

## Curriculum vitae

EMANUELA ELISA CEPOLINA

Born in Genova, Italy, 17/3/79

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### **Education:**

- May2008 PhD in Mechanical Engineering at the University of Genova, Italy. Argument of the thesis was the participatory design and development of a low-cost machine for humanitarian demining operations. While working at the thesis, I spent long time in the field, both in Sri Lanka and in Jordan, with the kind support of Norwegian People's Aid.
- Feb2003 Mechanical Engineering degree (5 years) at the University of Genova; final grade 108/110. The argument of the thesis was the design of a robot for landmine location in relatively inaccessible areas covered by thick vegetation. While working for the thesis, I spent a period of two months (17/10/2002-17/12/2002 ) researching at the University of Western Australia, Perth, WA, under the supervision of Prof. James Trevelyan. I have received a grant specially conceived for researchers abroad (D.R. 78 del 14.2.2001) offered by the University of Genova.
- Sep2001 Mechanical Engineering degree at D.I.T. (Dublin Institute of Technology), Dublin, Ireland. The thesis argument was the control via PLC of a vertical wall walking robot.
- Sep2000-July2001 Erasmus student at D.I.T. (Dublin Institute of Technology), Dublin, Ireland. I have received a Socrates/Erasmus grant for 10 months.
- 1992-1997 Classical studies at Cristoforo Colombo High School, Genova, Italy (final grade 58/60)

### **Working experiences:**

- Sept 2008-now Part-time teacher of mechanical subjects in a technical high school in Genova. Subjects include technical drawing, general physics, mechanics and dimensioning of mechanical elements. The school collects students with severe difficulties and with educational problems. Actively involved into the no profit association Snail Aid – Technology for Development, both at management and operational levels. At school, I'm currently coordinating and working, as Snail Aid member, at DISARMADILLO project: the re-design, development and test of the second prototype of the low-cost machine for humanitarian demining operations developed during the phd.
- Jan 2009- Dec 2010 Research assistant at the PMARLab, Department of mechanics and machines design (DIMEC) of the University of Genova, Italy. The main topics of research have been: design, development and test of new low-cost robots for hazardous environment and service robots. In particular, during the last years, I have been fully working on the management and the design of LOCOSTRA machine project, that led to the development of the first remotely operated, intrusive machine specifically designed for technical survey in humanitarian demining.

LOCOSTRA is based on a 4WD tractor that can be used in agriculture when mine action is over. Between February and March 2011 I have spent 1 month in Jordan, testing LOCOSTRA performances with live mines and in realistic conditions.

- Jan 2005–May2008 PhD student at the University of Genova. The PhD subject was the participatory design and development of a cheap, remote controlled machine for humanitarian demining operations. The machine used a commercial power tiller as tractor unit, as these are small and cheap agricultural machines widely spread in developing countries affected by the landmine problem. The PhD work primarily encompassed the mechanical engineering design of the machine but also the implementation of a new participatory design methodology that assures the involvement of end-users into the whole design process. I spent approximately one month in Sri Lanka (17/1/2005 – 9/2/2005) working as a volunteer for NPA and establishing collaborations for the PhD. In August 2006 I spent one month and half in the Eastern Europe, first in Romania attending a course on participatory tools for group decision making and later visiting mine affected countries such as Turkey and Georgia, to deepen my knowledge into the relationship between landmines and development. Between December and March 2008, I spent two months in Jordan, working at the development and test of the ground processing tool module of the robot.
- Apr2003-Dec2004 Research assistant at the PMARLab, Department of mechanics and machines design (DIMEC) of the University of Genova, Italy.  
The main topics of research have been: technologies for humanitarian demining, in the framework of the collaboration between DIMEC and EUDEM2, The EU in Humanitarian Demining- State of the Art on HD Technologies, Products, Services and Practices in Europe and robotics in quarry industry, in the framework of the European Project SmartWire and Osnet.
- April 2004- Sep2004 Visiting developing countries affected by landmines such as Mozambique, Namibia, Sri-Lanka and Cambodia, implementing the study “Providing demining technology end-users need” designed by the author in collaboration with EUDEM2, The EU in Humanitarian Demining- State of the Art on HD Technologies, Products, Services and Practices in Europe.  
Data were collected also for the Geneva International Centre for Humanitarian Demining (GICHD).
- June 2004 I spent 2 weeks working at the Geneva International Centre for Humanitarian Demining (GICHD) organizing the data collected during the in field survey.

#### **Relevant papers on international books, journal and conferences:**

- E.E. Cepolina, M. Zoppi, G. Polentes, B. Snobar, F. Abel, B. Kasesbeh “In-field tests of LOCOSTRA in Jordan” Proceedings of the International Symposium on Humanitarian Demining 2011, April 26-29 2010, Sibenik, Croatia.
- E.E. Cepolina, M. Zoppi, V. Belotti “Toward LOCOSTRA (LowCOST TRActor) – blast resistant wheels test” to be published in the Journal of Mine Action in 2011.
- E.E. Cepolina “Appropriate Technologies in Humanitarian Demining: Potential Impact of participatory Re-designed Agricultural Machines and Tools”, Proceedings of the International Symposium on Humanitarian Demining 2010, April 27-29 2010, Sibenik, Croatia.
- E.E. Cepolina, Zoppi M. “ Sustainable and Appropriate Technologies for Land Release in Humanitarian Demining”, Chapter of the book “Humanitarian Demining Handbook” published in 2010.
- E.E. Cepolina, Zoppi M. “Could Agricultural Machines Make a Country ‘Impact Free’ by 2010?”, Journal of Mine Action, Issue 13.2, annual edition, August 2009.
- E.E. Cepolina, B. Snobar “Agricultural Derived Tools for Ground Processing in Humanitarian Demining Operations – set up of Testing Facility in Jordan”, Proceedings of the 7th<sup>th</sup> International Advanced Robotic Programme (IARP) Workshop HUDEM08, March 28-30 2008, Cairo, Egypt.
- E.E. Cepolina, P. Silingardi “Power Tillers for Demining in Sri Lanka: Vegetation Cutting Module”, Proceedings of the 13<sup>th</sup> International Conference on Advanced Robotics, August 21-24 2007, Jeju, Korea.
- E.E. Cepolina, “Power Tillers for Demining in Sri Lanka: Participatory Design of Low-cost Technology”, Chapter of the Book “Humanitarian Demining, Innovative Solutions and the Challenges of Technology”, to be published in February 2008 by Advanced Robotic Systems, Vienna, Austria, EU.

- S. Kostrzewski, R. D. Apputhanthri, J. Masood, E. E. Cepolina, "Portable mechatronic system for demining applications: control unit design and development", Proceedings of the International Symposium on Humanitarian Demining 2007 – Mechanical Demining, 24-27 April 2007, Sibenik, Croatia.
- E.E. Cepolina, M.U.Hemapala, "Power tillers for demining: blast test", International Journal of Advanced Robotic Systems, Volume 4 Number 2, June 2007.
- E.E. Cepolina, "A pranzo nella roccaforte Kurda", [www.mentelocale.it](http://www.mentelocale.it), October 2006.
- E.E. Cepolina, "Power Tillers and Snails for Demining in Sri Lanka", Journal of Mine Action, Issue 10.1, August 2006.
- E.E.Cepolina, "Machine armouring preliminary test", Report of Machine Armoring Preliminary Test, PAT for demining website, <http://www.dimec.unige.it/PMAR/demining/index.html>, May 2006.
- M.Salvi, E.E.Cepolina, "Effects of the Explosion of a Landmine on a Power Tiller", Report of Preliminary Test, PAT for demining website, <http://www.dimec.unige.it/PMAR/demining/index.html>, November 2005.
- E.E. Cepolina, C. Bruschini, K. De Bruyn, "Providing demining technology end-users need", pg. 9-14, Proc. of the IARP International workshop on Robotics and Mechanical Assistance in Humanitarian Demining (HUDEM2005), 21-23 June 2005, Tokyo, Japan.
- E. E. Cepolina, C. Bruschini, "Catalogue of Demining Technologies in Field Use", EUDEM2 publication, EUDEM website <http://www.eudem.info/>
- E. E. Cepolina, C. Bruschini, K De Bruyn, "Field Survey Results", EUDEM2 publication, EUDEM website <http://www.eudem.info/>
- E. E. Cepolina, R.M. Molfino, M. Zoppi, "The PMARlab in humanitarian effort", Int. Workshop on Robotics and mechanical assistance in humanitarian demining and in similar risky interventions, Brussels-Leuven, Belgium, 16-18 June 2004.
- E. E. Cepolina, "Worm: a simple robotic solution to landmine location", International Conference on Requirements and Technologies for the Detection, Removal and Neutralization of Landmines and UXO, EUDEM2-SCOT-2003, Brussels, Belgium, 15-18 September 2003.
- E. E. Cepolina, M. Zoppi, "Cost-effective robots for mine detection in thick vegetation", Sixth International Conference on Climbing and Walking Robots, CLAWAR03, Catania, Italy, 17-19 September 2003.
- E. E. Cepolina, "Low-cost modular robots for landmine location in thick vegetation", Second on-site IARP Workshop on Humanitarian Demining, HUDEM03, Prishtina, Kosovo, 19-20 June 2003.

#### **Relevant conferences and courses attended:**

- International Symposium on Humanitarian Demining 2011, April 26-29 2011, Sibenik, Croatia.
- 3<sup>rd</sup> Mine Action Technology Workshop 2010, September 6-8 2010, Geneva, Switzerland.
- International Symposium on Humanitarian Demining 2010, April 27-29 2010, Sibenik, Croatia.
- 2<sup>nd</sup> Mine Action Technology Workshop, United Nations Mine Action Services (UNMAS) and Geneva International Centre for Humanitarian Demining (GICHD), September 8-10 2008, Geneva, Switzerland. Invited chairman of the brake out session: "What is the way ahead in technology development?"
- 7<sup>th</sup> IARP workshop Robotics and Mechanical Assistance in Humanitarian Demining and Similar Risky Interventions, HUDEM08, March 28-30 2008, Cairo, Egypt.
- 13<sup>th</sup> International Conference on Advanced Robotics, August 21-24 2007, Jeju, Korea.
- International Symposium on Humanitarian Demining 2007 – Mechanical Demining, Sibenik, Croatia, 24-27 April 2007.
- Mine Risk Education in Humanitarian Mine Action Programming – Training for MRE experts and MRE Project Managers, Bolsena (VT), Italy, 16-21 February 2007.
- Training of trainers and facilitators – Facilitating participatory decision making workshops, Oradea, Romania, 19-27 July 2006.
- EURON Atelier on Roboethics, Genova, Italy, 27 February– 2 March 2006.
- IARP International workshop on Robotics and Mechanical Assistance in Humanitarian Demining (HUDEM2005), Tokyo, Japan, 21-23 June 2005.
- EUDEM2 Final Workshop: Is Humanitarian Demining Technology a Broken Promise?, Brussels, Belgium, 5-6 October 2004.
- International Conference on Requirements and Technologies for the Detection, Removal and Neutralization of Landmines and UXO, EUDEM2-SCOT Conference, Brussels, Belgium, 15-18 September 2003.
- Second On-Site IARP Workshop on Humanitarian Demining, Prishtina, Kosovo, 19-20 June 2003.
- Robocup Piacenza, summer 2003.
- First International Workshop on Advances in Service Robotics (ASER03), Bardolino, 13-15 March 2003.
- Advanced course in robotics, Geometric Methods for Analysis and Control of Biomimetic Robotic Locomotion, by Joel W. Burdick professor at the California Institute of Technology, University of Verona, 26-29 Agosto 2002.
- Climbing and Walking robots (CLAWAR), Marseille, France, 2-3 May 2002.

- Motion Control and Coordination of Mechanical and Robotic Systems, by Ilya V. Miroshnick, professor at the Saint- Petersburg State Institute of Fine Mechanics and Optics- Technical University, 8 April 2002.

**Computer skills:**

ProEngineer, ADAMS, Canvas, Maple7, Macromedia Dreonweaver, FPSoft, Microsoft Office.

**Foreign languages:**

**English** fluent; **French** good

**Other activities:**

I'm currently president of the no profit association "Snail Aid-Technology for Development". The association helps producing low cost technologies for sustainable development, designing them together with end-users in a participatory way. The association is working both on national and international projects.

I have been a scout for 17 years. I have been scout leader for 3 years in the scout group GE13. I have been educator of Cops, children between 8 and 12 years old and for Rovers, 16 years old guys.

I like travelling and meeting new cultures. I like almost every kind of sport, particularly: alpine and backcountry skiing, trekking, running and diving.