

## LOUIS-PHILIPPE MORENCY

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## EDUCATION

**Ph.D. in Computer Science** October 2006  
Massachusetts Institute of Technology Cambridge, MA  
Thesis title: Context-based Visual Feedback Recognition

**S.M. in Computer Science** June 2002  
Massachusetts Institute of Technology Cambridge, MA

**B.A. in Computer Engineering** June 2000  
Laval University Quebec city, Canada

## RESEARCH INTERESTS

- **Computer vision:** visual gesture recognition, motion tracking, facial expression.
- **Human-computer interaction:** robot interactions, intelligent virtual agents.
- **Machine learning:** multimodal integration, semi-supervised learning.

## RESEARCH EXPERIENCE

**Postdoctoral Associate** 2006-present  
Massachusetts Institute of Technology Cambridge, MA  
Research topics: visual feedback recognition, embodied conversational agents, multi-modal integration.

**Research Assistant** 2000-2006  
Massachusetts Institute of Technology Cambridge, MA  
Research topics: context-based visual gesture recognition, human-computer interaction, head pose estimation, 3D view registration.

**Research Intern** Summer 2002  
Honda Research Institute USA Mountain View, CA  
Research topic: robot localization algorithm for indoor environment using stereo camera

**Research Assistant** 1998-1999  
Computer vision and systems laboratory, Laval University Quebec city, Canada  
Research topic: three-dimensional object recognition and pose estimation.

## TEACHING EXPERIENCE

**Teaching Assistant** Spring 2003  
Massachusetts Institute of Technology Cambridge, MA  
*Computer vision and applications*: Prepared problem sets, offered office hours and gave short tutorials.

**Teaching Assistant** 1998-1999  
Laval University Quebec city, Canada  
*Algorithms for Engineers I*: Data structures, algorithms and oriented object programming.  
*C++ programming for Unix*: Assisted 100 students with problem sets and class projects.

**Instructor** Summer 1998  
Bois-de-Boulogne College Montreal, Canada  
Taught an introductory computer science and web design course to 25 students.  
Responsible for designing curriculum, daily lectures, and final project.

**Science Tutor** 1995-1996  
Sainte-Foy College Quebec city, Canada  
Provided individual tutoring to students in physics and mathematics.

## AWARDS AND HONORS

- **Best paper award**, International Conference on Multimodal Interfaces, 2006
- **Best paper award**, International Conference on Multimodal Interfaces, 2005
- **Best tutor award**, Sainte-Foy College, 1996
- **Honor Roll**, Laval University, 1996-1997

## PUBLICATIONS

### Book chapter

- **L.-P. Morency**, C. Sidner, and T. Darrell, Visual Feedback Recognition for Embodied Agent: The role of contextual information, *Engineering Approaches to Conversational Informatics*, Toyoaki Nishida, Editor. John Wiley & Sons, to be published in 2007

### Journal papers

1. **L.-P. Morency**, C. Sidner, C. Lee, and T. Darrell, Head Gestures for Perceptual Interfaces: The Role of Context in Improving Recognition. *Artificial Intelligence*. Elsevier, accepted for publication, 2006
2. A. Quattoni, S. Wang, **L.-P. Morency**, M. Collins, and T. Darrell, Hidden-state Conditional Random Fields, *IEEE Transactions on Pattern Analysis and Machine Intelligence* (PAMI), accepted for publication, 2006
3. A. Rahimi, **L.-P. Morency**, and T. Darrell, Reducing Drift in Differential Tracking, *Computer Vision and Image Understanding* (CVIU), accepted for publication, 2006

4. C. M. Christoudias, **L.-P. Morency**, and T. Darrell, Non-parametric and Light-field Deformable Models, *Computer Vision and Image Understanding (CVIU)*, 104(1):16-35, October 2006

#### Refereed conference papers

1. **L.-P. Morency**, C. M. Christoudias, and T. Darrell, Recognizing Gaze Aversion Gestures in Embodied Conversational Discourse, *International Conference on Multimodal Interactions (ICMI'06)*, Banff, Canada, November 2006
2. C. M. Christoudias, K. Saenko, **L.-P. Morency**, and T. Darrell, Co-Adaptation of Audio-Visual Speech and Gesture Classifiers, *International Conference on Multimodal Interactions (ICMI'06)*, Banff, Canada, November 2006 **\*\*Best paper award\*\***
3. J. Gratch, A. Okhmatovskaia, F. Lamothe, S. Marsella, M. Morales, R. J. van der Werf, and **L.-P. Morency**, Virtual Report, *6<sup>th</sup> International Conference on Intelligent Virtual Agents (IVA'06)* Marina del Rey, CA, August 2006
4. **L.-P. Morency**, C. Sidner, C. Lee, and T. Darrell, The Role of Context in Head Gesture Recognition, *The Twenty-First National Conference on Artificial Intelligence, Nectar track (AAAI'06)*, Boston, MA, July 2006
5. S. Wang, A. Quattoni, **L.-P. Morency**, D. Demirdjian, and T. Darrell, Hidden Conditional Random Fields for Gesture Recognition, *Conference on Computer Vision and Pattern Recognition (CVPR'06)*, New York City, NY, June 2006
6. C. Sidner, C. Lee, **L.-P. Morency**, and C. Forlines, The Effect of Head-Nod Recognition in Human-Robot Conversation, *Annual Conference on Human-Robot Interaction (HRI'06)* Salt Lake City, Utah, USA, March 2006
7. **L.-P. Morency**, and T. Darrell, Head Gesture Recognition in Intelligent Interfaces: The Role of Context in Improving Recognition, *International Conference on Intelligent User Interfaces (IUI'06)*, Sydney, Australia, 2006
8. **L.-P. Morency**, C. Sidner, C. Lee, and T. Darrell, Contextual Recognition of Head Gestures, *International Conference on Multimodal Interactions (ICMI'05)*, pp.18-24, Italy, October 2005 **\*\*Best paper award\*\***
9. **L.-P. Morency**, C. Sidner, and T. Darrell, Towards Context-Based Visual Feedback Recognition for Embodied Agents, *Symposium on Conversational Informatics for Supporting Social Intelligence and Interaction (AISB'05)*, pp.69-72, Hatfield, UK, April 2005
10. **L.-P. Morency**, and T. Darrell, From Conversational Tooltips to Grounded Discourse: Head Pose Tracking in Interactive Dialog Systems, *International Conference on Multimodal Interfaces (ICMI'04)*, pp. 32-37, 2004
11. C. M. Christoudias, **L.-P. Morency**, and T. Darrell, Light Field Appearance Manifolds, *European Conference on Computer Vision (ECCV'04)*, vol. 4, pp.481-493, Pragues, Czech Republic, May 2004
12. C. Lee, N. Lesh, C. Sidner, **L.-P. Morency**, A. Kapoor, and T. Darrell, Nodding in Conversations with a Robot, *CHI extended abstracts (CHI'04)*, pp. 785-786, Vienna, Austria, 2004

13. M. Siracusa, **L.-P. Morency**, K. Wilson, J. Fisher, and T. Darrell, A Multi-Modal Approach for determining Speaker Location and Focus, *International Conference on Multimodal Interactions (ICMI'03)*, pp. 77-80, 2003
14. **L.-P. Morency**, A. Rahimi, and T. Darrell, Adaptive View-based Appearance Model, *Computer Vision and Pattern Recognition (CVPR'03)*, vol. 1, pp. 803-810, Wisconsin, June 2003
15. **L.-P. Morency**, P. Sundberg, and T. Darrell, Pose Estimation using 3D View-Based Eigenspaces, *ICCV workshop on Analysis and Modeling of Face and Gesture*, pp. 45-52, Nice, France, October 2003
16. **L.-P. Morency** and R. Gupta, Robust Real-time Egomotion from Stereo Images, *International Conference on Image Processing (ICIP'03)*, vol. 3, pp. 719-722, Barcelona, Spain, September 2003
17. **L.-P. Morency** and T. Darrell, Stereo Tracking using ICP and Normal Flow Constraint, *International Conference on Pattern Recognition (ICPR 2002)*, vol. 3, pp. 367-372, Quebec city, Canada, August 2002
18. **L.-P. Morency**, A. Rahimi, N. Checka, and T. Darrell, Fast Stereo-based Head Tracking for Interactive Environment, *International Conference on Automatic Face and Gesture Recognition (FG 2002)*, pp. 375-380, 2002
19. T. Darrell, K. Tollmar, F. Bentley, N. Checka, **L.-P. Morency**, A. Rahimi, and A. Oh, Fast-responsive Interfaces: from Direct Manipulation to Perceptive Presence, *International Conference of Ubiquitous Computing (UbiCom'02)* pp. 135-151, 2002
20. A. Oh, H. Fox, M. Van Kleek, A. Adler, K. Gajos, **L.-P. Morency**, and T. Darrell, Evaluating Look-to-Talk: A Gaze-Aware Interface in a Collaborative Environment, *CHI extended abstracts (CHI'02)*, pp. 650-651, 2002
21. A. Rahimi, **L.-P. Morency**, and T. Darrell, Bounded error parametric motion tracking, *International Conference on Computer Vision (ICCV'01)*, vol. 1, pp. 315-322, Vancouver, Canada, July 2001

### Technical reports

1. **L.-P. Morency**, A. Quattoni, and T. Darrell, Latent-Dynamic Discriminative Models for Continuous Gesture Recognition, CSAIL Technical report MIT-CSAIL-TR-2007-002, January 2007, <http://hdl.handle.net/1721.1/35276>
2. **L.-P. Morency**, Context-based Visual Feedback Recognition, PhD thesis, CSAIL Technical report MIT-CSAIL-TR-2006-075, October 2006, <http://hdl.handle.net/1721.1/34893>
3. **L.-P. Morency**, Stereo-Based Head Pose Tracking Using Iterative Closest Point and Normal Flow Constraint, Master thesis, AI Technical report 2003-006, June 2002, <http://hdl.handle.net/1721.1/7102>

## SKILLS

### Computer languages

C/C++ (8+ years), Matlab (4 years), Java (3 years)

### Languages

French (native), English (fluent)

## REFERENCES

- **Trevor Darrell**, Associate Professor, Massachusetts Institute of Technology, [trevor@csail.mit.edu](mailto:trevor@csail.mit.edu), (617) 253-8966
- **Candace Sidner**, Principal Research Engineer, BAE Systems AIT, Burlington MA, [candy.sidner@baesystems.com](mailto:candy.sidner@baesystems.com), (781) 273-3388
- **Michael Collins**, Assistant Professor, Massachusetts Institute of Technology, [mcollins@csail.mit.edu](mailto:mcollins@csail.mit.edu), (617) 253-0705
- **Eric Grimson**, Department head, Massachusetts Institute of Technology, [welg@csail.mit.edu](mailto:welg@csail.mit.edu), (617) 253-4645