

1 Personal Information

Sara Mulatto (born October 1st 1981)

Home Address: Via Giuseppe di Vittorio 2, Siena (SI),
53100, Italy

Contact:

Mail Address: mulatto@dii.unisi.it

Phone: +39 0577 234640

Mobile: +39 347 53XXXXX



2 Skills

- **Programming Language:** Very good knowledge of the C and C++ language and standard libraries like LIBC and STL, very good knowledge of the core Java language and standard libraries like SWING and RMI.
Basic experience with the GPU programming, in particular with the Cg and the HLSL programming languages.
Basic knowledge of the IA32(x86) Assembly Language.
Basic experience with Visual Basic, basic knowledge of the Matlab language and environment.
Basic knowledge of web related technologies like PHP and Active Server Pages (ASP).
Good knowledge of the eXtensible Markup Language(XML) interchange format and experience with related libraries (tinyxml).
- **Development Environment:** Very good experience using Visual Studio (VS6, VS.NET, VS2003, VS2005), good experience using Borland JBuilder 9/X, as editors and debuggers.
- **Graphics Programming:** Good knowledge of math foundations of Computer Graphics.
Good knowledge of DirectX 9.0c and in particular of the Direct3D API.
Basic knowledge of OpenGL 1.5.
Basic knowledge and direct experience of the Simple DirectMedia Layer (SDL) 1.1.
- **Haptic Programming:** Two year of experience in haptic programming.
Good knowledge of several SDKs and Toolkits for Haptics (GHOST SDK, OpenHaptics toolkit, DHD API, Virtuouse API, Freedom6 SDK, CHAI, H3D API).
- **Physically-based Modeling:** Good knowledge of basic and advanced physics theory.
Programming experience with direct implementation of dynamics integration schemes for liquids.
- **Modeling:** Basic experience with the Autodesk Maya 2008 software. Good rigging skills.
- **Artificial Intelligence (AI):** Good knowledge of artificial intelligence basic theory.
Good knowledge of the Artificial Neural Networks (ANNs) and the well-known learning algorithms.
- **Operating System:** Windows - good knowledge and experience programming the Windows API.
Basic experience as Linux user (shell scripts).
- **DataBase:** Good knowledge and direct experience with SQL queries and tools: MySQL version 5 and 6, IBM DB2, Microsoft Access.

3 Education and Training

M.S. degree: M.S. degree in Computer Engineering (Computer and Multimedial Systems) on Academic Year 2005-2006 (25th September 2006) cum laude.

M.S. Thesis: *“Studio ed implementazione di modelli ed algoritmi per il rendering aptico di oggetti deformabili”* (*“Study and implementation of models and algorithms for haptic rendering of deformable objects”*).

Advisor: Prof. Domenico Prattichizzo.

B.S. degree: B.S. degree in Computer Engineering (Computer and Multimedial Systems) on Academic Year 2005-2006 (11st October 2004).

B.S. Thesis: *“Riconoscimento di immagini mediante reti neurali ricorsive”* (*“Images recognition through recursive neural networks”*).

Advisor: Prof. Marco Maggini.

4 Current Position

I am a Ph. D. Student in Engineering of Automation doing research in the field of Physical Simulation of Deformable models and Fluid for Computer Graphics, at the Department of Information Engineering of the University of Siena, under the supervision of prof. Domenico Prattichizzo, since October 2006.

5 Academic Research

My research activity is focused on Virtual Reality, including Deformable Objects Rendering and Fluid Simulation, Haptic Rendering and Graphics and it is supervised by prof. Domenico Prattichizzo. Currently my research is addressed towards developing and implementing high-performance skinning and collision detection algorithms (both on software and hardware), for high-realism haptic virtual reality.

6 Teaching

21.01.2008 - 29.03.2008: *“Laboratorio di Matlab”* (*“Matlab Laboratory”*) - 20 hours, University of Siena

21.01.2008 - 29.03.2008: *“Laboratorio di Robotica e Realtà Virtuale”* (*“Robotics and Virtual Reality Laboratory”*) - 20 hours, University of Siena

7 Attended Conferences and Schools

- *“Peach Conference 2008”*, Turin - November 2008
- *“View Conference 2008”*, Turin - November 2008
- *“La Medicina incontra la Realtà Virtuale”*, Rome - October 2008
- *“SIDRA 2008”*, Vicenza - September 2008
- *“EuroHaptics Conference 2008”*, Madrid - June 2008
- *“HyCon 2007”*, Ph.D. School on Hybrid Systems, Siena - July 2007
- *“International Conference on Robotics and Automation - ICRA 2007”*, Rome - April 2007

8 Other

- Qualifying examination passed on the second session of 2006.
- Member of IEEE and IEEE Robotics and Automation Society since 2006.
- Member of the Secretariat of the Italian Chapter of IEEE Robotics and Automation Society, since 2006.
- Member of MIMOS - “*Movimento Italiano per la Modellazione e la Simulazione*” (“*The Italian Movement for Modelling and Simulation*”) since 2008.

Publications

Journal articles and book chapters:

- [1] A. Formaglio, M. Fei, S. Mulatto, M. de Pascale and D. Prattichizzo. *Autocalibrated gravity compensation for 3 DoF impedance haptic devices*. LNCS 5024, 43 - 52. LECTURE NOTES IN COMPUTER SCIENCE. Springer Verlag 2008.
- [2] M. de Pascale, S. Mulatto and D. Prattichizzo. *Bringing Haptics to Second Life for Visually Impaired People*. LNCS 5024, 896 - 905. LECTURE NOTES IN COMPUTER SCIENCE. Springer Verlag 2008.
- [3] D. Prattichizzo, C. Pacchierotti, S. Mulatto, S. Nencini, M. de Pascale, M. Fei and E. Fei *The Role of Robotics in Second Life*. Centre for Policy Modelling 2007.

Conference articles:

- [4] A. Formaglio, S. Mulatto and D. Prattichizzo. *Iterative estimation of the end-effector apparent gravity force for 3DoF impedance haptic devices*. Submitted to European Control Conference - ECC 2009, October 2008.
- [5] M. de Pascale, S. Mulatto and D. Prattichizzo. *Bringing Haptics to Second Life*. In Proc. of the Workshop on Haptics in Ambient Systems - HAS 2008, Quebec City. February 2008.

Thesis:

- [6] S. Mulatto. “*Studio ed implementazione di modelli ed algoritmi per il rendering aptico di oggetti deformabili*” (“*Study and implementation of models and algorithms for haptic rendering of deformable objects*”). M.S. Thesis. University of Siena, 2006.
- [7] S. Mulatto. “*Riconoscimento di immagini mediante reti neurali ricorsive*” (“*Images recognition through recursive neural networks*”). B.S. Thesis. University of Siena, 2004.