# **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

Committee: Trevor Darrell (chair), Michael Collins, Stephanie Seneff, Candace Sidner

### M.S. in Computer Science

June 2002

Massachusetts Institute of Technology

Cambridge, MA

Thesis title: Stereo-Based Head Pose Tracking Using Iterative
Closest Point and Normal Flow Constraint

# **B.S.** in Computer Engineering

June 2000

Laval University

Quebec City, Canada

## **RESEARCH INTERESTS**

Computational models of **Human Communication Dynamics** (integrating *Vision + Language + Speech* in social context), computer vision, multimodal machine learning, natural human-computer interaction, social multimedia and healthcare technologies.

## **PROFESSIONAL EXPERIENCE**

Institute of Creative Technologies, University of Southern California 2009-present Research Assistant Professor Los Angeles, CA

Director of the Multimodal Communication and Machine Learning Laboratory

Institute of Creative Technologies, University of Southern California 2007-2009

Research Scientist Los Angeles, CA

Research topics: multimodal perception, interactions with virtual agents, nonverbal behaviors generation, context-based recognition.

# **Massachusetts Institute of Technology**

2006-2007

Postdoctoral Associate Cambridge, MA

Research topics: visual feedback recognition, virtual human, multi-modal integration.

#### Honda Research Institute USA

Summer 2002

Research Intern Mountain View, CA

Research topic: robot localization algorithm for indoor environment using stereo camera.

### Massachusetts Institute of Technology

2000-2006

Research Assistant

Cambridge, MA

Research topics: context-based visual gesture recognition, human-computer interaction, head pose estimation, 3D view registration.

### Computer vision and systems laboratory, Laval University

1998-1999

Research Assistant

Quebec city, Canada

Research topic: three-dimensional object recognition and pose estimation.

### AWARDS AND HONORS

- **Best paper award**, IEEE Conference on Automatic Face and Gesture Recognition 2013.
- Winner of the First **Audio-Visual Emotion Challenge** (vision-only sub-challenge) organized as part of ACII 2011.
- **Best paper award**, The 9th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), Virtual Human track, 2010.
- Advisory Board Commendation, International Conference on Multimodal Interfaces, 2009. For outstanding contribution as Publication chair.
- Best paper award, ACM International Conference on Multimodal Interfaces, 2008.
- **Best paper award**, IEEE International Conference on Automatic Face and Gesture Recognition, 2008.
- Best paper award, International Conference on Intelligent Virtual Agents, 2008.
- Al's 10 to Watch: 10 young stars in the field of Al, IEEE Intelligent Systems, 2008.
- **Best paper award**, ACM International Conference on Multimodal Interfaces, 2006.
- **Best paper award**, ACM International Conference on Multimodal Interfaces, 2005.
- Recent award nominations:
  - Best paper award at 14th Annual SIGdial Meeting on Discourse and Dialogue (SIGdial), 2013.

- Best student paper award at International Conference on Affective Computing and Intelligent Interaction (ACII), 2013.
- Best paper award at 13th Annual SIGdial Meeting on Discourse and Dialogue (SIGdial), 2012.

# **GRANTS AND CONTRACTS**

- Principal Investigator. Multimodal Sentiment Analysis. \$249,997, National Science Foundation (NSF), Information and Intelligent Systems: Core Programs, 8/16/2014-8/15/2017 (Under review)
- Co-principal Investigator. Investigating an Interactive Computational Framework for Nonverbal Interpersonal Skills Training. \$500,000, National Science Foundation (NSF), Information and Intelligent Systems: Core Programs, 8/16/2014-8/15/2017 (Under review)
- Principal Investigator. Health Behavior Informatics. \$1,090,505, National Science Foundation and National Institute of Health (NSF/NIH), Smart and Connected Health program, 8/16/2014-8/15/2018 (Under review)
- Co-Principal Investigator. Multimodal Interpersonal Skill Trainer (MIST): Helping Young Adults with ASD during Job Interview Preparation. \$408,848,
   Department of Defense, Congressionally Directed Medical Research Programs (CDMRP), Autism Research Program, 3/1/2014-2/29/2016 (Under review)
- Principal Investigator. Using Virtual Humans To Automatically Assess Suicidality with Multimodal Thought Markers. \$345,611, National Science Foundation and National Institute of Health (NSF/NIH), Smart and Connected Health program, 7/1/2014-6/30/2017 (Under review)
- Lead Co-Principal Investigator. SimSensei Kiosk. \$740,286, Department of Defense, Defense Advanced Research Projects Agency (DARPA), 7/1/2013-9/30/2015
- Principal Investigator. VH-Non-Verbal Recognition. \$2,142,057, Department of Defense, United State Army, Army Research Laboratory (ARL), 11/1/2011-10/31/2014
- Principal Investigator. Human Communications Dynamic. \$490,102, National Science Foundation (NSF), IIS-1118018, 8/15/2011-7/31/2014
- Lead Co-Principal Investigator. Detection and Computational Analysis of Psychological Signals (DCAPS). \$4,546,617, Department of Defense, Defense Advanced Research Projects Agency (DARPA), 7/18/2011-9/30/2013
- Principal Investigator. Support for Student Participation in the ICMI-MLMI 2010.
   \$24,592, National Science Foundation (NSF), IIS-1041411, 11/01/2010-10/31/2013

- Co-Principal Investigator. Models for Facial Expression Recognition. \$99,179,
   Department of Defense, United State Army, Army Research Laboratory (ARL),
   12/1/2009-11/30/2010
- Principal Investigator. VH-Nonverbal Computation. \$1,248,057, Department of Defense, United State Army, Army Research Laboratory (ARL), 11/01/2009-10/31/2011
- Principal Investigator. Computational Study of Nonverbal Social Communication. \$495,920, National Science Foundation (NSF), IIS-0917321, 9/1/2009-8/31/2014
- Principal Investigator. VH-Nonverbal Communication. \$431,230, Department of Defense, United State Army, Army Research Laboratory (ARL), 11/01/2008-09/29/2009
- Co-principal Investigator. Facial Display Video Database. \$87,914, Department of Defense, United State Army, Army Research Laboratory (ARL), 11/01/2008-09/29/2009

# **PUBLICATIONS**

#### Journal articles

- V. P. Rosas, R. Mihalcea, and L.-P. Morency. <u>Multimodal Sentiment Analysis of Spanish Online Videos</u>, *IEEE Intelligent Systems*, Special Issue on Concept-Level Opinion and Sentiment Analysis, January 2013
- 2. M. Wollmer, F. Weninger, T. Knaup, B. Schuller, C. Sun, K. Sagae and L.-P. Morency. YouTube Movie Reviews: In, Cross, and Open-domain Sentiment Analysis in an Audiovisual Context. *IEEE Intelligent Systems*, Special Issue on Concept-Level Opinion and Sentiment Analysis, March 2013
- 3. K. Bousmalis, L.-P. Morency, S. Zafeiriou and M. Pantic. Infinite Hidden Conditional Random Fields. *IEEE Transactions on Neural Networks and Learning Systems*, Volume 24, Issue 1, November 2012
- 4. D. Ozkan and L.-P. Morency. Latent Mixture of Discriminative Experts. *IEEE Transactions on Multimedia*, Volume 15, Issue 2, November 2012
- G. Stratou, A. Ghosh, P. Debevec and L.-P. Morency. Exploring the Effect of Illumination on Automatic Expression Recognition using the ICT-3DRFE Database. Image and Vision Computing, Elsevier, Volume 30, Issue 10, October 2012
- 6. L.-P. Morency. Modeling Human Communication Dynamics. *IEEE Signal Processing Magazine*, Volume 27, Issue 6, September 2010

- 7. L.-P. Morency, J. Whitehill and Javier Movellan. Monocular Head Pose Estimation using Generalized Adaptive View-based Appearance Model. *Image and Vision Computing*. Elsevier, Volume 28, Issue 5, May 2010
- 8. L.-P. Morency, I. de Kok and J. Gratch. A Probabilistic Multimodal Approach for Predicting Listener Backchannels. *Journal of Autonomous Agents and Multi- Agent Systems*, Springer, Volume 20, Issue 1, January 2010
- 9. J. Hendler, P. Cimiano, D. Dolgov, A. Levin, P. Mika, B. Milch, L.-P. Morency, B. Motik, J. Neville, E. B. Sudderth, and L. von Ahn. Al's 10 to Watch. *Intelligent Systems*, IEEE press, May/June 2008
- A. Rahimi, L.-P. Morency, and T. Darrell. Reducing Drift in Differential Tracking. Computer Vision and Image Understanding, Elsevier, Volume 109, Issue 2, February 2008
- 11. 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)*, Volume 29, Issue 10, October 2007
- 12. 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, Volume 171, Issue 8-9, June 2007
- 13. C. M. Christoudias, L.-P. Morency, and T. Darrell. Non-parametric and Lightfield Deformable Models. *Computer Vision and Image Understanding*, Elsevier, Volume 104, Issue 1, October 2006

# Refereed conference papers

- 14. D. Devault, A. Rizzo and L.-P. Morency, SimSensei: A Virtual Human Interviewer for Healthcare Decision Support In Proceedings of the Thirteenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2014 (Accepted for publication)
- 15. J. Gratch, G. Lucas, A. King, and L.-P. Morency, It's Only a Computer: The Impact of Human-agent Interaction in Clinical Interviews. In *Proceedings of the Thirteenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2014 (Accepted for publication)
- 16. S. Park, P. Shoemark and L.-P. Morency, Toward Crowdsourcing Micro-Level Behavior Annotations: The Challenges of Interface, Training, and Generalization. In *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*, 2014 (Accepted for publication)

 C. Miller, F. Quek and L.-P. Morency, Search Strategies for Pattern Identification in Multimodal Data: Three Case Studies. In Proceedings of the International Conference on Multimedia Retrieval (ICMR), 2014 (Accepted for publication)

- 18. Y Song, L.-P. Morency and R. Davis. Action Recognition by Hierarchical Sequence Summarization. In Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2013
- 19. V. P. Rosas, R. Mihalcea and L.-P. Morency. Utterance-Level Multimodal Sentiment Analysis. In *Proceedings of the Annual Meeting of the Association for Computational Linguistics (ACL)*, 2013
- 20. S. Scherer, G. Stratou, J. Boberg, J. Gratch, A. Rizzo and L.-P. Morency. Automatic Behavior Descriptors for Psychological Disorder Analysis. In Proceedings of the IEEE Conference on Automatic Face and Gesture Recognition (FG), 2013 \*\*\* Best paper award \*\*\*
- 21. J.-C. Levesque, C. Gagne and L.-P. Morency. Sequential Emotion Recognition using Latent-Dynamic Conditional Neural Fields. In Proceedings of the IEEE Conference on Automatic Face and Gesture Recognition (FG), 2013
- 22. Y. Song, L.-P. Morency and R. Davis. Distribution-Sensitive Learning for Imbalanced Datasets. In *Proceedings of the IEEE Conference on Automatic Face and Gesture Recognition (FG)*, 2013
- 23. K. Bousmalis, S. Zafeiriou, L.-P. Morency, M. Pantic and Z. Ghahramani. Variational Hidden Conditional Random Fields with Coupled Dirichlet Process Mixtures. In *Proceedings of the European Conference on Machine Learning* (*ECML*), 2013
- 24. S. Scherer, J. Pestian, and L.-P. Morency. Investigating the Speech Characteristics of Suicidal Adolescents. In *Proceedings of International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2013
- 25. J. Kane, S. Scherer, M. Aylett, L.-P. Morency, and C. Gobl. Speaker and Language Independent Voice Quality Classification Applied to Unlabelled Corpora of Expressive Speech. In *Proceedings of International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2013
- 26. F. Weninger, C. Wagner, M. Wollmer, B. Schuller and L.-P. Morency. Speaker Trait Characterization In Web Videos: Uniting Speech, Language, And Facial Features. In Proceedings of the International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2013
- 27. S. Scherer, G. Stratou, J. Gratch and L.-P. Morency. Investigating Voice Quality as a Speaker-Independent Indicator of Depression and PTSD. In *Proceedings of*

- the 14th Annual Conference of the International Speech Communication Association (Interspeech), 2013
- 28. J. Kane, S. Scherer, L.-P. Morency, and C. Gobl. A comparative study of glottal open quotient estimation techniques. In *Proceedings of the 14th Annual Conference of the International Speech Communication Association (Interspeech)*, 2013
- 29. E. Nouri, S. Park, S. Scherer, J. Gratch, P. Carnevale, L.-P. Morency and D. Traum. Prediction of Strategy and Outcome as Negotiation Unfolds by Using Basic Verbal and Behavioral Features. In *Proceedings of the 14th Annual Conference of the International Speech Communication Association (Interspeech)*, 2013
- 30. D. DeVault, K. Georgila, R. Artstein, F. Morbini, D. Traum, S. Scherer, A. Rizzo, L.-P. Morency. Verbal Indicators of Psychological Distress in Interactive Dialogue with a Virtual Human. In *Proceedings of the 14th Annual Meeting of the Special Interest Group on Discourse and Dialogue* (SigDial), 2013
- 31. G. Mohammadi, S. Scherer, A. Vinciarelli and L.-P. Morency. Who is Persuasive? The Role of Perceived Personality and Communication Modality in Social Multimedia. In *Proceedings of the ACM International Conference on Multimodal Interaction (ICMI)*, 2013
- 32. S. Scherer, G. Stratou, J. Gratch and L.-P. Morency. Audiovisual Behavior Descriptors for Depression Assessment. In *Proceedings of the ACM International Conference on Multimodal Interaction (ICMI)*, 2013
- 33. M. Mahmoud, P. Robinson and L.-P. Morency. Automatic Multimodal Descriptors of Rhythmic Body Movement. In *Proceedings of the ACM International Conference on Multimodal Interaction (ICMI)*, 2013
- 34. Y. Song, L.-P. Morency and R. Davis. Learning a Sparse Codebook of Facial and Body Expressions for Audio-Visual Emotion Recognition. In *Proceedings of the ACM International Conference on Multimodal Interaction (ICMI)*, 2013
- 35. I. de Kok, L.-P. Morency and D. Heylen. Speaker-Adaptive Multimodal Prediction Model for Listener Responses. In *Proceedings of the ACM International Conference on Multimodal Interaction (ICMI)*, 2013
- 36. C. Miller, L.-P. Morency and F. Quek. Interactive Relevance Search and Modeling: Support for Expert-Driven Analysis of Multimodal Data. In *Proceedings of the ACM International Conference on Multimodal Interaction* (*ICMI*), 2013

- 37. D. Ozkan and L.-P. Morency. Prediction of Visual Backchannels in the Absence of Visual Context Using Mutual Influence. In *Proceedings of the Conference on Intelligent Virtual Agents (IVA)*, 2013
- 38. L. Batrinca, G. Stratou, A. Shapiro, L.-P. Morency, and S. Scherer. Cicero Towards a Multimodal Virtual: Audience Platform for Public Speaking Training. In *Proceedings of the Conference on Intelligent Virtual Agents (IVA)*, 2013
- 39. A. Hartholt, D. Traum, S. Marsella, A. Shapiro, G. Stratou, A. Leuski, L.-P. Morency and J. Gratch. All Together Now: Introducing the Virtual Human Toolkit. In *Proceedings of the Conference on Intelligent Virtual Agents (IVA)* 2013
- 40. G. Stratou, S. Scherer, J. Gratch and L.-P. Morency. Automatic Nonverbal Behavior Indicators of Depression and PTSD: Exploring Gender Differences. In Proceedings of International Conference on Affective Computing and Intelligent Interaction (ACII), 2013
- 41. S. Park, S. Scherer, J. Gratch, P. Carnevale, and L.-P. Morency. Mutual Behaviors during Dyadic Negotiation: Automatic Prediction of Respondent Reactions. In Proceedings of International Conference on Affective Computing and Intelligent Interaction (ACII), 2013
- 42. J. Gratch, L.-P. Morency, S. Scherer, G. Stratou, J. Boberg, S. Koenig, T. Adamson and A. Rizzo. User-State Sensing for Virtual Health Agents and TeleHealth Applications. In *Proceedings of Medicine Meets Virtual Reality (MMVR)*, 2013

- 43. T. Baltrusaitis, P. Robinson and L.-P. Morency. 3D Constrained Local Model for Rigid and Non-Rigid Facial Tracking. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2012
- 44. Y. Song, L.-P. Morency and R. Davis. Multi-View Latent Variable Discriminative Models For Action Recognition. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2012
- 45. S. Kang, J. Gratch, C. Sidner, R. Artstein, L. Huang and L.-P. Morency. Towards building a Virtual Counselor: Modeling Nonverbal Behavior during Intimate Self-Disclosure. In *Proceedings of the Eleventh International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2012
- 46. A. Sadeghipour, L.-P. Morency and S. Kopp. Gesture-based Object Recognition using Histograms of Guiding Strokes. In *Proceedings of the British Machine Vision Conference (BMVC)*, 2012

- 47. C. Sun and L.-P. Morency. Dialogue Act Recognition Using Reweighted Speaker Adaptation. In *Proceedings of the 13th Annual SIGdial Meeting on Discourse and Dialogue (SigDial)*, 2012
- 48. S. Scherer, S. Marsella, G. Stratou, Y. Xu, F. Morbini, A. Egan, A. Rizzo, and L.-P. Morency. Perception Markup Language: Towards a Standardized Representation of Perceived Nonverbal Behaviors. In *Proceedings of the Conference on Intelligent Virtual Agents (IVA)*, 2012
- 49. S. Park, J. Gratch, and L.-P. Morency. I Already Know Your Answer: Using Nonverbal Behaviors to Predict Immediate Outcomes in a Dyadic Negotiation. In *Proceedings of the 14th ACM International Conference on Multimodal Interaction* (*ICMI*), 2012
- 50. Y. Song, L.-P. Morency and R. Davis. Multimodal Human Behavior Analysis: Learning Correlation and Interaction Across Modalities. In *Proceedings of the ACM International Conference on Multimodal Interactions (ICMI)*, 2012
- 51. C. Miller, L.-P. Morency and F. Quek. Structural and Temporal Inference Search (STIS): Pattern Identification in Multimodal Data. In *Proceedings of the ACM International Conference on Multimodal Interactions (ICMI)*, 2012
- 52. M. Burzo, D. McDuff, R. Mihalcea, L.-P. Morency, A. Narvaez and V. Perez-Rosas. Towards Sensing the Influence of Visual Narratives on Human Affect. In *Proceedings of the ACM International Conference on Multimodal Interactions* (*ICMI*), 2012

- 53. D. Ozkan and L.-P. Morency. Modeling Wisdom of Crowds Using Latent Mixture of Experts. In 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (ACL HLT), 2011
- 54. L. Huang, L.-P. Morency and Jonathan Gratch. A Multimodal End-of-Turn Prediction Model: Learning from Parasocial Consensus Sampling. In Proceedings of the Tenth International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2011
- 55. G. Stratou, A. Ghosh, P. Debevec and L.-P. Morency. Effect of Illumination on Automatic Expression Recognition: A Novel 3D Relightable Facial Database. In Proceedings of the IEEE International Conference on Automatic Face and Gesture Recognition (FG), 2011
- 56. K. Bousmalis, L.–P. Morency and M. Pantic. Modeling Hidden Dynamics of Multimodal Cues for Spontaneous Agreement and Disagreement Recognition. In *Proceedings of the IEEE International Conference on Automatic Face and Gesture Recognition (FG)*, 2011

- 57. S. Kang, C. Sidner, J. Gratch, R. Artstein, L. Huang and L.-P. Morency. Modeling Nonverbal Behavior of a Virtual Counselor during Intimate Self-Disclosure. In *Proceedings of the Conference on Intelligent Virtual Agents (IVA)*, 2011
- 58. L. Huang, L.-P. Morency and J. Gratch, Virtual Rapport 2.0. In *Proceedings of the Conference on Intelligent Virtual Agents (IVA)*, Iceland, 2011
- 59. M. Hoque, L.-P. Morency and R. Picard. Are you friendly or just polite? Analysis of smiles in spontaneous face-to-face interactions. In *Proceedings of the conference on Affective Computing and Intelligent Interaction (ACII)*, Memphis, USA, 2011
- 60. L.-P. Morency, R. Mihalcea and P. Doshi. Towards Multimodal Sentiment Analysis: Harvesting Opinions from The Web. In *Proceedings of the International Conference on Multimodal Interfaces (ICMI)*, 2011
- 61. J. Chen, A. Demski, T. Han, L.-P. Morency, D. Pynadath, N. Rafidi and P. Rosenbloom. Fusing Symbolic and Decision-Theoretic Problem Solving + Perception in a Graphical Cognitive Architecture. In *Proceedings of the conference on Biologically Inspired Cognitive Architectures (BICA)*, 2011

- 62. L. Huang, L.-P. Morency and J. Gratch. Parasocial Consensus Sampling: Combining Multiple Perspectives to Learn Virtual Human Behavior. In Proceedings of the 9th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2010 \*\*\* Best paper award, Virtual Human track \*\*\*
- 63. D. Ozkan, K. Sagae and L.-P. Morency. Latent Mixture of Discriminative Experts for Multimodal Prediction Modeling. In Proceedings of the International Conference on Computational Linquistics (COLING), 2010
- 64. I. de Kok , D. Ozkan, D. Heylen, L.-P. Morency. Learning and Evaluating Response Prediction Models using Parallel Listener Consensus. In *Proceedings* of the International Conference on Multimodal Interfaces (ICMI), 2010
- 65. S. Kang, C. Sidner, J. Gratch and L.-P. Morency. Turn-taking patterns in self-disclosure interactions with Virtual Agents. *Proceedings of the Conference on Intelligent Virtual Agents (IVA)*, Philadelphia, USA, 2010
- 66. L. Huang, L.-P. Morency and Jonathan Gratch. Learning Backchannel Prediction Model from Parasocial Consensus Sampling: A Subjective Evaluation. Proceedings of the Conference on Intelligent Virtual Agents (IVA), Philadelphia, USA, 2010

- 67. L.-P. Morency, J. Whitehill and Javier Movellan. Generalized Adaptive Viewbased Appearance Model: Integrated Framework for Monocular Head Pose Estimation. 8<sup>th</sup> International Conference on Automatic Face and Gesture Recognition (FG), September 2008 \*\*Best paper award\*\*
- 68. L.-P. Morency, I. de Kok and J. Gratch. Context-based Recognition during Human Interactions: Automatic Feature Selection and Encoding Dictionary. 10<sup>th</sup> International Conference on Multimodal Interfaces (ICMI), October 2008 \*\*Best paper award\*\*
- 69. L.-P. Morency, I. de Kok and J. Gratch. Predicting Listener Backchannels: A Probabilistic Multimodal Approach. Conference on Intelligent Virtual Agents (IVA), September 2008 \*\*Best paper award\*\*
- 70. X. Sun, L.-P. Morency, D. Okanohara, Y Tsuruoka and Jun'ichi Tsujii. Modeling Latent-Dynamic in Shallow Parsing: A Latent Conditional Model with Improved Inference. The 22<sup>nd</sup> International Conference on Computational Linguistics (**COLING**), August 2008
- 71. L.-P. Morency. Real-Time Head Pose Estimation Using A Webcam: Monocular Adaptive View-Based Appearance Model. *Proceedings of the 27<sup>th</sup> Army Science Conference*, December 2008

### 2007

- 72. L.-P. Morency, A. Quattoni and T. Darrell. Latent-Dynamic Discriminative Models for Continuous Gesture Recognition. *Proceedings IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, June 2007
- 73. J. Gratch, N. Wang, A. Okhmatovskaia, F. Lamothe, M. Morales and L.-P. Morency. Can virtual humans be more engaging than real ones? 12<sup>th</sup> International Conference on Human-Computer Interaction (HCII), Beijing, China 2007

- 74. 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)*, New York City, NY, June 2006
- 75. 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), Boston, MA, July 2006
- 76. 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), Banff, Canada, November 2006 \*\*Best paper award\*\*
- 77. L.-P. Morency, C. M. Christoudias, and T. Darrell. Recognizing Gaze Aversion Gestures in Embodied Conversational Discourse. *International Conference on Multimodal Interactions (ICMI)*, Banff, Canada, November 2006
- 78. J. Gratch, A. Okhmatovskaia, F. Lamothe, S. Marsella, M. Morales, R. J. van der Werf, and L.-P. Morency. Virtual Rapport. 6<sup>th</sup> International Conference on Intelligent Virtual Agents (IVA), Marina del Rey, CA, August 2006
- 79. 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)*, Salt Lake City, Utah, USA, March 2006
- 80. 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), Sydney, Australia, 2006

81. L.-P. Morency, C. Sidner, C. Lee, and T. Darrell. Contextual Recognition of Head Gestures. International Conference on Multimodal Interactions (ICMI), pp.18-24, Italy, October 2005 \*\*Best paper award\*\*

### 2004

- 82. C. M. Christoudias, L.-P. Morency, and T. Darrell. Light Field Appearance Manifolds. *European Conference on Computer Vision (ECCV)*, vol. 4, pp.481-493, Prague, Czech Republic, May 2004
- 83. C. Lee, N. Lesh, C. Sidner, L.-P. Morency, A. Kapoor, and T. Darrell. Nodding in Conversations with a Robot. *CHI extended abstracts (CHI)*, pp. 785-786, Vienna, Austria, 2004
- 84. 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)*, pp. 32-37, 2004

- 85. L.-P. Morency, A. Rahimi, and T. Darrell. Adaptive View-based Appearance Model. *Computer Vision and Pattern Recognition (CVPR)*, vol. 1, pp. 803-810, Wisconsin, June 2003
- 86. 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)*, pp. 77-80, 2003

87. L.-P. Morency and R. Gupta. Robust Real-time Egomotion from Stereo Images. *International Conference on Image Processing (ICIP)*, vol. 3, pp. 719-722, Barcelona, Spain, September 2003

### 2002

- 88. L.-P. Morency and T. Darrell. Stereo Tracking using ICP and Normal Flow Constraint. *International Conference on Pattern Recognition (ICPR)*, vol. 3, pp. 367-372, Quebec city, Canada, August 2002
- 89. T. Darrell, K. Tollmar, F. Bentley, N. Checka, L.-P. Morency, A. Rahimi, and A. Oh. Face-responsive Interfaces: from Direct Manipulation to Perceptive Presence. *International Conference of Ubiquitous Computing (Ubicomp)* pp. 135-151, 2002
- 90. 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)*, pp. 375-380, 2002
- 91. 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*), pp. 650-651, 2002

#### 2001

92. A. Rahimi, L.-P. Morency, and T. Darrell. Reducing Drift in Parametric Motion Tracking. *International Conference on Computer Vision (ICCV)*, vol. 1, pp. 315-322, Vancouver, Canada, July 2001

## **Book chapters**

- 93. L.-P. Morency, Ari Shapiro and Stacy Marsella. Modeling Human Communication Dynamics for Virtual Human. *Coverbal synchrony in Human-Machine Interaction*, Matej Rojc and Nick Campbell, Editors, Science Publishers/CRC Press, To be published
- 94. L.-P. Morency. The Role of Context in Affective Behavior Understanding. *Social Emotions in Nature and Artifact: Emotions in Human and Human-Computer Interaction*, Jonathan Gratch and Stacy Marsella, Editors, Oxford University Press, To be published
- 95. 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, 2007

### Refereed workshop papers

- 96. Tadas Baltrusaitis, Peter Robinson and Louis-Philippe Morency. Constrained Local Neural Fields for Robust Facial Landmark Detection in the Wild. ICCV Workshop on 300 Faces in the Wild, 2013
- 97. Zhou Yu, Stefan Scherer, David Devault, Jonathan Gratch, Giota Stratou, Louis-Philippe Morency and Justine Cassell. Multimodal Prediction of Psychological Disorders: Learning Verbal and Nonverbal Commonalities in Adjacency Pairs. Workshop on the Semantics and Pragmatics of Dialogue (SemDial), 2013
- 98. A. S. Gordon, J. R. Hobbs, K. Ovchinnikova, M. Roemmele, and L.-P. Morency. Abduction of Mental States with a Formal Theory of Commonsense Psychology. In *Proceedings of the CogSci Workshop Mental Model Ascription by Language-Enabled Intelligent Agents*, 2013
- 99. D. Ozkan, S. Scherer and L.-P. Morency. Step-wise Emotion Recognition using Concatenated-HMM. In *Proceedings of the 2nd International Audio/Visual Emotion Challenge and Workshop (AVEC)*, in conjunction with International Conference on Multimodal Interfaces (ICMI), Santa Monica, October, 2012
- 100. S. Park, G. Mohammadi, R. Artstein, and L.-P. Morency. Crowdsourcing Micro-Level Multimedia Annotations: The Challenges of Evaluation and Interface. In the Proceedings of the International ACM Workshop on Crowdsourcing for Multimedia held in conjunction with ACM Multimedia 2012 (CrowdMM), Nara, November, 2012
- 101. S. Finkelstein, S. Scherer, A. Ogan, L.-P. Morency and J. Cassell. Investigating the Influence of Virtual Peers as Dialect Models on Students' Prosodic Inventory. In Proceedings of the Interspeech Workshop on Child, Computer and Interaction (WOCCI), 2012
- 102.S. Scherer, N. Weibel, S. Oviatt, and L.-P. Morency. Multimodal Prediction of Expertise and Leadership in Learning Groups. In *Proceedings of the 1st International Workshop on Multimodal Learning Analytics (MLA)*, in conjunction with International Conference on Multimodal Interfaces (ICMI), 2012
- 103.S. Scherer, D. Ozkan and L.-P. Morency. Investigating the influence of pause fillers for automatic backchannel prediction. In *Proceedings of the Interspeech Workshop on Feedback Behaviors in Dialog*, 2012
- 104.L.-P. Morency. Computational Study of Human Communication Dynamics. In *Proceedings of the 2011 joint ACM workshop on Human gesture and behavior understanding (J-HGBU)*, Arizona, USA, 2011 [Invited paper]
- 105. G. Ramirez, T. Baltrusaitis, and L.-P. Morency. Modeling Latent Discriminative Dynamic of Multi-Dimensional Affective Signals. Audio/Visual Emotion Challenge and Workshop (AVEC), 2011 \*\*Winner of the vision-only subchallenge\*\*

- 106.C. Sun, L.-P. Morency. Towards Speaker Adaptation for Dialogue Act Recognition. SEMDIAL workshop on the semantics and pragmatics of dialogue, Los Angeles, USA, September 2011
- 107. D. Ozkan and L.-P. Morency. Consensus of Self-Based Feature Selection for Nonverbal Behavior Analysis. *In Proceedings of the First Workshop on Human Behavior Understanding (HBU),* in conjunction with International Conference on Pattern Recognition (ICPR), Istanbul-Turkey, August 22-26, 2010
- 108.D. Traum and L.-P. Morency. Integration of Visual Perception in Dialogue Understanding for Virtual Humans in Multi-Party interaction. In *Proceedings of the International Workshop on Interacting with ECAs as Virtual Characters*, 2010
- 109.L.-P. Morency. Co-occurrence Graphs: Contextual Representation for Head Gesture Recognition during Multi-Party Interactions. In *Proceedings of the ICMI-MLMI Workshop on Use of Context for Visual Processing*, Boston, MA, 2009
- 110. L.-P. Morency and T. Darrell. Conditional Sequence Model for Context-based Recognition of Gaze Aversion. In *Proceedings of the 4<sup>th</sup> Joint Workshop on Machine Learning and Multimodal Interaction*, June 2007
- 111. L.-P. Morency, C. Sidner, and T. Darrell. Towards Context-Based Visual Feedback Recognition for Embodied Agents. In *Proceedings of the Symposium on Conversational Informatics for Supporting Social Intelligence and Interaction (AISB)*, pp.69-72, Hatfield, UK, April 2005
- 112. L.-P. Morency, P. Sundberg, and T. Darrell. Pose Estimation using 3D View-Based Eigenspaces. In *Proceedings of the ICCV workshop on Analysis and Modeling of Face and Gesture*, pp. 45-52, Nice, France, October 2003

### UNIVERSITY SERVICES

### **Teaching Experience**

- USC-CS599: **Human Communication and Machine Learning**, Fall 2010, 2012

  Lecturer and creator of this new course focusing on recent advances in machine learning, pattern recognition and signal processing to analyze, recognize and predict human communication behaviors during social interactions.
- USC-CS 534: **Affective Computing**, Spring 2009, Fall 2011 Guest lectures on Emotion recognition using computer vision.
- USC-CS574: **Computer Vision**, Fall 2011

  Guest lecture on computer vision and human-computer interaction.
- MIT 6.891: **Computer vision and applications**, Spring 2004 *Teaching assistant in charge of short tutorials and problem sets*.

### **Graduate Student Advising**

**Derya Ozkan**, Ph.D. Graduated December 2013

Department of Computer Science University of Southern California

Sunghyun Park, Ph.D. Expected Spring 2015

Department of Computer Science University of Southern California

Sayan Ghosh, Ph.D. August 2013-present
Department of Computer Science University of Southern California

Department of Computer Science Oniversity of Southern Camornia

Amir Ali Bagherzade, Ph.D.August 2013-presentDepartment of Computer ScienceUniversity of Southern California

**Fengju Chang**, Ph.D. (with Prof. Gerard Medioni)

Department of Computer Science

University of Southern California

**Congkai Sun**, M.S. August 2009-May 2011
Department of Computer Science University of Southern California

Patrick Sundberg, M.S. (with Prof. Trevor Darrell) 2002-2003

Department of Electrical Engineering and Computer Science MIT

### **Dissertation Committees**

• Iwan de Kok. "Listening Heads" University of Twente, Netherlands, 2013

- Ehsan Hoque. "Computers to Help with Conversations: Affective Framework to Enhance Human Nonverbal Skills", Massachusetts Institute of Technology, 2013
- Chreston Miller. "Structural Model Discovery in Temporal Event Data Streams", Virginia Institute of Technology, 2013
- Lixing Huang. "Parasocial Consensus Sampling: Modeling Human Nonverbal Behaviors from Multiple Perspectives", University of Southern California, 2013
- Jina Lee. "Modeling Nonverbal Behaviors for Virtual Agents", University of Southern California, 2011
- Thang Dinh. "Persistent object tracking in unconstrained environments",
   University of Southern California, 2011

### **Postdoc Advising**

Stefan Scherer January 2012-present Institute for Creative Technologies University of Southern California

### **Visiting Students / Researchers Trained**

- Zhou Yu, Carnegie Mellon University, 2013
- Phillipa Shoemark, Edinburgh University, 2013
- Mathieu Chollet, Telecom Paristech, 2013
- Ligia Maria Batrinca, University of Trento, 2013
- Han Suk Sim, University of Southern California, 2013

- M. Ehsan Hoque, Massachusetts Institute of Technology, 2012
- Marwa Mahmoud, Cambridge University, 2012
- Gelareh Mohammadi, EPFL, 2012
- Moitreya Chatterjee, University of Southern California, 2012
- Mahmoud Khademi, McMaster University, 2012
- Tadas Baltrusaitis, Cambridge University, UK, 2011
- Julien-Charles Levesque, Laval University, 2011
- Geovany Ramirez, University of Texas, El Paso, 2011
- Payal Doshi, University of Southern California, 2011
- Konstantinos Bousmalis, Imperial College, 2010
- Iwan de Kok, University of Twente, 2008

#### Committees

2012-2013 CS Research Faculty Executive Committee

2012-2013 Faculty candidate visit co-organizer

2010-2011 Research Assistant Professor Appointment Committee

2009-2010 Research Assistant Professor Appointment Committee

#### **INVITED TALKS**

- International Workshop on Spoken Dialog Systems, Napa Valley, CA, January 2014
- MIT Computer Science and Artificial Intelligence Laboratory, Boston, MA, November, 2013
- NSF Avatar & Robotics Signing Creatures Workshop, Gallaudet University, Washington, DC, November 2013
- CVL Seminar, University of Maryland, November 2013
- UW/MSR Summer Institute, Understanding Situated Language in Everyday Life, Seattle, WA, July 2013
- Microsoft Research, Redmond, WA, July 2013
- Social Signal Processing Summer School, Vietri sul Mare, Italy, June 2013
- USC Information Sciences Institute, Los Angeles, CA, February 2013
- ECCV Workshop on Internet Vision, Florence, Italy, October 2012
- Cincinnati Children Hospital Research Center, Cincinnati, OH, May 2012
- NIPS Workshop on Integrating Language and Vision, Granada, Spain, December 2011
- ACM Multimedia Workshop on Social Signal Processing, Phoenix, AZ, December 2011

- SSPnet Curriculum Workshop, London, UK, December, 2011
- Imperial College, London, United Kingdom, September 2011
- University of California, Santa Barbara, CA, April 2010
- University of Southern California, Signal Analysis and Interpretation Laboratory, January 2010
- University of California, Berkeley, International Computer Science Institute, November 2009
- Honda Research Institute, Mountain View, CA, November 2009
- Massachusetts Institute of Technology, Media Lab, Boston, MA, November 2009
- Microsoft Research, Redmond, WA, July 2009
- Carnegie Mellon University, Vision Seminar, Pittsburgh, PA, March 2009
- Laval University, Quebec City, Canada, July 2009
- University of Southern California, Information Sciences Institute, Al Seminar Series, Los Angeles, CA, May 2009
- University of Texas, El Paso, TX, April 2009
- Texas A&M University, Parasol Seminar Series, April 2009
- University of Southern California, Computer Science Department, CS Colloquium, February 2009
- Workshop on Facial and Bodily Expressions for Control and Adaptation of Games (ECAG'08), September 2008
- Panelist at the Special Session on Multi-sensor HCI for Smart Environments at the Conference on Automatic Face and Gesture Recognition, September 2008
- Tokyo University, Tsujii Lab, September 2008
- Massachusetts Institute of Technology, Vision Seminar, May 2008
- University of Chicago, McNeil Lab, December 2007
- Northwestern University, ArticulLab, December 2007
- University of California, San Diego, Machine Perception Laboratory, November 2007
- Mitsubishi Electronic Research Laboratories, April 2006
- Boston University, Image and Video Computing Group, March 2006

### **SELECTED PRESS COVERAGE**

- NPR, May 20, 2013. If Your Shrink Is A Bot, How Do You Respond?
- BBC News, May 26<sup>th</sup>, 2013, Almost human: Lab treats trauma with virtual therapy

- CNN, July 8<sup>th</sup>, 2013, Virtual Human "Ellie" Story
- CNET, April 3<sup>rd</sup>, 2013, Feeling kind of blue? This digital avatar can tell
- Discovery Canada, April 3<sup>rd</sup>, Digit@l
- Fast Company, August 9<sup>th</sup>, 2012, Meet The Research Scientist Who Is Turning YouTube Into A Data Goldmine
- New Scientist, November 10<sup>th</sup>, 2010, Army avatars join the battle for hearts and minds
- The Economist, June 10<sup>th</sup>, 2010, Nods and winks
- The Economist online, February 2<sup>nd</sup>, 2010, Nods and winks: How to teach computers to make appropriate gestures
- USC News, March 3<sup>rd</sup> 2008, Science Journal Lauds USC Researcher

# PROFESSIONAL ACTIVITIES

### **Conference Program Chair**

- 16th ACM International Conference on Multimodal Interaction (ICMI) which will be hosted in Istanbul, Turkey, 2014
- The Tenth International Conference on Creating, Connecting and Collaborating through Computing, January 2012
- 13th ACM International Conference on Multimodal Interaction (ICMI), Alicante, Spain, November 2011

## **Editorial Board Member**

- Member of the Editorial Board for the Springer Journal on Multimodal User Interfaces (JMUI)
- Associate Editor for the International Journal of Computer Vision & Signal Processing
- Guest editor for the ACM Transactions on Interactive Intelligent Systems, Special issue on Affective Interaction in Natural Environment

# Senior Program Committee Member (area chair, meta-reviewer)

- International Conference on Intelligent User Interfaces (IUI 2013), Senior Program Committee, March 19-22, 2013
- 12th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2013), Senior Program Committee, May 6-10, 2013
- IEEE Conference on Automatic Face and Gesture Recognition (FG 2013), Senior Program Committee, April 22-26, 2013
- 11<sup>th</sup> International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2012), Senior Program Committee, June 4-8, 2012

- International Conference on Intelligent User Interfaces (IUI 2012), Senior Program Committee, Portugal, February 14-17, 2012
- IEEE 9th International Conference on Automatic Face and Gesture Recognition (FG 2011), Area Chair, Santa Barbara, CA March 2011
- 2011 International Conference on Intelligent User Interfaces (IUI 2011), Senior Program Committee, Palo Alto, CA, February 13-16, 2011
- ACM Multimedia 2010, Technical Program Committee, Human Centered-Computing track, Firenze, Italy, October 25-29, 2010
- International Conference of Multimodal Interaction (ICMI) 2008

### **General Chair**

- 14th ACM International Conference on Multimodal Interaction (ICMI 2012),
   Santa Monica, CA, October 2012
- First Workshop on Multimodal Learning Analytics, co-located with ICMI 2012, Santa Monica, CA, October 2012
- Workshop on Multimodal Behavior Understanding, co-located with ICPR 2012, September 2012
- 4th International Workshop on Affective Interaction in Natural Environments (AFFINE), co-located with ICMI 2011, November 2011
- First workshop on Machine Learning and Affective Computing, co-located with ACII 2011, Memphis, October 2011
- NIPS workshop on Modeling Human Communication Dynamics, Whistler, Canada, December 10, 2010
- First Workshop on Predictive Models of Human Communication Dynamics, Los Angeles, California, August 4-6, 2010
- Second Workshop on Use of Context in Video Processing, in conjunction with IEEE Conference on Computer Vision and Pattern Recognition (CVPR), San Francisco, June 13, 2010
- IEEE International Workshop on Social Behavior Analysis (SBA) in conjunction with the 9th International Conference on Automatic Face and Gesture Recognition (FG), in Santa Barbara, CA, March 2011
- ACM Multimedia 3rd International Workshop on Affective Interaction in Natural Environments (AFFINE), October 2010
- First Workshop on Use of Context in Vision Processing, Boston, MA, November 5<sup>th</sup>, 2009

# **Conference Co-organizer**

 Doctoral Consortium Co-Chair, IEEE Conference on Automatic Face and Gesture Recognition (FG), 2013

- Workshop Co-Chair, 15th International Conference on Multimodal Interaction (ICMI) Sydney, Australia, December, 2013.
- Student chair for International Conference of Multimodal Interaction (ICMI-MLMI), 2010
- Publication chair for International Conference of Multimodal Interaction (ICMI-MLMI), 2009

# **Program Committee Member**

- Siggraph 2012
- IEEE Computer Vision and Pattern Recognition (CVPR) 2011
- The 2011 IEEE International Conference on Robotics and Automation (ICRA 2011)
- Human-Robot interaction (HRI) 2011
- 12th International Conference on Multimodal Interfaces and 7th Workshop on Machine Learning for Multimodal Interaction (ICMI-MLMI 2010), Beijing, China, November 8-12, 2010
- The Annual Meeting of the Association for Computational Linguistics (ACL), Multimodal Language Track, 2010
- The International Conference on Computational Linguistics (CoLing), Discourse/Dialogue/Multimodal Track, 2010
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2006-2010
- The International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2010
- The International Conference on Intelligent User Interfaces (IUI), 2010
- IEEE International Conference on Robotics and Automation (ICRA), 2010
- International Conference on Intelligent Virtual Agents (IVA), 2009-2010
- 12th International Conference on Multimodal Interfaces and 7th Workshop on Machine Learning for Multimodal Interaction (ICMI-MLMI 2010), 2008-2010
- International Conference on Computer Animation and Social Agents (CASA), 2009-2010
- AAMAS International Workshop on Interacting with ECAs as Virtual Characters, Toronto, Canada, May 10, 2010
- 2010 IEEE International Workshop on CVPR for Human Communicative Behavior Analysis, San Francisco, CA, June 18, 2010
- First International Workshop on Computer Vision for Human-Robot Interaction (CVforHRI 2010), San Francisco, June 14, 2010
- International Workshop on Socially Intelligent Surveillance and Monitoring (SISM 2010), San Francisco, June 14, 2010

• AAAI 2009 Spring Symposium on Human Behavior Modeling

### Reviewer

- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
- IEEE Transaction on Multimedia (MM)
- IEEE Transactions on Robotics (TRO)
- International Journal Pattern Recognition and Artificial Intelligence (IPRAI)
- IEEE Transactions on Systems, Man and Cybernetics, Part A: Systems and Humans
- IEEE Transactions on Affective Computing
- ACM Transactions on Multimedia Computing Communications and Applications
- National Science Foundation