

Personal information

Surname(s) / First name(s)

Telephone(s)

Email(s)

Nationality(-ies)

Date of birth

Website

Ruffaldi Emanuele

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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 using Vision and Deep Learning. 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

Main activities and responsibilities

April 2018 - ongoing

Senior Software Engineer

Medical Micro Instruments (MMI S.p.a.), Calci, Italy

Medical robotics software architecture and intelligence

Dates

Occupation or position held

Name and address of employer

Research Topics

May 2007 - April 2018

Assistant Professor (ING-IND/13)

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);

Main activities and responsibilities

- Team manager as leader of the "Sensing, Modeling and Learning Group" at SSSA, with 5-6 people comprising PhD, Postdoc and engineers
- 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:

- 26 Journal papers and 93 peer-reviewed conference papers (55 IEEE/ACM)
- 10 book chapters, 29 posters and workshops, 9 invited talks, 2 patents
- Scopus H-Index: 13
- ASN scores: (5yr/journals: 14, 10yrs/cit: 353, 10yrs/H-Index: 10)
- Erdos number: 5

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 ([HAPTEX](#)). 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 [JA1 PO7](#).

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-ongoing
Activity	Research on Artificial Intelligence methods
Details	Multiscale modeling of people behavior from body motion to patterns across timescale. Research carried out in then INAIL project.
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	2012-2018
Activity	Ergonomic Assessment using Wearable Systems - website
Details	Research, development and management of a system (project page) 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. J20 C50 J17 C76
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: C63 , C66 .
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. ?? C67
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 J23
Dates	October 2006 to December 2011
Activity	Platform for Sport Training in Virtual Environments
Details	Research, development and team coordination on a system for training Rowing in Virtual Environments (SPRINT) 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. J10 .
Dates	March 2009-2016
Activity	Mobile Haptic Platform for Rehabilitation

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: C49 , J14 , C80 , C81 .
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 CH9 .
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. C13 .
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. C15 .

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) - not started
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 (up to April 2018) 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 http://www.ramcip-project.eu/
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 http://www.pelars.eu
Sponsor	EU FP7 Technology Enhanced Learning
Grant Size	370k€, 12 partners
Details	PI, WP Leader 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 - press
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 - final workshop
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 website
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 Mantas (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

IEEE Senior Member since 2018, IEEE Robotics and Automation Society (>10 yrs), EuroHaptics Society

Scientific Events

Conferences

1. Publication Chair of [EuroHaptics 2018](#) in Pisa and Volume Editor ([PE3](#))
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 and Volume Editor ([PE2](#))
5. General Chair of ENACTIVE08, 5th Enactive International Conference on Enactive Interfaces , 2008 in Pisa and Volume Editor ([PE1](#))

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 UNIFI, 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-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)

Personal skills and competences

Mother tongue(s)

Other language(s)

*Self-assessment
European level^(*)*

Italian

Understanding		Speaking		Writing
Listening	Reading	Spoken interaction	Spoken production	

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 [C52](#) .
- 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](#) [J24](#)

Annexes

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

Torre del Lago Puccini, June 11, 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

- J26) Spikol Daniel, **Ruffaldi Emanuele**, *Dabisias Giacomo* & Cukurova M. (2018). Supervised Machine Learning in Multi-modal Learning Analytics for Estimating Success in Project-based Learning. *Journal of Computer Assisted Learning* 1365-2729, X [DOI](#)
- J25) *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

- J24) *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, 48 (pp. 197-206). [DOI](#) ([pdf](#)) ([video](#)) *IF: 2.49*
- J23) 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](#))
- J22) 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](#))
- J21) 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*
- J20) 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

- J19) Johard Leonard & **Ruffaldi Emanuele** (2016). Self-organizing trajectories. *Pattern Recognition Letters* 0167-8655, 84 (pp. 177-184). [DOI](#) ([pdf](#)) *IF: 2.00*
- J18) 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*
- J17) 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

- J16) **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

- J15) 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
- J14) 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
- J13) 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

- J12) 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
- J11) 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

- J10) **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

- J9) **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
- J8) **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

- J7) 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

- J6) Aprile Walter, **Ruffaldi Emanuele**, Sotgiu Edoardo, Frisoli Antonio & Bergamasco Massimo (2008). A dynamically reconfigurable stereoscopic/panoramic vision mobile robot head controlled from a virtual environment. *The Visual Computer* 0178-2789, 24 (11), (pp. 941-946). DOI (pdf) IF: 1.47
- J5) Frisoli Antonio, **Ruffaldi Emanuele**, Filippeschi Alessandro, Avizzano Carlo Alberto, Vanni Federico & Bergamasco Massimo (2008). In-door skill training in rowing practice with a VR based simulator. *International Journal of Sport Psychology* 0047-0767, 0 (0), (pp. 14-16). (pdf) IF: 0.61

2007

- J4) Bergamasco Massimo, Salsedo Fabio, Fontana Marco, Tarri Federico, Avizzano Carlo Alberto, Frisoli Antonio, **Ruffaldi Emanuele** & Marcheschi Simone (2007). High Performance Haptic Device for Force Rendering in Textile Exploration. *The Visual Computer* 0178-2789, 23 (4), (pp. 247-256). DOI (pdf) IF: 1.47

2006

- J3) Bergamasco Massimo, Avizzano Carlo Alberto, Frisoli Antonio, **Ruffaldi Emanuele** & Marcheschi Simone (2006). Design and validation of a complete haptic system for manipulative tasks. *Advanced Robotics Journal, special issue on Haptic Display of Advanced Robotics* 0169-1864, 20 (3), (pp. 367-389). DOI (pdf) IF: 0.92

2005

- J2) Frisoli Antonio, Bergamasco Massimo, Wu Suel. & **Ruffaldi Emanuele** (2005). Multi-point Interaction with Real and Virtual Objects. *Evaluation of Multipoint Contact Interfaces in Haptic Perception of Shapes* 1610-7438, 18 (pp. 177-188). [DOI](#) ([pdf](#))

2004

- J1) Frisoli Antonio, Borelli Luigi, Stasi C, Bellini M, Bianchi C, **Ruffaldi Emanuele**, Di Pietro G & Bergamasco Massimo (2004). Simulation of real-time deformable soft tissues for computer assisted surgery. *International Journal of Medical Robotics and Computer Assisted Surgery* 1478-596X, 1 (1), (pp. 107-113). [DOI](#) ([pdf](#)) *IF: 2.11*

Journal Abstracts

2016

- JA2) Filippeschi Alessandro, Brizzi Filippo, Jacinto Juan Manuel, **Ruffaldi Emanuele**, Avizzano Carlo Alberto, Taddei C. & Others (2016). Preliminary usability assessment for a novel robotic interface for remote Doppler-echocardiography. *European Heart Journal*, 37 (suppl-1), (pp. 1043-1043). [DOI](#) ([pdf](#)) ([video](#))

2007

- JA1) **Ruffaldi Emanuele**, Morris Dan, Girod Sabine, Barbagli Federico, Bergamasco Massimo & Salisbury Ken (2007). Haptic simulation of bone placement based on voxel models. *INTERNATIONAL JOURNAL OF COMPUTER ASSISTED RADIOLOGY AND SURGERY*, 1 – Proceedings of the 21th Computer Assisted Radiology and Surgery CARS, 11th Annual Conference of the International Society for Computer Aided Surgery (suppl-1), (pp. S195-S196). [DOI](#) ([pdf](#)) ([video](#))

Peer-Reviewed Papers in Proceedings

2018

- C96) Fioretti Federica, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2018) A single camera inspection system to detect and localize obstacles on railways based on manifold kalman filtering In *IEEE 23rd International Conference on Emerging Technologies and Factory Automation (ETFA)* IEEE.
- C95) Filippeschi Alessandro, Peppoloni Lorenzo, Kostavelis Giannis, Gerlowska Justyna, **Ruffaldi Emanuele**, Giakoumis Dimitris, Tzovaras Dimitrios, Rejdak Konrad & Avizzano Carlo Alberto (2018) Towards Skills Evaluation of elderly for Human-Robot Interaction In *27TH IEEE INTERNATIONAL SYMPOSIUM ON ROBOT AND HUMAN INTERACTIVE COMMUNICATION (RO-MAN)* IEEE.
- C94) Cococcioni Marco, **Ruffaldi Emanuele** & Saponara Sergio (2018) Exploiting Posit Arithmetic for Deep Neural Networks in Autonomous Driving Applications In *International Conference of Electrical and Electronic Technologies for Automotive* IEEE.
- C93) Filippeschi Alessandro, Jacinto Juan Manuel, Avizzano Carlo Alberto & **Ruffaldi Emanuele** (2018) Preliminary stiffness perception assessment for a palpation haptic interface In *EuroHaptics* Springer. [DOI](#)
- C92) Filippeschi Alessandro, **Ruffaldi Emanuele**, Peppoloni Lorenzo & Avizzano Carlo Alberto (2018) Online Calibration Procedure for Motion Tracking with Wearable Sensors using Kalman Filtering In *16th International Symposium on Advances in Robot Kinematics* Springer.
- C91) Dabisias Giacomo, **Ruffaldi Emanuele**, Grimm H. & Ondruska P. (2018) VALUE: Large Scale Voting-based Automatic Labeling for Urban Environments In *ICRA* IEEE. ([pdf](#)) ([video](#))

2017

- C90) **Ruffaldi Emanuele**, Di Fava Alessandro, Loconsole C., Frisoli Antonio & Avizzano Carlo Alberto (2017) Vibrotactile Feedback for Aiding Robot Kinesthetic Teaching of Manipulation Tasks In *RO-MAN* (pp. 818-823). IEEE. [DOI](#) ([pdf](#)) ([video](#))
- C89) Falleni S., Filippeschi Alessandro, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2017) Teleoperated multimodal robotic interface for telemedicine: a case study on remote auscultation In *RO-MAN* (pp. 476-482). IEEE. [DOI](#) ([pdf](#)) ([video](#))

- C88) Graziano Alessandro, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2017) An affordances based approach to assisted teleoperation In *22nd IEEE International Conference on Emerging Technologies And Factory Automation* (pp. 1-7). IEEE. DOI (pdf)
- C87) Di Stefano Erika, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2017) A Multi-Camera Framework for Visual Servoing of a Collaborative Robot in Industrial Environments In *22nd International Conference on Emerging Technologies And Factory Automation* (pp. 1-8). IEEE. DOI (pdf)
- C86) Spikol Daniel, Cukurova Mutlu, Landolfi Lorenzo & **Ruffaldi Emanuele** (2017) Estimation of Success in Collaborative Learning based on Multimodal Learning Analytics Features In *Proceedings of the 17th IEEE International Conference on Advanced Learning Technologies* IEEE. DOI (pdf)
- C85) Spikol Daniel, Prieto LuisP., Rodríguez-triana M.J., Worsley Marcelo, Ochoa Xavier, Cukurova Mutlu, Vogel Bahtijar, **Ruffaldi Emanuele** & Ringtved UllaLunde (2017) Current and Future Multimodal Learning Analytics Data Challenges In *Proceedings of the Seventh International Learning Analytics & Knowledge Conference* (pp. 518-519). ACM. DOI isbn:978-1-4503-4870-6 (pdf)
- C84) Spikol Daniel, **Ruffaldi Emanuele** & Cukurova Mutlu (2017) Using Multimodal Learning Analytics to Identify Aspects of Collaboration in Project-based Learning In *Proceedings of the 12th International Conference on Computer Supported Collaborative Learning, CSCL* . (pdf)

2016

- C83) Di Fava Alessandro, Bouyarmane Karim, Chappellet Kevin, **Ruffaldi Emanuele** & Kheddar Abderrahmane (2016) Multi-Contact Motion Retargeting from Human to Humanoid Robot In *Proceedings of IEEE Humanoids* (pp. 1081-1086). IEEE. DOI (pdf) (video)
- C82) Faita Claudia, Vanni Federico, Tanca Camilla, **Ruffaldi Emanuele**, Carrozzino Marcello & Bergamasco Massimo (2016) Investigating the Process of Emotion Recognition in Immersive and Non-Immersive Virtual Technological Setups In *VRST '16 Proceedings of the 22nd ACM Conference on Virtual Reality Software and Technolog* (pp. 61-64). ACM. DOI isbn:978-1-4503-4491-3 (pdf)
- C81) Saracino Lucia, **Ruffaldi Emanuele**, Graziano Alessandro & Avizzano Carlo Alberto (2016) Fusion of wearable sensors and mobile haptic robot for the assessment in upper limb rehabilitation In *International Conference on Multisensor Fusion and Integration for Intelligent Systems (MFI)* (pp. 66-71). IEEE. DOI (pdf)
- C80) Saracino Lucia, Avizzano Carlo Alberto, **Ruffaldi Emanuele**, Cappiello Giovanni, Curto Zoran & Scoglio Andrea (2016) MOTORE++ A Portable Haptic Device for Domestic Rehabilitation In *42nd Annual Conference of IEEE Industrial Electronics Society (IECON)* (pp. 728-734). IEEE. DOI (pdf)
- C79) Di Stefano Erika, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2016) Automatic Visual Based Assessment of the Attitude of a Train Pantograph In *International Smart Cities Conference (ISC2)* IEEE. DOI (pdf)
- C78) **Ruffaldi Emanuele**, Kostavelis Giannis, Giakoumis Dimitris & Tzovaras Dimitrios (2016) ArchGenTool: a System-Independent Collaborative Tool for Robotic Architecture Design In *Proc. of 21st International Conference on Methods and Models in Automation and Robotics* IEEE. DOI (pdf)
- C77) **Ruffaldi Emanuele** & Brizzi Filippo (2016) CoCo - A framework for multicore visuo-haptics in mixed reality In *SALENTO AVR, 3rd International Conference on Augmented Reality, Virtual Reality and Computer Graphics* (pp. 339-357). Springer. DOI isbn:978-3-319-40620-6 (pdf)
- C76) **Ruffaldi Emanuele**, Brizzi Filippo, Bacinelli Sandro & Tecchia Franco (2016) Third point of view Augmented Reality for robot intentions visualization In *SALENTO AVR, 3rd International Conference on Augmented Reality, Virtual Reality and Computer Graphics* (pp. 471-478). Springer. DOI isbn:978-3-319-40620-6 (pdf)
- C75) Graziano Alessandro, Tripicchio Paolo, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2016) A wireless haptic data suit for controlling humanoid robots In *47th International Symposium on Robotics (ISR)* (pp. 1-8). VDE Verlag GmbH. isbn:978-380074231-8 (pdf) (video)
- C74) **Ruffaldi Emanuele**, Dabisias Giacomo, Landolfi Lorenzo & Spikol Daniel (2016) Data collection and processing for a multimodal Learning Analytic System In *IEEE SAI Conference, London* (pp. 858-863). IEEE. DOI (pdf)
- C73) Spikol Daniel, Avramide , Vogel Bathtijar, Luckin Rose, **Ruffaldi Emanuele** & Manolis Mavrikis (2016) Exploring the interplay between human and machine annotated multimodal learning analytics in hands-on STEM Activities In *Learning Analytics and Knowledge Conference (LAK)* (pp. 522-523). ACM. DOI

- C72) **Ruffaldi Emanuele**, Dabisias Giacomo, Brizzi Filippo & Buttazzo Giorgio (2016) SOMA: An OpenMP Toolchain For Multicore Partitioning In *31st ACM/SIGAPP Symposium on Applied Computing* (pp. 1231-1237). ACM. DOI isbn:978-145033739-7 ([pdf](#))
- C71) Corucci Francesco & **Ruffaldi Emanuele** (2016) Toward Autonomous Robots for Demolitions in Unstructured Environments In *Intelligent Autonomous Systems 13* (pp. 1515-1532). Springer International Publishing. DOI isbn:978-3-319-08337-7 ([pdf](#)) ([video](#))

2015

- C70) Patrinostrò Simone, Tanzini Matteo, Satler Massimo, **Ruffaldi Emanuele**, Filippeschi Alessandro & Avizzano Carlo Alberto (2015) A Haptic-Assisted Guidance System For Working Machines Based on Virtual Force Fields In *International Conference on Information, Communication and Automation Technologies (ICAT)* (pp. 1-6). IEEE. DOI ([pdf](#))
- C69) Avizzano Carlo Alberto, Alessandro Filippeschi, Jacinto Villegas Juan Manuel & **Ruffaldi Emanuele** (2015) An Optimal Geometric Model for Clavels Delta Robot In *IEEE European Modeling Symposium* (pp. 232-237). IEEE. DOI isbn:978-1-5090-0206-1 ([pdf](#))
- C68) Jacinto Villegas Juan Manuel, Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2015) A Low Cost Open-Controller for Interactive Robotic System In *IEEE European Modeling Symposium* (pp. 462-468). IEEE. DOI isbn:978-1-5090-0206-1 ([pdf](#))
- C67) Peppoloni Lorenzo, Brizzi Filippo, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2015) Augmented Reality-aided Telepresence System for Robot Manipulation in Industrial Manufacturing In *Proceedings of the 21st ACM Symposium on Virtual Reality Software and Technology (VRST)* (pp. 237-240). ACM. DOI isbn:978-1-4503-3990-2 ([pdf](#)) ([video](#))
- C66) Filippeschi Alessandro, Brizzi Filippo, **Ruffaldi Emanuele**, Jacinto Juan Manuel & Avizzano Carlo Alberto (2015) Encountered-type haptic interface for virtual interaction with real objects based on implicit surface haptic rendering for remote palpation In *IEEE IROS Proceedings* (pp. 5904-5909). . DOI ([pdf](#)) ([video](#))
- C65) **Ruffaldi Emanuele**, Brizzi Filippo, Filippeschi Alessandro & Avizzano Carlo Alberto (2015) Co-Located haptic interaction for Virtual USG exploration In *Proceedings of IEEE EMBC* (pp. 1548-1551). . DOI ([pdf](#)) ([video](#))
- C64) Bassani Giulia, Filippeschi Alessandro & **Ruffaldi Emanuele** (2015) Human motion energy harvesting using a piezoelectric MFC patch In *Proceedings of IEEE EMBC* (pp. 5070-5073). . DOI ([pdf](#))
- C63) **Ruffaldi Emanuele**, Filippeschi Alessandro, Jacinto Juan Manuel, Brizzi Filippo & Avizzano Carlo Alberto (2015) Encountered haptic Augmented Reality interface for remote examination In *Proceedings of IEEE 3DUI* (pp. 179-180). . DOI ([pdf](#)) ([video](#))
- C62) Peppoloni Lorenzo, Brizzi Filippo, Avizzano Carlo Alberto & **Ruffaldi Emanuele** (2015) Immersive ROS-integrated framework for robot teleoperation In *Proceedings of IEEE 3DUI* (pp. 177-178). . DOI ([pdf](#)) ([video](#))
- C61) Spikol Daniel, Avramides Katerina, Katterfeldt Eva-sophie, **Ruffaldi Emanuele** & Cuartelles David (2015) CSCL Opportunities with Digital Fabrication through Learning Analytics In *Exploring the Material Conditions of Learning : Computer Supported Collaborative Learning (CSCL) Conference 2015;2* (pp. 697-698). . isbn:978-0-9903550-7-6 ([pdf](#))
- C60) Dabisias Giacomo, Spikol Daniel & **Ruffaldi Emanuele** (2015) A Learning Analytics framework for practice-based learning In *Exploring the Material Conditions of Learning : Computer Supported Collaborative Learning (CSCL) Conference 2015;2* (pp. 740-742). . isbn:978-0-9903550-7-6 ([pdf](#))
- C59) Tripicchio Paolo, Satler Massimo, Dabisias Giacomo, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2015) Towards Smart Farming and Sustainable Agriculture with Drones In *IE, 11th IEEE International Conference on Intelligent Environments* (pp. 140-143). IEEE. DOI ([pdf](#))
- C58) Korman Maria, Yifat Shorr, Gopher Daniel, Filippeschi Alessandro & **Ruffaldi Emanuele** (2015) Evaluation of multi-modal feedback effects on the time-course of motor learning in multimodal VR platform for rowing training In *ICVR, International Conference on Virtual Rehabilitation* (pp. 158-159). IEEE. DOI ([pdf](#))

2014

- C57) Avizzano Carlo Alberto, **Ruffaldi Emanuele**, Leonardis D. & Bergamasco Massimo (2014) A networked haptic embedded controller In *Industrial Embedded Systems (SIES), 2014 9th IEEE International Symposium on* (pp. 52-57). . DOI ([pdf](#))
- C56) **Ruffaldi Emanuele**, Barsotti Michele, Leonardis Daniele, Bassani Giulia, Frisoli Antonio & Bergamasco Massimo (2014) Evaluating Virtual Embodiment with the ALEx Exoskeleton In *Haptics: Neuroscience, Devices, Modeling, and Applications (EuroHaptics 2014)* (pp. 133-140). Springer Berlin Heidelberg. DOI isbn:978-3-662-44192-3 ([pdf](#)) ([video](#))

- C55) Peppoloni Lorenzo, Filippeschi Alessandro & **Ruffaldi Emanuele** (2014) Assessment of task ergonomics with an upper limb wearable device In *Control and Automation (MED), 2014 22nd Mediterranean Conference of* (pp. 340-345). . [DOI](#) ([pdf](#)) ([video](#))
- C54) Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2014) A novel wearable biometric capture system In *Control and Automation (MED), 2014 22nd Mediterranean Conference of* (pp. 351-355). . [DOI](#) ([pdf](#))
- C53) Peppoloni Lorenzo, Di Fava Alessandro, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2014) A ROS-integrated architecture to learn manipulation tasks from a single demonstration In *Robot and Human Interactive Communication, 2014 RO-MAN: The 23rd IEEE International Symposium on* (pp. 537-542). . [DOI](#) ([pdf](#))
- C52) **Ruffaldi Emanuele**, Peppoloni Lorenzo, Filippeschi Alessandro & Avizzano Carlo Alberto (2014) A novel approach to motion tracking with wearable sensors based on Probabilistic Graphical Models In *Robotics and Automation (ICRA), 2014 IEEE International Conference on* (pp. 1247-1252). . [DOI](#) ([pdf](#))
- C51) Johard Leonard & **Ruffaldi Emanuele** (2014) A connectionist actor-critic algorithm for faster learning and biological plausibility In *Robotics and Automation (ICRA), 2014 IEEE International Conference on* (pp. 3903-3909). . [DOI](#) ([pdf](#))

2013

- C50) Peppoloni Lorenzo, Filippeschi Alessandro, **Ruffaldi Emanuele** & Avizzano Carlo Alberto (2013) A novel 7 degrees of freedom model for upper limb kinematic reconstruction based on wearable sensors In *Intelligent Systems and Informatics (SISY), 2013 IEEE 11th International Symposium on* (pp. 105-110). . [DOI](#) ([pdf](#)) ([video](#))
- C49) **Ruffaldi Emanuele**, Satler Massimo, Rosati Papini Gastone Pietro & Avizzano Carlo Alberto (2013) A flexible framework for mobile based haptic rendering In *Robot and Human Interactive Communication, RO-MAN. The 22nd IEEE International Symposium on* (pp. 732-737). . [DOI](#) ([pdf](#))
- C48) Tanzini Matteo, Tripicchio Paolo, **Ruffaldi Emanuele**, Galgani Guido, Lutzemberger Giovanni & Avizzano Carlo Alberto (2013) A novel human-machine interface for working machines operation In *Robot and Human Interactive Communication, RO-MAN. The 22nd IEEE International Symposium on* (pp. 744-750). . [DOI](#) ([pdf](#))

2012

- C47) Lippi Vittorio, Avizzano Carlo Alberto & **Ruffaldi Emanuele** (2012) A method for digital representation of human movements In *Robot and Human Interactive Communication, RO-MAN. The 21st IEEE International Symposium on* (pp. 404-410). . [DOI](#) ([pdf](#))
- C46) Filippeschi Alessandro, Tripicchio Paolo, Satler Massimo & **Ruffaldi Emanuele** (2012) Capturing the rower performance on the SPRINT platform In *Intelligent Environments (Workshops)* (pp. 331-340). IOS Press. [DOI](#) ([pdf](#))

2011

- C45) Lagarde Julien, Zelic Gregory, Avizzano Carlo Alberto, Lippi Vittorio, **Ruffaldi Emanuele**, Zalmanov Hagar, Lammfromm Rotem, Erev-yehene Vered, Gillian Nick, Omodrain Sile, Mottet Denis & Gopher Daniel (2011) Evaluation of the light weight Juggling system In *1st SKILLS International Conference* . [DOI](#) ([pdf](#))
- C44) Johard Leonard, Filippeschi Alessandro & **Ruffaldi Emanuele** (2011) Real-time error detection for a rowing training system In *1st SKILLS International Conference* . [DOI](#) ([pdf](#))
- C43) Johard Leonard, **Ruffaldi Emanuele**, Hoffmann P., Filippeschi Alessandro & **Ruffaldi Emanuele** (2011) Machine Learning Analysis of Binaural Rowing Sounds In *1st SKILLS International Conference* . [DOI](#) ([pdf](#))
- C42) Lippi Vittorio, Avizzano Carlo Alberto & **Ruffaldi Emanuele** (2011) Filtering Motion Data Through Piecewise Polynomial Approximation In *1st SKILLS International Conference* . [DOI](#) ([pdf](#))
- C41) Hoffmann C., Filippeschi Alessandro, **Ruffaldi Emanuele**, Blanc S., Verbrugge L. & Bardy Benoit (2011) Mastering Energy Management During Rowing Using Virtual Reality In *1st SKILLS International Conference* . [DOI](#) ([pdf](#))
- C40) **Ruffaldi Emanuele**, Filippeschi Alessandro, Bardy Benoit, Marin, Varlet M., Hoffmann C., Korman M., Gopher Daniel & Bergamasco Massimo (2011) Training Rowing with Virtual Environments In *1st SKILLS International Conference* . [DOI](#) ([pdf](#))
- C39) Lippi Vittorio, **Ruffaldi Emanuele**, Zelic Gregory, Lagarde Julien, Tripicchio Paolo & Avizzano Carlo Alberto (2011) Uncontrolled manifold and Juggling: Retrieving a set of Controlled Variables from Data In *1st SKILLS International Conference* . [DOI](#) ([pdf](#))

- C38) Filippeschi Alessandro, **Ruffaldi Emanuele** & Korman M. (2011) Preliminary evaluation of timing training accelerator for the SPRINT rowing system In *1st SKILLS International Conference* . DOI (pdf)
- C37) Filippeschi Alessandro & **Ruffaldi Emanuele** (2011) Expert rowers motion analysis for synthesis and technique digitalization In *1st SKILLS International Conference* . DOI (pdf)
- C36) Hoffmann P.F., Hammershoi Dorte, **Ruffaldi Emanuele** & Filippeschi Alessandro (2011) Exploratory analysis on the binaural characteristics of the rowing sound In *1st SKILLS International Conference* . DOI (pdf)
- C35) Schorr Y., Filippeschi Alessandro, Gopher Daniel, **Ruffaldi Emanuele** & Korman M. (2011) Evaluation of multimodal feedback effects on improving rowing competencies In *1st SKILLS International Conference* . DOI (pdf)
- C34) Avizzano Carlo Alberto, Satler Massimo, Cappiello Giovanni, Scoglio Andrea, **Ruffaldi Emanuele** & Bergamasco Massimo (2011) MOTORE: A mobile haptic interface for neuro-rehabilitation In *Robot and Human Interactive Communication, RO-MAN. The 20th IEEE International Symposium on* (pp. 383-388). . DOI (pdf)
- C33) Satler Massimo, Avizzano Carlo Alberto & **Ruffaldi Emanuele** (2011) Control of a desktop mobile haptic interface In *World Haptics Conference (WHC). IEEE* (pp. 415-420). . DOI (pdf)
- C32) Vela Nunez M, Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2011) A low-cost human locomotion speed recognition for augmented virtual environments exploration In *Human System Interactions, HSI. The 4th IEEE International Conference on* (pp. 136-143). . DOI (pdf)

2010

- C31) **Ruffaldi Emanuele**, Filippeschi Alessandro, Avizzano Carlo Alberto & Bergamasco Massimo (2010) Skill Modeling and Feedback Design for Training Rowing with Virtual Environments In *Skill Training in Multimodal Virtual Environments (International Conference on Applied Human Factors and Ergonomics, AHFE)* (pp. 832-841). CRC Press. DOI isbn:978-1-4398-3491-6 (pdf)
- C30) Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2010) Digital Management and Representation of Perceptual Motor Skills In *Advances in Cognitive Ergonomics (International Conference on Applied Human Factors and Ergonomics, AHFE)* (pp. 863-872). CRC Press. DOI isbn:978-1-4398-3491-6 (pdf)
- C29) Bergamasco Massimo, Avizzano Carlo Alberto & **Ruffaldi Emanuele** (2010) Haptics Technologies in the Framework of Training Systems In *Advances in Cognitive Ergonomics (International Conference on Applied Human Factors and Ergonomics, AHFE)* (pp. 873-882). CRC Press. DOI isbn:978-1-4398-3491-6 (pdf)
- C28) Tripicchio Paolo, Filippeschi Alessandro, **Ruffaldi Emanuele**, Tecchia Franco, Avizzano Carlo Alberto & Bergamasco Massimo (2010) A Measuring Tool for Accurate Haptic Modeling in Industrial Maintenance Training In *Haptics: Generating and Perceiving Tangible Sensations (EuroHaptics 2010)* (pp. 377-384). Springer Berlin Heidelberg. DOI isbn:978-3-642-14074-7 (pdf)
- C27) Konietzschke Rainer, Tobergte Andreas, Preusche Carsten, Tripicchio Paolo, **Ruffaldi Emanuele**, Webel Sabine & Bockholt Uli (2010) A multimodal training platform for minimally invasive robotic surgery In *Robot and Human Interactive Communication, RO-MAN. The 19th IEEE International Symposium on* (pp. 422-427). . DOI (pdf)
- C26) Lippi Vittorio, Avizzano Carlo Alberto, Mottet Denis & **Ruffaldi Emanuele** (2010) Effect of delay on dynamic targets tracking performance and behavior in virtual environment In *Robot and Human Interactive Communication, RO-MAN. The 19th IEEE International Symposium on* (pp. 446 - 451). . DOI isbn:978-1-4244-7991-7 (pdf)
- C25) Nunez MarinaVela, Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2010) Human gait recognition for virtual environments exploration In *Robot and Human Interactive Communication, RO-MAN. The 19th IEEE International Symposium on* (pp. 1-8). . DOI (pdf)
- C24) **Ruffaldi Emanuele**, Sani Elisabetta & Bergamasco Massimo (2010) Visualizing perspectives and trends in robotics based on patent mining In *Robotics and Automation (ICRA), 2010 IEEE International Conference on* (pp. 4340-4347). . DOI (pdf)

2009

- C23) Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2009) Digital representation of skills for human-robot interaction In *Robot and Human Interactive Communication, RO-MAN. The 17th IEEE International Symposium on* (pp. 769-774). . DOI (pdf)
- C22) Li S., Frisoli Antonio, Avizzano Carlo Alberto, **Ruffaldi Emanuele**, Lugo-villeda L.i. & Bergamasco Massimo (2009) Bimanual Haptic-desktop platform for upper-limb post-stroke rehabilitation: Practical trials In *Robotics and Biomimetics (ROBIO), 2009 IEEE International Conference on* (pp. 480-485). . DOI (pdf)

- C21) Lugo-villeda Luis Ivan, Frisoli Antonio, Sandoval-gonzalez Oscar Osvaldo, Padilla Miguel A, Parra-vega Vicente, Avizzano Carlo Alberto, **Ruffaldi Emanuele** & Bergamasco Massimo (2009) Haptic guidance of light-exoskeleton for arm-rehabilitation tasks In *Robot and Human Interactive Communication, RO-MAN. The 18th IEEE International Symposium on* (pp. 903-908). . [DOI](#)
- C20) **Ruffaldi Emanuele**, Sandoval-gonzalez Oscar Osvaldo, Filippeschi Alessandro, Tripicchio Paolo, Frisoli Antonio, Avizzano Carlo Alberto & Bergamasco Massimo (2009) Integration of multimodal technologies for a rowing platform In *Mechatronics, ICM. The IEEE International Conference on* (pp. 1-6). . [DOI](#) ([pdf](#))
- C19) **Ruffaldi Emanuele**, Filippeschi Alessandro, Frisoli Antonio, Sandoval O., Avizzano Carlo Alberto & Bergamasco Massimo (2009) Vibrotactile perception assessment for a rowing training system In *World Haptics Conference IEEE* (pp. 350-355). . [DOI](#) ([pdf](#)) ([video](#))
- C18) Tripicchio Paolo, **Ruffaldi Emanuele**, Avizzano Carlo Alberto & Bergamasco Massimo (2009) Control strategies and perception effects in co-located and large workspace dynamical encountered haptics In *World Haptics Conference (WHC). IEEE* (pp. 63-68). . [DOI](#) ([pdf](#))
- C17) Lippi Vittorio, **Ruffaldi Emanuele**, Avizzano Carlo Alberto & Bergamasco Massimo (2009) Recognition of hand gestures tracked by a dataglove: Exploiting Hidden Markov Models discriminative training and environment description to improve recognition performance In *Artificial Neural Networks and Intelligent Information Processing - Proc. 5th Int. Workshop on Artificial Neural Networks and Intelligent Information Processing - ANNIIP 2009, held with ICINCO 2009* (pp. 33-42). . [DOI](#) ([pdf](#)) ([video](#))
- C16) Tripicchio Paolo, Sandoval-gonzalez Oscar Osvaldo, Filippeschi Alessandro, **Ruffaldi Emanuele**, Avizzano Carlo Alberto & Bergamasco Massimo (2009) Human forces in hands free interaction: a new paradigm for immersive virtual environments In *Robot and Human Interactive Communication, RO-MAN. The 18th IEEE International Symposium on* (pp. 1179-1185). . [DOI](#) ([pdf](#))

2008

- C15) **Ruffaldi Emanuele**, Evangelista Chiara, Neri Veronica, Carrozzino Marcello & Bergamasco Massimo (2008) Design of information landscapes for cultural heritage content In *Proceedings of the 3rd international conference on Digital Interactive Media in Entertainment and Arts ACM* (pp. 113-119). . [DOI](#) ([pdf](#)) ([video](#))
- C14) Sani Elisabetta, **Ruffaldi Emanuele** & Bergamasco Massimo (2008) Patent based analysis of Technology Maps for Innovation Management and Research Planning In *Towards new challenges for Innovative management practices N 2-Volume I* (pp. 89-96). . ([pdf](#))
- C13) Tripicchio Paolo, **Ruffaldi Emanuele**, Avizzano Carlo Alberto & Bergamasco Massimo (2008) Virtual Laboratory: a virtual distributed platform to share and perform experiments In *Haptic interfaces for virtual environment and teleoperator systems, Haptics. Symposium on* (pp. 311-318). . [DOI](#) ([pdf](#))
- C12) **Ruffaldi Emanuele**, Avizzano Carlo Alberto, Tripicchio Paolo, Frisoli Antonio & Bergamasco Massimo (2008) Surface perception in a large workspace encounter interface In *Robot and Human Interactive Communication, RO-MAN. The 17th IEEE International Symposium on* (pp. 21-26). . [DOI](#) ([pdf](#))
- 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](#))
- C10) Portillo-Rodriguez Otniel, Sandoval-gonzalez Oscar Osvaldo, Avizzano Carlo Alberto, **Ruffaldi Emanuele**, Vercelli Davide & Bergamasco Massimo (2008) Development of a 3D real time gesture recognition methodology for virtual environment control In *Robot and Human Interactive Communication, RO-MAN. The 17th IEEE International Symposium on* (pp. 279-284). IEEE. [DOI](#) ([pdf](#))
- 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

- CH9) 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
- CH8) **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
- CH7) **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
- CH6) 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

- CH5) 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
- CH4) 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

- CH3) 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

- CH2) 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
- CH1) 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

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

2018

- PE3) Prattichizzo D., Shinoda H., Tan HongZ., **Ruffaldi Emanuele** & Frisoli Antonio (Eds.). (2018). *Haptics: Science, Technology, and Applications, 11th International Conference, EuroHaptics 2018* Springer DOI isbn:978-3-319-93444-0

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

2018

- PO32) **Ruffaldi Emanuele** & Prisco Giuseppe (2018). Microsurgical Robot Interface for Surgical Autonomy. In *Workshop on Learning and Autonomy for Medical Robotics at Hamlyn Symposium*. :

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 Ergonomics. 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

Past Phd Students

- 1) Filippo Brizzi (aa. 2014/2015) - PhD defended in 2017 - augmented reality and robotics
- 2) Giacomo Dabisias (aa. 2014/2015) - PhD defended in 2017 - funded by FP7 PELARS on object and action recognition
- 3) Giulia Bassani (aa.2013/2014) - PhD defended in 2017 - funded by Telecom Italia on wearable energy harvesting
- 4) Alessandro Di Fava (aa.2011/2012) - PhD defended in 2016 - on advanced robot control
- 5) Lorenzo Peppoloni - PhD defended in 2015 - graduated on wearable biomechanic assessment
- 6) Leonard Johard - PhD defended in 2013 - now on Innopolis - machine learning
- 7) Alessandro Filippeschi - PhD defended in 2012. - now at SSSA - rowing training in VE
- 8) 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, 2018, deep learning defect detection
- 2) Federica Fioretti, 2018, 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 Lorefice**, 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) Patrinostrò 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
- IEEE Transaction on Mechatronics 2015-2016
- Frontiers in Robotics and AI 2015-2018
- Nature Scientific Reports 2017
- MDPI Sensors 2017
- International Journal of Computer Assisted Radiology and Surgery 2018
- 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 2008-2018 – 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) (2017-2018) Lecture on Deep Learning for Computer Vision in the PhD course "Neural Networks" of Prof. Buttazzo, SSSA
- 3) (2017) Lectures on Artificial Intelligence and Robotics for Power Plants in the Master Enel (6h)
- 4) (2016) Lecture at the IEEE Italy Section Medical Informatics Summer School (ISMIS) on "Wearable body tracking for Occupational Biomechanics and Telemedicine"
- 5) (2013-2018) 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) (2016,2018) 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)