virtual Reality MMVR*. : ([pdf](#))
- PO21) Lenzo Basilio, Filippeschi Alessandro, **Ruffaldi Emanuele**, Frisoli Antonio, Salsedo Fabio & Bergamasco Massimo (2014). ALEX, a new exoskeleton for power assist and motor learning. In *International Workshop on Wearable Robotics*. : ([pdf](#))

## 2013

- PO20) Peppoloni Lorenzo, Filippeschi Alessandro & **Ruffaldi Emanuele** (2013). Motion Tracking for portable biomechanic measures. In *ICRA Workshop on Computational Techniques in Natural Motion Analysis and Reconstruction*. : [\(pdf\)](#) [\(video\)](#)

## 2009

- PO19) Sani Elisabetta, **Ruffaldi Emanuele**, Avizzano Carlo Alberto & Bergamasco Massimo (2009). Visualization of Trends in Rehabilitation Robotics based on Patent mining. In *1st International Symposium on Neurorehabilitation: From Basics to Future*. Valencia,ES:
- PO18) Vanni Federico, **Ruffaldi Emanuele**, Avizzano Carlo Alberto & Bergamasco Massimo (2009). Large-scale spatial encoding during direct and mediated virtual rowing. In *1st International Symposium on Neurorehabilitation: From Basics to Future*. Valencia,ES:
- PO17) Carrozzino Marcello, Evangelista Chiara, **Ruffaldi Emanuele**, Neri Veronica & Bergamasco Massimo (2009). Web Dissemination of Cultural Content through Information Landscapes. In *Multimodal interaction for the Web*. : Toronto: Archives and Museum Informatics

## 2008

- PO16) Tripicchio Paolo, **Ruffaldi Emanuele**, Avizzano Carlo Alberto & Bergamasco Massimo (2008). Cognitive Cooperation in Virtual Reality. In *Enactive Conference*. :
- PO15) Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2008). Semantic analysis and data storage of skills. In *Proceedings of IDMME - Virtual Concept 2008*. : [\(pdf\)](#)
- PO14) Bardy Benoit, Mottet D., Gopher Daniel, Avizzano Carlo Alberto, **Ruffaldi Emanuele**, Sanchez E. & Bergamasco Massimo (2008). INTRODUCTION TO THE SKILLS PROJECT AND ITS THEORETICAL FRAMEWORK. In *Proceedings of IDMME - Virtual Concept 2008*. : [\(pdf\)](#)
- PO13) Avizzano Carlo Alberto, Frisoli Antonio, **Ruffaldi Emanuele**, Tripicchio Paolo & Bergamasco Massimo (2008). A sensorimotor study of the control of perception during impact with encountered haptics. In *SIDRA*. :
- PO12) Avizzano Carlo Alberto, **Ruffaldi Emanuele**, Tripicchio Paolo & Bergamasco Massimo (2008). Dynamic interaction with an Encountered Haptic Interface. In *MITH 2008*. :

## 2007

- PO11) Aprile Walter, **Ruffaldi Emanuele**, Sotgiu Edoardo, Frisoli Antonio & Bergamasco Massimo (2007). A dynamically reconfigurable stereoscopic/panoramic vision mobile robot head controlled from a virtual environment. In *4th International INTUITION Conference*. :
- PO10) Aprile Walter, **Ruffaldi Emanuele**, Frisoli Antonio & Bergamasco Massimo (2007). Managing and displaying user track data with Python. In *EuroPython 2007 Conference, Vilnius*. :
- PO9) Tecchia Franco, **Ruffaldi Emanuele**, Carrozzino Marcello, Frisoli Antonio & Bergamasco Massimo (2007). Museum on the Web 2007: Proceedings. In *Multimodal interaction for the Web*. : Toronto: Archives and Museum Informatics

## 2006

- PO8) **Ruffaldi Emanuele**, Bacinelli Sandro, Carrozzino Marcello & Bergamasco Massimo (2006). Dual Scripting in a Virtual Reality Engine. Embedding Python in XVR. In *EuroPython 2006 Conference, Ginevra*. : [\(pdf\)](#)
- PO7) **Ruffaldi Emanuele**, Frisoli Antonio & Bergamasco Massimo (2006). Evaluation of a haptic game in an immersive environment. In *3rd International Conference on Enactive Interfaces, Montpellier*. :

## 2005

- PO6) Frisoli Antonio, Barbagli Federico, **Ruffaldi Emanuele**, Salisbury Ken & Bergamasco Massimo (2005). A Limit-Curve Based Soft Finger god-object Algorithm. In *2nd International Conference on Enactive Interfaces*. :
- PO5) Salsedo Fabio, Fontana Marco, Tarri F., **Ruffaldi Emanuele**, Bergamasco Massimo, Magnenat-thalmann N., Volino P., Bonanni U., Brady A., Summers I., Qu J., Allerkamp D., Bottcher G., Wolter F-e, Makinen M. & Meinander H. (2005). Architectural Design of the Haptex System. In *HAPTEX'05 Workshop on Haptic and Tactile Perception of Deformable Objects*. : [\(pdf\)](#)

PO4) Bergamasco Massimo, Frisoli Antonio, **Ruffaldi Emanuele** & Jansson G. (2005). Pure-Form: Perception and exploration of digital shapes. In *International Conference on Perception and Action, ICPA*. :

PO3) Carrozzino Marcello, Frisoli Antonio, Rossi Fabio, Tecchia Franco, **Ruffaldi Emanuele** & Bergamasco Massimo (2005). The Museum of Pure Form. In *Multimedia Information DDesign for Cultural Heritage MIDECH*. :

## 2004

PO2) **Ruffaldi Emanuele** & Evangelista Chiara (2004). Populating Virtual Environments using Semantic Web. In *Semantic Web Application and Perspectives*. : ([pdf](#))

PO1) Wu S.L., **Ruffaldi Emanuele**, Bergamasco Massimo, Salisbury Ken, Frisoli Antonio & Barbagli Federico (2004). Evaluation of multipoint contact interfaces in haptic perception of shapes. In *Symposium of Multi-point Interaction in Robotics and Virtual Reality, in IEEE ICRA*. :

## Invited Talks

### 2018

T13) **Ruffaldi Emanuele** (2018). Autonomous Driving Systems as Robots. At *Alfa Romeo and Maserati Engineering School*, host Prof. Marko Bertogna. Modena, Italy

### 2017

T12) **Ruffaldi Emanuele** (2017). Autonomous Driving Systems as Robots. At *Alfa Romeo and Maserati Engineering School*, host Prof. Marko Bertogna. Modena, Italy

### 2016

T11) **Ruffaldi Emanuele** (2016). Wearable body tracking for Occupational Biomechanics and Telemedicine. At *IEEE Summer School on Medical Informatics*. Biblioteca Giovanni Bovio, Trani <http://www.ismiss.it/>

T10) **Ruffaldi Emanuele** (2016). Occupational Biomechanics and Virtual Ergonomy. At *Personal injury damages compensation and biomechanics. Erasmus + Project Areyoufine?*. Scuola Superiore Sant'Anna, Pisa, Italy

### 2015

T9) **Ruffaldi Emanuele** (2015). Multimodal systems for training in Virtual Environments. At *Skill training with virtual reality and video-game platforms inside 14th European Congress of Psychology*. Milano, Italy

T8) Peppoloni Lorenzo, **Ruffaldi Emanuele**, Filippeschi Alessandro & Avizzano Carlo Alberto (2015). Wearable solution for online assessment of biomechanical load risks. At *Bridging Gaps between Computational Biomechanics and Robotics: Theory, Tools, and Applications, Tutorial inside IEEE RAS ICRA*. Seattle, Washington ([pdf](#))

### 2012

T7) **Ruffaldi Emanuele** (2012). Biomechanical analysis of skilled movements. At *Biomechanics in Human-Robot Interaction Summer School*. Gargonza, IT

### 2011

T6) **Ruffaldi Emanuele** (2011). Training Rowing with Virtual Environments. At *The International SKILLS Conference*. Montpellier, Italy ([pdf](#))

T5) Bergamasco Massimo & **Ruffaldi Emanuele** (2011). Haptic Interfaces for Embodiment in Virtual Environments. At *20th years of IEEE RO-MAN*. Atlanta, US ([pdf](#))

T4) **Ruffaldi Emanuele** (2011). Robot-assisted training in sports: not requested or too challenging?. At *Mini-symposium on Robotics for Sport Training inside IEEE EMBC*.

T3) **Ruffaldi Emanuele** (2011). Machine Learning for Skill Training in Virtual Environments. At *SKILLS Summer School*. Gargonza, IT

## 2008

- T2) **Ruffaldi Emanuele** (2008). Natural Interaction and training with touch. At *Natural Interaction, only with your body organized by MIMOS*. Florence, IT
- T1) **Ruffaldi Emanuele** (2008). Touch and Motion. At *Latest developments in Computer Graphics technology in a Virtual Museum at Hosei University, host Prof. Hisato Kobayashi*. Tokyo, Japan

## Demonstrations

## 2015

- T4) **Ruffaldi Emanuele** & Others (2015). ReMeDi DiagUI AR system. In *Innovative Surgical Robotics Forum* at London

## 2011

- T3) **Ruffaldi Emanuele** & Filippeschi Alessandro (2011). The SPRINT Rowing System. In *1st SKILLS International Conference* at Montpellier, France

## 2008

- T2) **Ruffaldi Emanuele** & Tripicchio Paolo (2008). Haptic Virtual Laboratory. In *IEEE Haptic Symposium* at Reno, Nevada, USA

## 2005

- T1) Frisoli Antonio, Bergamasco Massimo, **Ruffaldi Emanuele**, Marcheschi Simone & Avizzano Carlo Alberto (2005). The Create Haptic System. In *IEEE World Haptics* at Pisa, Italy

## Appendix: Tutored students

### Active Phd Students

- 1) Lorenzo Landolfi (aa. 2016/2017) - computer vision for human activity
- 2) Alessandro Graziano (aa. 2015/2016) - funded by H2020 RAMCIP on human-robot interaction
- 3) Giacomo Dabisias (aa. 2014/2015) - funded by FP7 PELARS on object and action recognition

### Past Phd Students

- 1) Giulia Bassani (aa.2013/2014) - PhD defended in 2017 - funded by Telecom Italia on wearable energy harvesting
- 2) Alessandro Di Fava (aa.2011/2012) - PhD defended in 2016 - on advanced robot control
- 3) Lorenzo Peppoloni - PhD defended in 2015 - graduated on wearable biomechanic assessment
- 4) Leonard Johard - PhD defended in 2013 - now on Innopolis - machine learning
- 5) Alessandro Filippeschi - PhD defended in 2012. - now at SSSA - rowing training in VE
- 6) Vittorio Lippi - PhD defended in 2012 - now at Freiburg University - robot gait control

### PhD Committees

- 1) Alessio Matiz, TeCiP SSSA, 2017
- 2) Gastone Papini, TeCiP SSSA, 2016
- 3) Matteo Tanzini, TeCip SSSA, 2016
- 4) Michele Barsotti, TeCiP SSSA, 2016
- 5) Pasquale Buonocunto, TeCiP SSSA, 2016
- 6) Raffaello Brondi, TeCiP SSSA, 2015

## Master Students

- 1) Paolo Sassi, deep learning defect detection
- 2) Federica Fioretti, line-based camera SLAM
- 3) Alessandro Cattaneo, 2017, Deep-learning based driver intention analysis
- 4) Matteo Pampana, 2016, Vision for surface property characterization (Embedded)
- 5) **Michele Palermi**, 2016, Code generation per Probabilistic Graphical Models (Embedded)
- 6) Lucia Saracino, 2016, Assessment Design and Algorithms for Rehabilitation Robotics (Robotics) - papers [motoremfi2016jA](#), [m](#)
- 7) **Pietro Loreface**, 2016, Probabilistic Graphical Models (Embedded)
- 8) **Michele Mambrini**, 2016, AR Head per il progetto RAMCIP (Robotics)
- 9) **Erika di Stefano**, 2015, "Detection and pose estimation of texture-less objects in a multi-camera system. Application to visual servoing and manipulation with a ROS-guided semi-humanoid robot in an industrial context." (Robotics) - paper [ETFA2017multijA](#)
- 10) Di Napoli Giuseppe, 2015, "Design, simulation and development of a decentralized control for a robotic manipulator" (Robotics)
- 11) **Graziano Alessandro**, 2015, "Robust visual hand pose estimation and tracking matching inverse kinematics on synergistic subspaces" (Robotics)
- 12) Patrinostr Simone, 2015, "A Haptic-Assisted Guidance System For Working Machines Based on Virtual Force Fields" (Robotics) - [tanzinipatri2015j](#)
- 13) Michele Linardi, 2014, "ULISSE Ultra compact iSAX Index for Variable-Length Queries on Data Series", University of Trento
- 14) **Giacomo Dabisias**, 2014, "A framework for static allocation of parallel OpenMP code on multi-core platforms" (Informatics and Networking) [soma2016jA](#)
- 15) **Filippo Brizzi**, 2014, "A framework for static allocation of parallel OpenMP code on multi-core platforms" (bis) (Informatics and Networking) [soma2016jA](#)
- 16) **Corucci Francesco**, 2013, "Robotic perception and control for a demolition task in unstructured environments" (Computer Engineering)
- 17) **Michele Vannoni**, 2009, "System for the recognition and evaluation of movements" (Computer Science)
- 18) **Mohamed Machkour**, 2009, "Dynamic model of an athlete for a simulator of rowing" (Computer Engineering)
- 19) **Vittorio Lippi**, 2008, "Design and Development of a Human Gesture Recognition System in a Three-dimensional Interactive Virtual Environment" (Computer Engineering)
- 20) **Davide Sechi**, 2007, "Graphical 3D editor for a CAVE system" (Computer Science)

## Appendix: Referee Roles

### Journals

- IEEE Transaction on Haptics 2008-2017
- Frontiers in Robotics and AI 2015-2017
- Nature Scientific Reports 2017
- MDPI Sensors 2017
- IEEE Transaction on Mechatronics 2015-2016
- IEEE's Transactions on Visualization and Computer Graphics 2015
- Robotica 2015
- International Journal of Industrial Ergonomics 2015



- Elsevier Multimedia Systems Journal 2008-2015
- Journal of Human-Robot Interaction 2014
- Behavioral Research Methods 2014
- IEEE Transaction on Robotics 2013-2014
- Journal of Sport Technology 2014
- Journal of Intelligent and Robotics Systems 2014
- International Journal of Human-Computer Studies 2014
- ACM Transactions on Applied Perception 2013
- ITE Transactions on Media Technology and Applications 2013

## Conferences Editing

– IEEE ICORR Associate Editor 2015,2017 – IEEE RO-MAN Associate Editor 2011,2013 – IEEE IROS Associate Editor 2010

## Conferences Review

– IEEE ICRA 2011-2018 – IEEE VR 2015,2018 – Humanoids 2015 – IEEE RO-MAN 2007-2014 – IEEE IROS 2010-2014  
 – IEEE Haptic Symposium 2014 – IEEE MED14,MED16 – IEEE VRST 2013,2015 – EuroHaptics 2008-2016 – WorldHaptics 2007-2017 – ACM ICML 2017

## Lectures

### Lectures in PhD Courses, Postgraduate or Summer Schools

- 1) (2017-2018) Lectures on Autonomous Driving Perception and Planning in the Professional Development course by Maserati held at University of Modena-Reggio Emilia (4h)
- 2) (2017) Lectures on Artificial Intelligence and Robotics for Power Plants in the Master Enel (6h)
- 3) (2017) Lecture on Deep Learning for Computer Vision in the PhD course "Neural Networks" of Prof. Buttazzo, SSSA
- 4) (2016) Lecture at the IEEE Italy Section Medical Informatics Summer School (ISMISS) on "Wearable body tracking for Occupational Biomechanics and Telemedicine"
- 5) (2013-2017) Lecture on Writing Research Grants in the PhD course "How to prepare a research proposal" (Prof. Buttazzo)
- 6) (2013-2015) Lecture at the Master Telecom "Smart Cities" on innovations in Perceptual Robotics
- 7) (2012) Lecture at the Human-Robot Interaction Summer School, Gargonza, on "Biomechanical analysis of skilled performance"
- 8) (2011) Lecture at the SKILLS 2011 Summer School, Gargonza, on "Machine Learning for Skill Training in Virtual Environments"
- 9) (2009) 5 Lectures at the "International Master in Virtual Environment Technologies for Industrial Application" of SSSA on the topic of Haptics
- 10) (2008) 2 Lectures in the PhD Course on Virtual Reality Design and Application in Haptics of University of Siena, on "6DoF Interaction" and "Perspectives in Haptics"
- 11) (2007) Lecture at the 3rd Summer School of ARIS\*ER project, Gallipoli on "Volume Based Haptic Rendering", 11st June
- 12) (2007) Lecture at the 2nd Advanced Study Institute on "Product Engineering: Tools and Methods based on Virtual Reality Technology", Chania, Creete, 2nd June on "Advanced Haptic Systems"

## Lectures in Master Courses

- 1) (2016) Module of 10 hours in the course "Component Based Development" at SSSA-UNIFI on Multicore and GPU computing (Prof Buttazzo)
- 2) (2016-2018) Module of 5 hours in the course "Introduction to Matlab and Simulink" of (Prof. Ciaramella)
- 3) (2016) Lecture on "H2020 Framework Opportunities" at the School of European Project Planning, Florence
- 4) (2007) Talk on "Haptic simulation and haptic interaction" inside the Tutorial "Haptic Simulation, Perception and Manipulation of Deformable Objects" at the Eurographics 2007 Tutorial
- 5) (2007) Tutorial on "Haptic Rendering with XVR" at the Programming VR applications using the XVR technology, Pisa, Italy, 31st May
- 6) (2007-2009) Lecture at the Course of Mechatronics at UNIFI on Multi-process communication and Physical Models
- 7) (2009) Talk on "Ambienti virtuali per il training sportivo: dal virtuale al reale nel canottaggio", Science Cafè of SSSA
- 8) (2006) Lecture on "6DOF Haptic Rendering and Algorithm Benchmarking" inside the CS277 Course "Experimental Haptics" of professor Ken Salisbury at the Stanford University
- 9) (2003-2008) Lectures on Web3D and architectures of Virtual Reality applications in the course held by Prof. Bergamasco and Dr. Carrozzino entitled "Virtual Reality " at University of Pisa in the Computer Science faculty (2003-2008): "Collision detection" and "Haptics on the Web" (2006,2008) - Collision detection and response for Virtual Environments. Integration of Haptics with the XVR graphics engine (2005) - Architecture and Concepts for Software in Virtual Environments (2004), Overview of Web3D technologies and perspective (2003)