Wafa Johal

CONTACT INFORMATION

PostDoctoral Scientist
CHILI/LSRO Labs - École Polytechnique Fédéral de Lausanne

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RESEARCH INTERESTS

I am interested in personalization using physical and non-verbal cues of communication during Human-Robot Interaction in educational contexts. I work with robots having various embodiment and try to base my models on social and cognitive sciences. I also have interest in affective computing, machine learning, symbolic reasoning and integration of companion robots in smart homes. I have conducted child-robot interaction (CRI) experiments from protocol design to data analysis.

ACADEMIA

Postdoctoral Scientist for NCCR Robotics - EPFL Switzerland, October 2015 - ...

Computer Human Interaction for Learning and Instruction Lab (Pr. Pierre Dillenbourg),

Mobile Robots Group - LSRO (Pr. Francesco Mondada)

- In charge of the robotics part of the CHILI Lab. Working mainly on two research projects : Cellulo and CoWriter
- Area of Study : Human-Robot Interaction, Personalization, Robots in education, Tangible Robots, Cognitive Models for HRI

Ph.D in Applied Mathematics and Computer Sciences, October 2015

University of Grenoble Alps, Laboratory of Informatics of Grenoble - MAGMA Team France

- Thesis Topic : *Behavioural Styles for Human-Robot Interaction : Towards Plasticity in HRI*
- Advisers : Prof. Sylvie Pesty & Prof. Gaëlle Calvary
- Jury Members : Mohamed Chetouani (UPMC), Pierre DeLoor (ENIB), Pierre Dillenbourg (EPFL), Dominique Vaufreydaz (UPMF), Dominique Duhaut (ENIB), Nadine Mandran (CNRS).
- Area of Study : Affective Computing, Human-Robot Interaction, Personalization, Plasticity

M.S., Computer Sciences : Graphics, Vision & Robotics, June 2012

University Joseph Fourier, Grenoble, France

- Thesis Topic : *Multi-modal detection of intention of interaction by a companion robot*
- Adviser : Dr. Dominique Vaufreydaz
- Area of Study : Activity Recognition, Multi-modal Data Fusion

B.S. B.A. Mathematics and Informatics applied to Cognitive Sciences, June 2010

Pierre-Mendès France University, Grenoble,France

- *Topped, Summa cum Laude*
- Mathematics : Linear Algebra, Logic, Probabilities, Statistics
- Computer Sciences : Algorithms & Programming
- Cognitive Sciences : Memory, Learning & Perception

Exchange Student for one year in Washington College, MA (U.S.A.), 2009-2010

JOURNAL PUBLICATIONS

- Mondada F., Bonnet E., Davrajh S., **Johal W.** and Stopforth R.. R2T2 : Robotics to Integrate Educational Efforts in South Africa and Europe. *International Journal of Advanced Robotic Systems*, 2016.
- Vaufreydaz D., **Johal W**., and Combe C., Starting engagement detection towards a companion robot using multimodal features, *Robotics and Autonomous* Systems, January 2015, ISSN 0921-8890.

INTERNATIONAL CONFERENCE PUBLICATIONS

- Özgür A., **Johal W.**, Mondada F and Dillenbourg P.. Haptic-Enabled Handheld Mobile Robots : Design and Analysis. *ACM CHI Conference on Human Factors in Computing Systems* (CHI), 2017.
- Özgür A., **Johal W.**, Mondada F and Dillenbourg P.. Windfield : Learning Wind Meteorology with Handheld Haptic Robots. *ACM/IEEE International Conference on Human-Robot Interaction* (HRI), 2017.
- Özgür A., Lemaignan S., **Johal W.**, Mondada F. et al.. Cellulo : Versatile Handheld Robots for Education. *ACM/IEEE International Conference on Human-Robot Interaction* (HRI), 2017.
- Adam C., **Johal W.**, Pellier D., Fiorino H. and Pesty S., Social Human-Robot Interaction : A New Cognitive and Affective Interaction-Oriented Architecture, *International Conference on Social Robotics* (ICSR), 2016
- Özgür A., **Johal W.** and Dillenbourg P.. Permanent Magnet-Assisted Omnidirectional Ball Drive. *International Conference on Intelligent Robots and Systems* (IROS), 2016.

- **Johal W.**, Jacq A., Paiva A. and Dillenbourg P.. Child-Robot Spatial Arrangement in a Learning by Teaching Activity. *25th IEEE International Symposium on Robot and Human Interactive Communication*. August 2016. New York City, USA.
- Ta V.C, **Johal W**., Portaz M., Castelli E., Vaufreydaz D., The Grenoble system for the Social Touch Challenge at ICMI 2015. *International Conference on Multimodal Interaction*. (ICMI2015).
- **Johal W**., Calvary G., Pesty S., Non-verbal Signals in HRI : Interference in Human Perception. *International Conference on Social Robotics*. (ICSR2015).
- **Johal W.**, Pellier D., Adam C., Fiorino H., Pesty S., A Cognitive and Affective Architecture for Social Human-Robot Interaction. HRI'15 Extended Abstracts. DOI=10.1145/2701973.2702006 [Award Nominee]
- **Johal W.**, Robots Interacting with Style. HRI'15 Extended Abstracts.DOI=10.1145/2701973.2702706
- **Johal W.**, Calvary G., Pesty S., Toward Companion Robots Behaving with Style. *In Proceedings of the 2014 IEEE International Symposium on Robot and Human Interactive Communication* (ROMAN). Edinburgh. 2014. doi: 10.1109/ROMAN.2014.6926393
- **Johal W.**, Adam C., Fiorino H., Pesty, S., Duhaut D.. Acceptability of a companion robot for children in daily life situations *5th IEEE Conference on Cognitive InfoCommunications*. (CogInfoCom) Nov 2014. Vietri, Italy. doi: 10.1109/CogInfoCom.2014.7020474
- **Johal W.**, Calvary G. and Pesty S.. A Robot with Style because you are Worth it !. *In CHI '14 Extended Abstracts on Human Factors in Computing Systems* (CHI EA '14). Toronto, Canada. DOI=10.1145/2559206.2581229
- **Johal W.**, Dugdale J., Pesty S.. Modelling interactions in a mixed agent world. In Proceeding of 25th *European Modeling and Simulation Symposium* (EMSS). Athens, Greece, 23-25 Sept 2013
- **Benkaouar (Johal) W.**, Vaufreydaz D.. Multi-sensors engagement detection with a robot companion in a home environment. *Workshop on Assistance and Service Robotics in a Human Environment at IEEE International Conference on Intelligent Robots and Systems* (IROS2012), Vilamoura, Algarve - Portugal, oct 2012.

French Conference Publications

- Jacq A., Johal W. and Dillenbourg P.. Non-recursive Approach for Mutual Understanding.. *Journée de travail sur la robotique interactive et cognitive*. Avril. 2016. Toulouse, France
- **Johal W.**, Pesty, S., Calvary G., Des Styles pour une Personnalisation de l'Interaction Homme-Robot. *Journées Nationales de la Robotique Interactive* (JNRI). Nov. 2014. Toulouse, France
- **Johal W.**, Pesty S. Calvary G., Les Styles pour la Plasticité des Robots Compagnons. *Workshop Affect, Compagnon Artificiel, Interaction* (WACAI) 2014. Rouen, France
- Adam C., **Johal W.**, Ben-Farhat I., Jost C., Fiorono H., Pesty S. , Duhaut D.. Acceptabilité d'un robot compagnon dans des situations de la vie quotidienne. *Deuxième conférence III - Intercompréhension de l'intraspécifique à l'interspécifique*. Lorient, 30 Sept - 1Oct 2013

Other Publications

- Jacq A., **Johal W.**, Dillenbourg P. and Paiva A.. Cognitive Architecture for Mutual Modelling. *Workshop on Cognitive Architectures for Social HRI* (HRI'16). Christchurch, New Zealand. 2016
- **Johal W.**, Pesty S., Calvary G.. Expressing Parenting Styles with Companion Robots. *Workshop on Applications for Emotional Robots at Human-Robot Interaction conference* (HRI'14) . Bielefeld. 2014

Intern and PhD Tutoring

Thibault Asselborn, EDRS PhD Student EPFL, Adaptive Learning in CRI. Summer 2016 - ..

Elmira Yadollahi, EDRS PhD Student EPFL/IST Lisbon, CoReader - CRI for Reading. Fall 2016 - ..

Ayberk Ozgur, IC PhD Student EPFL, Cellulo - Haptic Swarm Robots for Education. Fall 2015 - ...

Alexis Jacq, EDRS PhD Student EPFL/IST Lisbon, Mutual-Modeling for CRI. Fall 2015 - ..

Jérémy Lascaux, CS Under-Grad. Student, IUT2- UPMF. Developing an Affective Math Game with Nao Robot. Spring 2014.

Anshul Singh Parihar, Electrical Engineering, IIT Jodhpur, India Agent-Based Simulation of Human-Robot Interaction for Experiment Design. Spring 2014.

Teaching

École Polytechnique Fédérale de Lausanne, Switzerland **October 2015 - ...**

- Visual Computing :
- Vision & Graphics, AR-game project using processing and various computer vision techniques.

Grenoble Institute of Technology, France

Teaching Assistant **October 2012 - July 2014**

- Instructor for ACVL : Software's Analysis, Conception and Validation.
  - Methods for Requirement Analysis
  - Software Design Patterns
  - UML Diagrams and Object Constraint Language
- Instructor for Introduction to Programming
  - OCaml and Python
  - Begining of complexity analysis

Pierre Mendès-France University, Grenoble, France **October 2013- January 2014**

- Instructor for INF f-1 : Undergraduate Beginner Programming, Lectures & Practical Sessions

Joseph Fourrier University, Grenoble, France **October 2011- January 2012**

- Instructor for Biology Undergraduates : C2i, Burautic, Basic HTML, Lectures & Practical Sessions

Academic Services

Conferences & Events

- Guest Editor Special Issue for the International Journal of Social Robotics - Springer, on "Robots for Learning".
- Organization Committee, "Workshop on Robots for Learning" @HRI 2017, R4L@HRI. Vienna, Austria - March 6, 2017.
- Organization Committee, "Workshop on Robots for Learning" @RoMan 2016, R4L. New York, USA - August 27, 2016.
- Session Chair on Implicit Human-Robot Communication, RO-MAN 2016. New York, USA - August 29, 2016.
- International Program Committee, International Conference on Social Robotics, ICSR 2016. Kansas City, USA - November 1-3, 2016.
- Member of Organization Committee, "Workshop on Social Robots in Education" , @NewFriends 2016. Barcelona, Spain - November 2, 2016.
- Member of Organization Committee, "Workshop Affect, Compagnon Artificiel, Interaction ", WACAI 2012. Grenoble, France - 15 & 16 November 2012.
- Member of Organization Committee, PersyCup Robotic Challenge. Grenoble, France - 21 Mai 2015.

Reviewer for :

- ◇ *International Journal of Human-Robot Interaction*,2016
- ◇ *International Journal of Social Robotics*,2016
- ◇ *IEEE Robotics and Automation Magazine (IEEE-RAM)*,2016
- ◇ *Journal of Cognitive Systems Research*, 2016
- ◇ *Journal on Interaction Studies*, 2016
- ◇ *Transaction on Learning Technologies*, 2017
- *ACM CHI Conference on Human Factors in Computing Systems (CHI)*, 2017
- *ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)*, 2017
- *International Conference on Social Robotics (ICSR)*, 2015, 2016
- *International Conference on Human Robot Interaction (HRI)*, 2015, 2016, 2017
- *IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)*, 2014, 2015, 2016

Language

- French : Mother tongue
- English : Fluent - TOEFL, 1 year in USA, Masters taught in English

References Available to Contact

Prof. Pierre Dillenbourg (e-mail : pierre.dillenbourg@epfl.ch) - EPFL

- ◇ Head of Computer Human Interaction for Learning and Instruction Lab. *I work with Pr. Dillenbourg on the CoWriter and Cellulo projects.*

Prof. Francesco Mondada (e-mail : francesco.mondada@epfl.ch) - EPFL

- ◇ Head of MOBOTS Group, LSRO-Lab. *I work with Pr. Mondada on the Cellulo project.*

Prof. Sylvie Pesty (e-mail : Sylvie.Pesty@imag.fr) -University Institute of Technology (IUT2-UPMF),

- ◇ Member of MAGMA Team, LIG-Lab. *Prof. Pesty is my supervisor for my PhD.*

Prof. Gaëlle Calvary (e-mail : Gaelle.Calvary@imag.fr) - ENSIMAG Grenoble Institute of Technology,

- ◇ Member of Engineering of Computer Human Interaction Team, LIG-Lab. *Prof. Calvary is my co-supervisor for my PhD.*

Dr. Dominique Vaufreydaz (e-mail : Dominique.Vaufreydaz@inria.fr) - University Pierre Mendès-France

- ◇ Member of PRIMA Team, INRIA & LIG-Lab. *Prof. Vaufreydaz was my supervisor during my Masters.*

More Information

More information and auxiliary documents can be found at http://wafa.johal.fr/.