

# Curriculum vitae

Amine CHELLALI

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## Actual positions

**Assistant Professor** in the Department of Computer Engineering, University of Evry-Val-d'Essonne (Evry, France), **Researcher in the IRA2 group** at the IBISC Laboratory (Evry, France)

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## Academic Training

### 2009: Ph.D. in Human Computer Interaction

Nantes University, France

Dissertation in Human computer interaction: « **A study of human-human interactions for the common frame of reference development in collaborative virtual environments** » (*In French*)

Advisors: Pr. M. Gautier, Dr. C. Dumas, Dr. I. Milleville

### 2005: Master of Science in Robotics

Ecole centrale de Nantes, France.

Thesis in Computer vision and image processing « **Fish-eye sensors and 3D environment reconstruction for a mobile robot** » (*In French*)

Advisor: Dr. A. Chriette (Internship at Ecole des Mines de Nantes)

### 2003: Master of Engineering in computer science (option: Advanced Information Systems)

University of Constantine, Algeria (2003)

Thesis in Image Processing: « **Design and development of a color images mosaicing system** » (*In French*)

Advisor: Pr. M. Batouche (Internship in the LIRE Laboratory at the University of Constantine)

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## Teaching Positions

2013-present: **Assistant Professor** at University of Evry

- Human Computer Interaction, Design, Networks, Programming (192 hours).

2010-2011: **Teaching assistant** at Ecole de Mines de Nantes.

- Human Computer Interaction (36 hours).

2008-2010: **Teaching assistant** in the computer science department at Nantes University.

- Algorithms and programming, (132 hours).
- Human Computer Interaction (60 hours).

2006-2011: **Supervisor of scientific & technical student projects** at Ecole des Mines de Nantes

- Robotics and Industrial Computing projects (80 hours).
- Project based learning (20 hours).

2003-2004: **Adjunct Professor** in computer science at Faculté de Médecine de Constantine.

- Introduction to computer science (180 hours).

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## Research Positions

Sep. 2013 – present: **Researcher** in the IRA2 group at the IBISC Laboratory (Evry, France)

Jun. 2012- Aug. 2013: **Research Coordinator** in the Department of Surgery at Cambridge Health Alliance (Cambridge, MA)

May 2012- Present: **Research Fellow in Surgery (Postdoc)** at Harvard Medical School - Beth Israel Deaconess Medical Center (Boston, MA)

Feb. 2012-present: **Research collaborator** at the C. J. Shapiro Simulation and Skills Center at Beth Israel Deaconess Medical Center, Harvard Medical School Teaching Hospital (Boston, MA)

Dec. 2011- May 2012: **Postdoctoral associate** in the Ergonomics in Remote Environments Laboratory at Tufts University (Medford, MA)

Mar. 2006- Nov. 2011: **Research Assistant** in the robotics group at IRCCyN (Nantes, France),

**Supervisor experience:** 4 Master of Science (EMARO) Students, 3 Master1 students.

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## Past research projects

### 2011-2013: NOTES

Subject: Development and Validation of Virtual Trainer for Natural orifice transluminal endoscopic surgery (NOTES)

Keywords: VR simulation, Training, NOTES, Human Factors, Task analysis

Funding: NIH

Partners: Cambridge Health Alliance, Tufts University, Rensselaer Polytechnic Institute, Beth Israel Deaconess Medical Center, Massachusetts General Hospital, Wright State University

Duties: Co-Investigator, conducting human subjects' experiments, Task analysis, data analysis, IRB management, scientific publications

### 2011-2013: VBLaST

Subject: Development and Validation of Virtual Basic Laparoscopic Surgical Trainer

Keywords: VR simulation, Training, Laparoscopy, Human Factors, Haptics

Funding: NIH

Partners: Cambridge Health Alliance, Tufts University, Rensselaer Polytechnic Institute, Beth Israel Deaconess Medical Center, Massachusetts General Hospital, Wright State University

Duties: Co-Investigator, conducting human subjects' experiments, data analysis, IRB management, scientific publications

### 2011-2013: **Human computer interaction and ergonomics studies for the Da Vinci Robotic system**

Subject: studying human factors and HCI issues of the Da Vinci surgical robotic system

Keywords: HCI, haptic Interactions, VR, Human factors, Motor skills learning.

Partners: Cambridge Health Alliance, Wright State University, EMN, ICO (CHU Nord de Nantes)

Duties: Co-Investigator, supervising graduate students, scientific publications

### 2008-2011: **VR4D project**

Subject: finding new collaborative interactions in virtual environments for designer

Keywords: CVE, 3D interaction, haptic, VR, design, collaboration, 3D sketch.

Funding: Europe, French Ministry of Industry, Regional Council.

Partners: EMN, EDNA, Clarté, STX Europe, DCNS, Beneteau, Gruau, BE Mauric, SIA.

Duties: Co-Investigator (Site PI for the last year), scientific publications, design and development of prototypes, conducting human subjects' experiments, data analysis

### 2009-2011: **HEP project**

Subject: Evaluation of human haptic performances

Keywords: Haptic performance, needle insertion, force sensors, human performance

Funding: AtlanSTIC

Partners: IRCCyN, EMN, LISA, CHU Nantes

Duties: supervising graduate students, scientific publications

### 2007-2009: **RobMed project**

Subject: Gesture learning on robotic assisted punctures in minimally invasive surgery

Keywords: gesture learning, haptic, robotic assisted puncture

Funding: Region council, EMN

Partners: IRCCYN (UMR CNRS 6597), CHU Nantes, Staübli, Haption

Duties: supervising graduate students, scientific publications, design and development of prototypes, conducting human subjects' experiments, data analysis

#### 2006-2008: **InterActeurs project**

Subject: New collaborative interactions in virtual environments

Keywords: CVE, 3D interaction, haptic, gesture learning

Funding: Orange Labs

Partners: IRCCYN, Orange Labs

Duties: supervising graduate students, scientific publications, design and development of prototypes, conducting human subjects' experiments, data analysis

#### 2003: **REPOSIT project**

Keywords: CVE, e-laboratory, robotics

Funding: FP6 European Project

Partners: IRCCYN, CNES, Alcatel, OptiBase, NCSR Demokritos, University of Cantab.

Duties: design and development of a prototype of CVE

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### Summer schools and training courses

- The 5<sup>th</sup> Summer School On surgical Robotics 2011, at Montpellier, France (2011)
- GDR Psycho-Ergo summer school on « Contemporary Theories and methods in cognitive ergonomics » at le Croisic (2010)
- Statistics for HCI Workshop, RJC-IHM at Cap d'Agde (2008)
- Participatory Design Workshop, RJC-IHM at Cap d'Agde (2008)
- The 2<sup>nd</sup> Peach Summer School « Presence: Technologies and Applications » at Dubrovnik (2008).
- Art, design and GUI design Workshop, RJC-IHM (2006)
- The 4<sup>th</sup> CNRS–EIAH summer school on “Simulation, virtual and augmented reality for professional learning” at Montpellier (2006)
- Three-days intensive course for the use of *Virtools* 3D prototyping platform from *Dassault System*, organized by *CAMINO 3D* at Polytech’Nantes (2006)

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### Seminars / conferences

- Virtual reality international conference VRIC2010 at Laval (2014)
- Joint Virtual Reality Conference JVRC 2013 at Paris (2013)  
**Poster presentation:** « VR4D: An Immersive and Collaborative Experience to Improve the Interior Design Process »
- The 56th Annual Meeting of the Human Factors and Ergonomics Society, HFES 2012, at Boston, MA, USA
- The Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) annual meeting, SAGES 2012, at San Diego, CA, USA (2012)  
**Demonstration** at the Learning Center: «VBLaST™ – The Virtual Basic Laparoscopic Skill Trainer »
- The European Conference on Cognitive Ergonomics ECCE 2010, at Delft (2010)  
**Long Oral presentation:** « Haptic communication to enhance collaboration in virtual environments »
- The International Conference on Web Virtual Reality and 3D worlds at Freiburg (2010)  
**Long Oral presentation:** « WYFIWIF: A haptic communication paradigm for collaborative motor skills learning »
- Virtual reality international conference VRIC2010 at Laval (2010)
- The European Conference on Cognitive Ergonomics ECCE 2008, at Madera (2008).  
**Long Oral presentation:** « *Elaboration of common frame of reference in Collaborative Virtual Environments* »

- 20<sup>th</sup> international Conference of the Association Francophone D'interaction Homme-Machine (AFIHM), at Metz (2008)  
**Long Oral presentation:** « Influence des référentiels d'action sur les profils de collaboration dans un environnement virtuel »
  - The 2<sup>nd</sup> Peach Summer School « Presence: Technologies and Applications » at Dubrovnik (2008)  
**Poster presentation:** « Haptic communication to increase collaboration in virtual environments »
  - 19th international Conference of the Association Francophone D'interaction Homme-Machine (AFIHM), at Paris (2007)
  - Presence'07-The 10<sup>th</sup> Annual International Workshop on Presence, at Barcelona (2007).  
**Poster presentation:** «Common Frame of References in Collaborative Virtual Environments and their Impact on Presence »
  - One-day seminar on « Learning and assistance to medical and surgical gestures» organized by the GRD STIC-Santé at Paris (2007)  
**Long Oral presentation:** « Apprentissage Haptique du geste médical: Insertion d'aiguille en radiologie interventionnelle »
  - The 18<sup>th</sup> international Conference of the Association Francophone D'interaction Homme-Machine (AFIHM), at Montreal (2006)
  - The International conference on Computer/Human Interaction CHI' 06, at Montreal
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## Publications

1. **Chellali, A.**, Ahn, W., Sankaranarayanan, G., Flinn, J., Schwaizberg, S.D., Jones, D.B., De, S., Cao, C.G.L. (2014) Preliminary Evaluation of the Pattern Cutting and the Ligating Loop Virtual Laparoscopic Trainers. *Surgical Endoscopy*, Springer (In press)
2. Mentis, H.M., **Chellali, A.**, Schwaizberg, S.D. (2014) Learning to See the Body: Supporting Instructional Practices in Laparoscopic Surgical Procedures. In the proceedings of the ACM CHI Conference on Human Factors in Computing Systems (CHI 2014), Toronto, Canada, pp. 2113-2122
3. **Chellali, A.**, Schwaizberg, S.D., Jones, D.B., Romanelli, J., Miller, A., Rattner, D., Roberts, K., Cao, C.G.L. (2014). Toward scar-free surgery: An analysis of the increasing complexity from laparoscopic surgery to NOTES. *Surgical Endoscopy*, Springer DOI 10.1007/s00464-014-3565-z
4. **Chellali, A.**, Zhang, L., Sankaranarayanan, G., Arikatla, V. S., Ahn, W., Derevianko, A., Schwaizberg, S.D., Jones, D.B., Demoya, M., Cao, C.G.L. (2014) Validation of the VBLaST Peg Transfer Task: A First Step toward an Alternate Training Standard. *Surgical Endoscopy*, Springer, DOI 10.1007/s00464-014-3538-2
5. Olasky, J., **Chellali, A.**, Sankaranarayanan, G., Zhang, L., Cao, C.G.L., De, S., Jones, D., Schneider, B. (2014) Effects of Sleep Hours and Fatigue on Performance in Laparoscopic Surgery Simulators. *Surgical Endoscopy*, Springer, DOI 10.1007/s00464-014-3503-0
6. **Chellali, A.**, Ahn, W., Sankaranarayanan, G., Flinn, J., Schwaizberg, S.D., Jones, D.B., De, S., Cao, C.G.L. (2014) Preliminary Evaluation of the Pattern Cutting and the Ligating Loop Virtual Laparoscopic Trainers. Abstract presented at the Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) 2014 annual meeting, Salt Lake City, UT, USA
7. Arikatla, V. S., Sankaranarayanan, G., Ahn, W., **Chellali, A.**, De, S., Cao, C.G.L., Hwabejire, J., Demoya, M., Schwaizberg, S., Jones, D.B. (2013) Face and Construct Validation of a Virtual Peg Transfer Simulator. *Surgical Endoscopy*, Volume 27, issue 5, pp. 1721-1729, Springer
8. **Chellali, A.**, Jourdan, F., Dumas, C. (2013) VR4D: An Immersive and Collaborative Experience to Improve the Interior Design Process of Limited Spaces. In the proceedings of the 5th Joint Virtual Reality Conference, JVRC 2013, Paris, France, pp. 61-65
9. Wang, J., **Chellali, A.**, Cao, C.G.L. (2013) A Study of Communication Modalities in a Virtual Collaborative Task. In the proceedings of the IEEE International Conference on Systems, Man, and Cybernetics (SMC) 2013, Manchester, UK, pp. 542 – 546.
10. Olasky, J., Eskander, M., Ahn, W., Sankaranarayanan, G., De, S., **Chellali, A.**, , Cao, C.G.L., Feldman, L. S., Schwaizberg, S. D., Jones, D. (2013) The Impact of Simulator Based Electrosurgical Training on Resident Education. Abstract presented at SAGES 2013, The Society of American Gastrointestinal and Endoscopic Surgeons Annual Meeting, Baltimore, MD, USA

11. **Chellali, A.**, Sankaranarayanan, G., Zhang, L., Cao, C.G.L., De, S., Jones, D., Schneider, B. (2013) Effects of Sleep hours and Fatigue on Performance in Laparoscopic Surgery Simulators. Abstract presented at SAGES 2013, The Society of American Gastrointestinal and Endoscopic Surgeons Annual Meeting, Baltimore, MD, USA
12. **Chellali, A.**, Cao, C.G.L. (2013) The Impact of New Instruments on Surgical Performance in Natural Orifice Transluminal Endoscopic Surgery. In the proceedings of the 57th Human Factors and Ergonomics Society Annual Meeting, HFES 2013, San Diego, CA, pp. 663-667
13. Arikatla, V. S., Sankaranarayanan, G., Ahn, W., **Chellali, A.**, Cao, C.G.L., De, S. (2013) Development and Validation of VBLaST-PT©: A Virtual Peg Transfer Simulator. In the proceedings of Medicine Meets Virtual Reality MMVR 20, Studies in health technology and informatics, 184, San Diego, CA, USA, pp. 24-30
14. Cunningham, S., **Chellali, A.**, Jaffre, I., Classe, J.-M., Cao, C.G.L. (2012) Effects of Experience and Workplace Culture in Human-Robot Team Interaction in Robotic Surgery: A Case Study. *International Journal of Social Robotics*, Volume 5, issue 1, pp. 75-88, Springer
15. **Chellali, A.**, Dumas, C., Milleville-Pennel, I. (2012) Haptic communication to support biopsy procedures learning in virtual environments. *Presence: Teleoperators and Virtual Environments*, Volume 21, issue 4, pp. 470-489, MIT Press Journals
16. **Chellali, A.**, Dumas, C., Milleville-Pennel, I. (2011) Influences of Haptic Communication on a Shared Manual Task in a Collaborative Virtual Environment. *Interacting With Computers*, Volume 23, issue 4, pp. 317-328, Elsevier
17. Cunningham, S., **Chellali, A.**, Banez, J., Cao, C.G.L. (2012). Design of a Spatial Aid for Team Communication in Robotic Surgery. *In the proceedings of ASME 2012, 11th Biennial Conference on Engineering Systems Design and Analysis*, Nantes, France
18. Roth Monzon, E. L., **Chellali, A.**, Dumas, C., Cao, C.G.L. (2012). Training effects of a visual aid on haptic sensitivity in a needle insertion task (2012). *In the proceedings of the IEEE Haptics 2012*, Vancouver, Canada.
19. Roth Monzon, E. L., **Chellali, A.**, Dumas, C., Cao, C.G.L. (2011). Haptic sensitivity in needle insertion: the effects of training and visual aid. *In the proceedings of The International Conference SKILLS 2011*, Montpellier, France, pp. 250-253
20. Takac, B., **Chellali, A.**, Dumas, C., Milleville-Pennel, I., Grosdemouge, C. and Cao, C.G.L. (2011) Haptic Communication for a 2-D Pointing Task in a Virtual Environment. *In Proceedings of the 55th Annual Meeting of the Human Factors and Ergonomics Society: HFES 2011*, Las Vegas, USA pp. 2168-2172
21. **Chellali, A.**, Dumas, C., Milleville-Pennel, I. (2011). Influences of Haptic Communication on a Shared Manual Task in a Collaborative Virtual Environment. *Elsevier Interacting With Computers, Volume 23, issue 4: Cognitive Ergonomics for Situated Human-Automation Collaboration*, pp. 317-328
22. **Chellali, A.**, Dumas, C., & Milleville-Pennel, I. (2010). Haptic communication to enhance collaboration in virtual environments. *The European Conference on Cognitive Ergonomics ECCE2010*. Delft, the Netherlands. p. 83-90.
23. **Chellali, A.**, Milleville-Pennel, I., & Dumas, C. (2010) WYFIWIF: A haptic communication paradigm for collaborative motor skills learning. *International Conference on Web Virtual Reality and 3D worlds 2010*. Freiburg, Germany. pp. 301-308
24. Dumas, C., Jourdan, P., Plénacoste, L., Perron, L., & **Chellali, A.** (2009). Guide de conception d'une technique de désignation 3D. *Journal Technique et Science Informatiques* , 28 (6/7), 799-830
25. **Chellali, A.** (2009). *Etude des interactions homme-homme pour l'élaboration du référentiel commun dans les environnements virtuels collaboratifs*. PhD Dissertation, Nantes University, Nantes.
26. **Chellali, A.** (2008). Haptic communication to increase collaboration in virtual environments. *2nd Peach summer school on Presence: Technologies and applications* , 21-22
27. **Chellali, A.**, Milleville-Pennel, I., & Dumas, C. (2008). Elaboration of a common frame of reference in collaborative virtual environments. (J. Abascal, I. Fajardo, & I. Oakley, Éds.) *In Proceedings of the 15th European Conference on Cognitive Ergonomics: the Ergonomics of Cool interaction (Funchal, Portugal, 2008)* , 369, 83-90
28. **Chellali, A.**, Milleville-Pennel, I., & Dumas, C. (2008). Influence des systèmes de référence sur les profils de collaboration dans un environnement virtuel . *In Proceedings the 20th international*

*Conference of the Association Francophone D'interaction Homme-Machine (Metz, France, September 02 - 05, 2008). 339, pp. 63-70*

29. **Chellali, A.**, Milleville-Pennel, I., Dumas, C., & Nouri-Esfandiari, E. (2007). Common Frame of References in Collaborative Virtual Environments and their Impact on Presence. *In proceedings of the 10th Annual International Workshop On Presence* (pp. 371-372). Barcelona: International Society for Presence Research
30. Milleville-Pennel, I., **Chellali, A.**, & Dumas, C. (2007). Influence des référentiels d'action sur l'élaboration de la coopération dans les environnements 3D collaboratifs. *Journées d'Etudes en Psychologie Ergonomique : Epique 2007*. Nantes
31. **Chellali, A.** (2006). Les environnements virtuels collaboratifs pour le storytelling. *Rencontres Jeunes Chercheurs en IHM 06*

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## Scientific reviews

- Reviewer for the IEEE Transaction on Haptics Journal since 2011
- Reviewer for the IEEE Transactions on Systems, Man, and Cybernetics--Part C: Applications and Reviews Journal since 2011
- Reviewer for the IEEE Transactions on Systems, Man, and Cybernetics-Part A: Systems and Humans Journal since 2012
- Reviewer for the Human Factors and Ergonomics Society annual meeting, HFES 2012
- Reviewer for the ACM Conference francophone d'Interaction Homme-Machine (IHM) since 2010
- Reviewer for ACM Virtual Reality International Conference (2014)
- Reviewer for Information and Communication Technologies Innovations and Applications Conference (2014)
- Reviewer for International Symposium on Wearable Computers (2014)

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## Scientific committees

- 2014 Member of the program committee and the local organization committee of the International Conference on Intelligent Human Computer Interaction » (IHCI 2014), Evry, France
- 2014 Member of the program committee of the ACM Virtual Reality International Conference (VRIC 2014), at Laval, France
- 2012 Member of the selection committee of the « A. Chapanis Student Best Paper Award » for the Human Factors and Ergonomics Society annual meeting, HFES 2012, Boston, Etats-Unis

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## Mentoring activities

### Supervisor of PhD Theses

- 2013-current (in progress): Séddik Benyahia " multimodal communication in Collaborative Virtual Environments" at IBISC Lab.

### Supervisor of Graduate Theses

- 2009-2010: Boris Takac (EMARO Master of Science, , IRCCyN): "Haptic communication in virtual environments" (Research Assistant at Eindhoven University of Technology, The Netherlands)
- 2010-2011: Emilio Roth (EMARO Master of Science, IRCCyN): "Haptic Evaluation and training" (Customer Support at Aldebaran Robotics)
- 2011-2012: Stacey Cunningham (Master of science, Human Factors, Tufts University): "Robotic-Assisted Minimally Invasive Surgery: Communication in a Complex Socio-Technical System" (Senior Usability Associate at athenahealth)
- 2013-current (in progress): NGUYEN Duc Van (Master of Science, Human Computer Interaction, Université Paris Sud 11): Design of a Virtual trainer for a needle insertion task

## Supervisor of Graduate Theses

- 2007: Eric Nouri (Bachelor, psychology): "Collaboration dans un environnement virtuel 3D: influence d'un avatar en tant que référence externe commune" (Usability Specialist - Omegane Founder & Manager - at Omegane)
- 2008: Julien Fuchs (Bachelor, psychology): "Analyse de l'activité des radiologues en situation de radiologie interventionnelle sous scanner au CHU de Nantes" (HCI ergonomics Consultant at Niji)
- 2009: Vincent Thoréton (Bachelor, psychology): "Une étude d'ergonomie cognitive sur l'apprentissage des gestes de ponction" (Consultant, Psychology)
- 2014 (in progress) : Safa Ben Lakhal (M1, Cognitive ergonomics, Université Paris 8) : " évaluation ergonomique d'un simulateur interactif d'insertion d'aiguille " at IBISC Lab.

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## Additional Experience

### 2005-2006: Web Consultant

- Participation to the Development of the "French Academy of Technology" (Académie des Technologies) website.

### 2004: Web Consultant

- Design and development of the ATHARIYA website (e-commerce).

### 2003: Hardware/Software Engineer

- Worked as a Store manager: Selling and maintaining computer equipment.

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## Professional Affiliations

Member of:

- The Human Factors and Ergonomics Society since 2012
- The French National Association of Doctors (ANDès) since 2010
- The French association of Virtual Reality (AFRV) since 2010
- The « GDR Psycho-Ergo » since 2009
- The International Society for Presence Research since 2008
- The laboratory board at IRCCyN from 2008 to 2010
- The « GDR STIC-Santé » since 2007
- The « Ecole des mines de Nantes Ph.D. students association » (ACMIN) from 2006 to 2009
- The The French association of human-computer interaction (AFIHM) since 2006