

ALEXANDRE R.J. FRANÇOIS

Visiting Associate Professor of Computer Science
Harvey Mudd College

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Research interests: software architecture for interactive systems; dynamic models of perceptual and cognitive processes; design and creativity.

Professional Preparation

- 2000 **Ph.D. Computer Science**, University of Southern California
Dissertation: Semantic, Interactive Manipulation of Visual Data (advisor: G. Medioni)
- 1997 **M.S. Computer Science**, University of Southern California
- 1994 **D.E.A. (M.S.) Modeling and Processing of Data and Knowledge**
Université PARIS IX–Dauphine (France)
Thesis: Hierarchical Indexing for Generic Shape Recognition (supervisor: S. Pinson)
- 1993 **Ingénieur**, Institut National Agronomique Paris–Grignon (France)
Interdisciplinary program in life and earth sciences at one of France’s elite Ecole d’Ingénieur (admits top 250 from nationwide competitive examination)
Final year specialization (equiv. M.S.): **Applied Mathematics and Computer Science**
Mémoire: Intégration d’un Module d’Analyse d’Images Numériques de Gels d’Electrophorèse 1D dans Visilog (software engineering / image processing)

Appointments

- 2010 **Visiting Associate Professor of Computer Science**
Harvey Mudd College
- 2008-2009 **Visiting Assistant Professor of Computer Science**
School of Engineering, Tufts University
- 2007-2008 **Fellow**
Radcliffe Institute for Advanced Study, Harvard University
- 2004-2010 **Research Assistant Professor of Computer Science**
Viterbi School of Engineering, University of Southern California
- 2001-2004 **Research Associate**
Integrated Media Systems Center, and Institute for Robotics and Intelligent Systems
University of Southern California
- 1994 **Visiting Scholar**
Institute for Robotics and Intelligent Systems, University of Southern California

Awards and Honors

- 2009 **An Ant’s Life finalist in SIGGRAPH 2009 Research Challenge Competition**
Class-wide project collaboratively created in the course: *Collaborative Development of Interactive Software Systems*
- 2007-2008 **Fellow of the Radcliffe Institute for Advanced Study**
Harvard University
- 2006 **Expression Synthesis Project Bronze Prize Demo Winner at ACE 2006**
ACM SIGCHI International Conference on Advances in Computer Entertainment Technology
- 1994 **Médaille de la Défense Nationale (Bronze) - France**

Funding history

External Funding

- Co-PI (25%) **Radcliffe Institute for Advanced Study Exploratory Seminar (\$14,000)**
2010-2011 Project: Prosody and Dialog in Language and Music. (PI: E. Chew)
- Co-PI (50%) **Radcliffe Institute for Advanced Study at Harvard University (\$140,000)**
2007-2008 Project: Analytical Listening Through Interactive Visualization (PI: E. Chew)
- Co-PI (25%) **Electronics and Telecommunications Research Institute, Korea (\$240,000)**
2005-2007 Project: Visual Sensing for Natural Human-Robot Interaction (PI: G. Medioni)
- Researcher **Integrated Media Systems Center, NSF ERC at USC (\$60,000/year)**
2002-2005 Project: Software Architecture for Immersipresence and application projects

Internal Funding

- Co-PI (25%) **USC Provost's Arts and Humanities Initiative - Visions & Voices 2010-2011 (\$20,000)**
2010-2011 Project: Musical Patois how instrumental music reflects a composers native language. (PI: E. Chew, co-PIs: A. Patel and P. Child).

Publications

Refereed Journal Articles

- 2010 Alexandre R.J. François, "An Architectural Framework for the Design, Analysis and Implementation of Interactive Systems," *The Computer Journal*, to appear.
- 2007 Gérard G. Medioni, Alexandre R.J. François, Matheen Siddiqui, Kwangsu Kim and Hosub Yoon, "Robust Real-Time Vision for a Personal Service Robot," *Computer Vision and Image Understanding*, special issue on Human-Computer Interaction, vol. 108, no. 1-2, October-November 2007, pp. 196-203.
- 2005 Elaine Chew and Alexandre R.J. François, "Interactive multi-scale visualizations of tonal evolution in MuSA.RT Opus 2," *ACM Computers in Entertainment*, Special Issue on Music Visualization, vol. 3, no. 4, October-December 2005, 16 pages.
- Alexandre R.J. François, Ram Nevatia, Jerry Hobbs and Robert C. Bolles, "VERL: An Ontology Framework for Representing and Annotating Video Events," *IEEE Multimedia*, vol. 12, no.4, October-December 2005, pp. 76-86.
- 2003 Alexandre R.J. François, Gérard G. Medioni and Roman Waupotitsch, "Mirror Symmetry \Rightarrow 2-View Stereo Geometry," *Image and Vision Computing*, vol. 21, no. 2, February 2003, pp. 137-143.
- 2001 Alexandre R.J. François and Gérard G. Medioni, "Interactive 3-D Model Extraction From a Single Image," *Image and Vision Computing*, 19(6), April 2001, 317-328.

Refereed Book Chapters

- 2009 Elaine Chew and Alexandre R.J. François, "Visible Humour Seeing P.D.Q. Bachs Musical Humour Devices in The Short-Tempered Clavier on the Spiral Array Space." In T. Klouche, T. Noll (eds.), *Mathematics and Computation in Music: First International Conference, MCM 2007, Berlin, Germany, May 18-20, 2007. CCIS 37. Revised Selected Papers*. Springer, Berlin/Heidelberg, Germany.
- 1996 Alexandre R.J. François and Gérard G. Medioni, "Generic Shape Learning and Recognition." In J. Ponce, A. Zisserman and M. Hebert (eds.): *Proceedings of the International Workshop on Object Representations in Computer Vision, Cambridge, England, UK, April 1996*. Springer Verlag, 1996, pp.287-320.

Book Chapters

- 2009 Alexandre R.J. François, "Time and Perception in Music and Computation," in *New Computational Paradigms for Computer Music*, G. Assayag and A. Gerzso Eds., Editions Delatour France / IRCAM, 2009, pp. 126-146.
- 2005 Alexandre R.J. François, "Software Architecture for Computer Vision," in *Emerging Topics in Computer Vision*, G. Medioni and S.B. Kang Eds., Prentice Hall, 2005, pp. 585-654.

Refereed Conference Proceedings

- 2010 Alexandre R.J. François, Isaac Schankler and Elaine Chew, "Mimi4x: An Interactive Audio-visual Installation for High-level Structural Improvisation," to appear, *Proceedings of the Workshop on Interactive Multimedia Installations and Digital Art*, International Conference on Multimedia & Expo, Singapore, 23 July 2010.
- 2009 Alexandre R.J. François, "Class-Wide Projects: Fostering Collaboration and Creativity in Computer Science Courses," *Proceedings of ACM Creativity & Cognition 2009*, pp. 369-370, Berkeley, CA, USA, October 2009.
- 2008 Elaine Chew and Alexandre R.J. François, "MuSA.RT and the Pedal: The Role of the Sustain Pedal in Clarifying Tonal Structure," *Proceedings of the 10th International Conference on Music Perception and Cognition*, Sapporo, Japan, August 2008.
- 2007 Alexandre R.J. François, Elaine Chew and Dennis Thurmond "Visual Feedback in Performer-Machine Interaction for Musical Improvisation," *Proceedings of the International Conference on New Interfaces for Musical Expression*, pp. 277-280, New York, NY, USA, June 2007.
- Elaine Chew and Alexandre R.J. François, "Visible Humour - Seeing P.D.Q. Bach's Musical Humor in The Short Tempered Clavier on the Spiral Array Space," *Proceedings of the International Conference on Mathematics and Computation in Music*, Berlin, Germany, May 2007.
- 2006 Elaine Chew, Jie Liu and Alexandre R.J. François, "ESP: Roadmaps as Constructed Interpretations and Guides to Expressive Performance," *Proceedings of the ACM Multimedia Workshop on Audio and Music Computing*, Santa Barbara, CA, USA, October 2006.
- Jie Liu, Elaine Chew and Alexandre R.J. François, "From Driving to Expressive Music Performance: Ensuring Tempo Smoothness," *Proceedings of the 2006 ACM SIGCHI International Conference on Advances in Computer Entertainment Technology (ACE)*, Hollywood, CA, USA, June 2006.
- Alexandre R.J. François and Elaine Chew, "An Architectural Framework for Interactive Music Systems," *Proceedings of the International Conference on New Interfaces for Musical Expression*, pp. 150-155, Paris, France, June 2006.
- 2005 Elaine Chew, Alexandre R.J. François, Jie Liu and Aaron Yang, "ESP: A Driving Interface for Expression Synthesis," *Proceedings of the International Conference on New Interfaces for Musical Expression*, Vancouver, B.C., Canada, May 2005.
- 2004 Elaine Chew, Roger Zimmermann, Alexander A. Sawchuk, Chris Kyriakakis, Christos Papadopoulos, Alexandre R.J. François, Gerry Kim and Anja Volk, "Musical Interaction at a Distance: Distributed Immersive Performance," *Proceedings of the 4th Open Workshop of MUSICNETWORK: Integration of Music in Multimedia applications*, Barcelona, Spain, September 2004.
- Alexandre R.J. François, "A Hybrid Architectural Style for Distributed Parallel Processing of Generic Data Streams," *Proceedings of the International Conference on Software Engineering*, pp. 367-376, Edinburgh, Scotland, England, UK, May 2004.
- 2003 Elaine Chew and Alexandre R.J. François, "MuSA.RT : Music on the Spiral Array . Real-Time," *Proceedings of ACM Multimedia 2003*, Berkeley, CA, Nov 2-8, 2003.
- Alexandre François, Elaine Kang, "A Handheld Mirror Simulation," *Proceedings of the IEEE International Conference on Multimedia and Expo*, vol. II, pp. 745-748, Baltimore, MD, July 2003.

- M. Lazzari, A. François, M. L. McLaughlin, J. Jaskowiak, W. L. Wong, M. Akbarian, W. Peng, and W. Zhu, "Using Haptics and a 'Virtual Mirror' to Exhibit Museum Objects with Reflective Surfaces," *Proceedings of the 11th International Conference on Advanced Robotics*, Coimbra, Portugal, July 2003.
- 2002 Alexandre R.J. François, "Components for Immersion," *Proceedings of the IEEE International Conference on Multimedia and Expo*, Lausanne, Switzerland, August 2002.
- Alexandre R.J. François, Gérard G. Medioni and Roman Waupotitsch, "Reconstructing Mirror Symmetric Scenes From a Single View Using 2-View Stereo Geometry," *Proceedings of the IAPR International Conference on Pattern Recognition*, Qubec City, Qubec, Canada, August 2002.
- Alexandre François, Elaine Kang and Umberto Malesci, "A Handheld Virtual Mirror," *SIGGRAPH Conference Abstracts and Applications proceedings*, p.140, San Antonio, TX, July 2002.
- 2001 Alexandre R.J. François and Gérard G. Medioni, "A Modular Software Architecture for Real-Time Video Processing," *Proceedings of the International Workshop on Computer Vision Systems*, pp. 35-49, Vancouver, B.C., Canada, July 2001.
- 2000 Alexandre R.J. François and Gérard G. Medioni, "A Modular Middleware Flow Scheduling Framework," *Proceedings of ACM Multimedia 2000*, pp. 371-374, Los Angeles, CA, November 2000.
- 1999 Alexandre R.J. François and Gérard G. Medioni, "Adaptive Color Background Modeling for Real-time Segmentation of Video Streams," *Proceedings of the International Conference on Imaging Science, Systems, and Technology*, pp. 227-232, Las Vegas, NA, June 1999.
- Alexandre R.J. François and Gérard G. Medioni, "A Human-Assisted System to Build 3-D Models From a Single Image," *Proceedings of the IEEE International Conference on Multimedia Computing and Systems*, vol. 1, pp. 282-288, Florence, Italy, June 1999.
- 1998 Gérard G. Medioni, Gideon Guy, Hillel Rom and Alexandre R.J. François, "Real-Time Billboard Substitution in a Video Stream", *Proceedings of the 10th Tyrrhenian International Workshop on Digital Communications, 'Multimedia Communications'*, pp.71-84, Ischia, Italy, 1998.

Invited Conference Papers

- 2006 Kwangsu Kim, Matheen Siddiqui, Alexandre R.J. François, Gérard G. Medioni and Young-Jo Cho, "Robust Real-Time Vision Modules for a Personal Service Robot," *Proceedings of the of the 3rd International Conference on Ubiquitous Robots and Ambient Intelligence*, Seoul, Korea, October 2006.
- 2004 Elaine Chew, Alexander A. Sawchuk, Roger Zimmermann, the Tosheff Piano Duo (Vely Stoyanova and Ilia Tosheff), Chris Kyriakakis, Christos Papadopoulos, Alexandre R.J. François, and Anja Volk, "Distributed Immersive Performance," *Proceedings of the 2004 Annual National Association of the Schools of Music (NASM) Meeting*, San Diego, CA, November 2004.
- 2003 Elaine Chew and Alexandre R.J. François, "Real-Time Music Information Processing," *Proceedings of the International Conference on Computers and Industrial Engineering*, San Francisco, CA, February 2003.
- 2000 Gérard G. Medioni and Alexandre R.J. François, "3-D Structures for Generic Object Recognition," *Proceedings of the International Conference on Pattern Recognition*, Barcelona, Spain, September 2000, 30-37.

Invited lectures and seminars

Conference presentations

- 2009
- Alexandre R.J. François, “A Design Language for Interactive Software Systems,” Workshop for Young French Scientists, organized by the Office for Science and Technology of the French Embassy in the U.S., Los Angeles, CA, USA, 20 November 2009.
- Alexandre R.J. François, “Class-Wide Projects: Fostering Collaboration and Creativity in Computer Science Courses,” ACM Creativity & Cognition, Berkeley, CA, USA, 27 October 2009.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Institute for Creative Technologies, University of Southern California, Marina-Del-Rey, CA, USA, 28 September 2009.
- Alexandre R.J. François and the COMP150-CIS students, “An Ant’s Life,” SIGGRAPH Research Challenge Competition, New Orleans, LA, USA, August 2009.
- Alexandre R.J. François, “Introduction to Artificial Intelligence,” *Introduction to Cognitive and Brain Science (PSY09)*, Tufts University, Medford, MA, USA, 14 April 2009.
- Alexandre R.J. François, “Introduction to Computer Science and Artificial Neural Networks,” *Introduction to Cognitive and Brain Science (PSY09)*, Tufts University, Medford, MA, USA, 12 February 2009.
- Alexandre R.J. François and Elaine Chew, “MIMI: Multimodal Interaction for Musical Improvisation,” *Digital Sound Processing (CS312)*, Connecticut College, New London, CT, USA, 29 January 2009.
- 2008
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Computer Science Colloquium, University of Massachusetts, Lowell, MA, USA, 19 November 2008.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Computer Science Colloquium Series, Tufts University, Medford, MA, USA, 13 November 2008.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Visual Computing Group, Initiative in Innovative Computing, Harvard University, Cambridge, MA, USA, 13 November 2008.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” New York University, New York, NY, USA, 29 May 2008.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Brown University, Providence, RI, USA, 2 May 2008.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Computer Science Colloquium Series, Tufts University, Medford, MA, USA, 24 April 2008.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Computer Science Seminar/Future of Games Series, North Carolina State University, Raleigh, NC, USA, 24 March 2008.
- Alexandre R.J. François, “Programming *for* Artists ... Programming *by* Artists,” *Programming Digital Media (VM464)*, Emerson College, Boston, MA, USA, 18 March 2008.
- Elaine Chew and Alexandre R.J. François, “Analytical Listening Through Interactive Visualization,” Stanford University Human-Computer Interaction Seminar, Stanford, CA, USA, 29 February 2008.
- Elaine Chew and Alexandre R.J. François, “A Technical Analysis of the Music of P.D.Q. Bach,” Annual Special Improbable Research Session, Annual Meeting of the American Association for the Advancement of Science, Boston, MA, USA, 15 February 2008.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Computer Science Colloquium Series, Harvard University, Cambridge, MA, USA, 14 February 2008.
- Alexandre R.J. François, “A Design Language for Interactive Systems,” Musical Information Archiving and Retrieval (Axis 3) Workshop, Center for Interdisciplinary Research in Music Media and Technology, McGill University, Montréal, Québec, Canada, 8 February 2008.

- Elaine Chew and Alexandre R.J. François, “Analytical Listening Through Interactive Visualization,” Radcliffe Institute for Advanced Study Fellow’s Presentation Series, Cambridge, MA, USA, 16 January 2008.
- 2007 Alexandre R.J. François and Elaine Chew, “MIMI in the Context of Music and Computing,” MIT Alumni Association, Club of Southern California, Pasadena Lunch Guest Speaker, Beckham Grill, Pasadena, CA, USA, 2 August 2007.
- Alexandre R.J. François and Elaine Chew, “MIMI - Multi-Modal Interaction for Musical Improvisation,” International Joint Workshop on Computational Creativity, London, England, UK, 18 June 2007.
- Alexandre R.J. François, “Time and Perception in Music and Computation,” Colloque sur les Nouveaux Paradigmes pour l’Informatique Musicale, Institut de Recherche et Coordination Acoustique/Musique (IRCAM), Paris, France, 11 June 2007.
- Alexandre R.J. François and Elaine Chew, “Lecture and Demonstration: The Seiler Grand Piano and Computer-Interactive Improvisation with MIMI,” International Conference on Mathematics and Computation in Music, Musical Instrument Museum, Berlin, Germany, 19 May 2007.
- Alexandre R.J. François, “Visualization for Factor Oracle-Based Improvisation,” *Topics in Engineering Approaches to Music Cognition - Human-Centered Computing in Generating Music (CS 575c)*, University of Southern California, Los Angeles, CA, USA, 26 April 2007.
- Alexandre R.J. François, “Towards *Hermes/dl*, a Design Language for Interactive Systems,” Science of Design Symposium, Humboldt State University, Arcata, CA, USA, March 2007.
- 2006 Alexandre R.J. François, “From Computer Vision to Interactive Cross-Disciplinary Systems,” Computer Science Department, University of Rochester, Rochester, NY, USA, November 2006.
- Alexandre R.J. François, “From Computer Vision to Interaction,” CSAIL Vision Interfaces Laboratory, Massachusetts Institute of Technology, Cambridge, MA, USA, October 2006.
- Alexandre R.J. François, “From Computer Vision to Interaction: 10+ Year of Computer Vision Systems,” USC IRIS Seminar Series, Los Angeles, CA, USA, 20 October 2006.
- Alexandre R.J. François, “Interaction and Computation,” *Graduate Seminar in Computer Science Research (CS 597)*, University of Southern California, Los Angeles, CA, USA, 11 September 2006.
- Alexandre R.J. François, “An Architectural Framework for Interactive Software Systems,” School of Computing, National University of Singapore, Singapore, 10 August 2006.
- Alexandre R.J. François, “Architectural Abstractions for Modeling Complex Dynamic Systems,” USC Center for Robotics and Embedded Systems, Los Angeles, CA, USA, 30 March 2006.
- Alexandre R.J. François, “Software Architecture for Immersipresence,” UCSB Interactive Digital Multimedia IGERT Seminar, Santa Barbara, CA, USA, 24 February 2006.
- 2005 Alexandre R.J. François, “Software Architecture for Immersipresence,” USC Information Sciences Institute, Marina-Del-Rey, CA, USA, 18 October 2005.
- Elaine Chew and Alexandre R.J. François, “Music Cognition and Computation Research at USC,” UCSB Interactive Digital Multimedia IGERT Seminar, Santa Barbara, CA, USA, 20 May 2005.
- Alexandre R.J. François, “Parallel Asynchronous Processing,” *Principles of Software Development (CS201)*, University of Southern California, Los Angeles, CA, USA, 6 April 2005.
- Alexandre R.J. François, “Software Architecture for Immersipresence,” 2005 IGT Spring Symposium, University of Nevada, Reno, NV, USA, 25 March 2005.
- Alexandre R.J. François, “Software Architecture for Immersipresence,” Institut National agronomique Paris-Grignon, Paris, France, 14 March 2005.

- Elaine Chew and Alexandre R.J. François, “MuSA.RT - Creating Tonal Visualizations that Dance to the Rhythm of the Music,” Séminaire MaMuX, Institut de Recherche et Coordination Acoustique/Musique (IRCAM), Paris, France, 13 March 2005.
- Alexandre R.J. François, “Software Architecture for Immersipresence,” *Graduate Seminar in Computer Science Research (CS 597)*, University of Southern California, Los Angeles, CA, USA, 7 March 2005.
- 2004 Alexandre R.J. François, “Software Architecture for Immersipresence,” Harvey Mudd College, Claremont, CA, 28 November 2004.
- Robert Bolles and Alexandre R.J. François, “VEML: A Video Event Markup Language,” ARDA-VACE Phase II 12-month Workshop, Tampa, FL, 24 November 2004.
- Alexandre R.J. François, “Software Architecture for Computer Vision,” USC IRIS Seminar Series, Los Angeles, CA, October 2004.
- Alexandre R.J. François, “Software Architecture for Immersipresence,” USC IMSC Speaker Series, Los Angeles, CA, 30 April 2004.
- Alexandre R.J. François, “MuSA.RT and SAI: Data Stream Processing for Music and More,” *Engineering Approaches to Music Perception and Cognition (ISE 599)*, University of Southern California, Los Angeles, CA, USA, February 2004.
- 2003 Alexandre R.J. François and Elaine Chew, “Design for Real-Time Interaction,” Annual Meeting of the Institute for Operations Research and Management Sciences, October 2003. Invited cluster on OR in the Arts: Applications in Music; session on interactive music systems.
- Alexandre R.J. François, “Software Architecture for Computer Vision,” *Computer Vision (CS 574)*, University of Southern California, Los Angeles, CA, USA, October 2003.
- Alexandre R.J. François, “Software Architecture for Computer Vision,” USC IRIS Seminar Series, Los Angeles, CA, July 2003.
- Alexandre R.J. François, “Data Stream Processing for Music and More,” *Engineering Approaches to Music Perception and Cognition (ISE 599)*, University of Southern California, Los Angeles, CA, USA, January 2003.
- 2002 Alexandre R.J. François, “Video Analysis and Systems Integration,” *Internet Computing and Web Technologies (ECE 268)*, University of California, Santa Barbara, CA, USA, October 2002.
- Alexandre R.J. François, “Real-Time Segmentation and Tracking,” USC IRIS Seminar Series, Los Angeles, CA, February 2002.
- 2001 Alexandre R.J. François, “A Modular Software Architecture for Real-Time Video Processing,” USC IRIS Seminar Series, Los Angeles, CA, August 2001.
- Alexandre R.J. François, “Mirror Symmetry \Rightarrow 2-View Stereo Geometry,” USC IRIS Seminar Series, Los Angeles, CA, Spring 2001.
- 2000 Alexandre R.J. François, “A Framework and Environment for Data Streams Processing,” USC IRIS Seminar Series, Los Angeles, CA, Spring 2001.
- 1999 Alexandre R.J. François, “Adaptive Color Background Modeling for Real-Time Segmentation of Video Streams,” USC IRIS Seminar Series, Los Angeles, CA, Fall 1999.
- Alexandre R.J. François, “Building Models From a Single Image,” USC IRIS Seminar Series, Los Angeles, CA, Spring 1999.

Technical Reports

- 2007 Alexandre R.J. François, Elaine Chew and Dennis Thurmond, “MIMI - A Musical Improvisation System That Provides Visual Feedback to the Performer,” Computer Science Technical Report 07-889, University of Southern California, Los Angeles, January 2007.

- 2006 Alexandre R.J. François and Gérard G. Medioni, “A Vision System for Personal Service Robots: Resilient Detection and Tracking of People,” Technical Report 06-880, Computer Science Department, University of Southern California, Los Angeles, June 2006.
- Alexandre R.J. François and Elaine Chew, “An Architectural Framework for Interactive Music Systems,” IMSC Technical Report IMSC-06-001, University of Southern California, Los Angeles, January 2006.
- Elaine Chew, Alexandre R.J. François, Jie Liu and Aaron Yang, “ESP: Expression Synthesis Project,” IMSC Annual Report to the National Science Foundation, vol. 2, June 2006.
- 2005 Alexandre R.J. François, “SAI: Architecting Distributed Asynchronous Software Systems,” IMSC Technical Report IMSC-05-003, University of Southern California, Los Angeles, September 2005.
- Alexandre R.J. François and Cheng Zhu, “SAI: Software Architecture for Immersipresence,” IMSC Annual Report to the National Science Foundation, vol. 2, June 2005.
- Elaine Chew and Alexandre R.J. François, “MuSA.RT: Music on the spiral Array . Real-Time,” IMSC Annual Report to the National Science Foundation, vol. 2, June 2005.
- Elaine Chew, Alexandre R.J. François, Jie Liu and Aaron Yang, “ESP: Expression Synthesis Project,” IMSC Annual Report to the National Science Foundation, vol. 2, June 2005.
- Elaine Chew, Alexander A. Sawchuk, Roger Zimmermann, Chris Kyriakakis, Christos Papadopoulos, Alexandre R.J. François, Anja Volk, the Tosheff Piano Duo (Vely Stoyanova and Ilia Tosheff), *et al.* “Human Performance Experiments for Distributed Immersive Performance,” IMSC Annual Report to the National Science Foundation, vol. 2, June 2005.
- 2004 Alexandre R.J. François, *CAMSHIFT Tracker Design Experiments with Intel OpenCV and SAI*, IRIS Technical Report IRIS-04-423, University of Southern California, Los Angeles, July 2004.
- Alexandre R.J. François, *Real-Time Multi-Resolution Blob Tracking*, IRIS Technical Report IRIS-04-422, University of Southern California, Los Angeles, April 2004.
- Alexandre R.J. François and Cheng Zhu, “SAI: Software Architecture for Immersipresence,” IMSC Annual Report to the National Science Foundation, vol. 2, June 2004.
- Elaine Chew and Alexandre R.J. François, “MuSA.RT: Music on the spiral Array . Real-Time,” IMSC Annual Report to the National Science Foundation, vol. 2, June 2004.
- Elaine Chew, Alexandre R.J. François, Jie Liu and Aaron Yang, “ESP: Expression Synthesis Project,” IMSC Annual Report to the National Science Foundation, vol. 2, June 2004.
- 2003 Alexandre R.J. François, *Software Architecture for Immersipresence*, IMSC Technical Report IMSC-03-001, University of Southern California, Los Angeles, December 2003.
- Alexandre R.J. François, *Software Architecture for Computer Vision: Beyond Pipes and Filters*, IRIS Technical Report IRIS-03-420, University of Southern California, Los Angeles, July 2003.
- Alexandre R.J. François, Mauria Shah, Cheng Zhu and Roger Zimmermann, “Software Architecture for Immersipresence (SAI),” IMSC Annual Report to the National Science Foundation, vol. 2, June 2003.
- 2002 Alexandre R.J. François, “A Software Architecture for Immersipresence,” IMSC Annual Report to the NSF, vol. 2, April 2002.

Patents and Invention Disclosures

- Alexandre R.J. François, Elaine Chew and Dennis. Thurmond, “Multimodal Interactive Musical Improvization System,” USC Invention Disclosure, filed 31 January 2007.
- Elaine Chew, Alexandre R.J. François, Jie Liu and Aaron Yang, “ESP: Expression Synthesis Project,” USC Invention Disclosure (Ref. 3712) / US Provisional Patent Application (#60/685,357), filed 30 June 2005.
- Elaine Chew and Alexandre R.J. François, “MuSA.RT: Music on the spiral Array . Real-Time,” USC Invention Disclosure (Ref. 3533 / MWE Ref. 38080-118).

Alexandre R.J. François, “MFSM: Modular Flow Scheduling Middleware,” USC Invention Disclosure (Ref.3188).

Alexandre R.J. François and Gérard G. Medioni, “A System to Perform Real-Time Video Stream Segmentation Using an Adaptive Statistical Background Model in HSV Color Space,” USC Invention Disclosure (Ref. 2937).

Alexandre R.J. François and Gérard G. Medioni, “A Human-Assisted System to Build 3-D Models from a Single Image,” USC Invention Disclosure (Ref. 2936).

Press

2008 *What Field Are We Working In Now?* by Susan Saccoccia
Radcliffe Quarterly, Summer 2008.

2007 *Games Students Play, and Make* by Linda Davis
Viterbi News, June 7, 2007.

USC Team Earns Harvard Fellowships by Eric Mankin
USC News, June 28, 2007.

Viterbi Team Wins Harvard Fellowships by Eric Mankin
Viterbi News, June 25, 2007.

Games Students Play, and Make by Linda Davis
Viterbi News, June 7, 2007.

Humanists, Scientists, Artists Among New Fellows at Radcliffe by Jenny Corke
Harvard Gazette, May 31, 2007

Teaching and Mentoring Activities

Courses Created

COMP150- **Collaborative Development of Interactive Software Systems** - Tufts Computer Science
CIS This courses addresses the collaborative design and implementation of interactive software systems.
Spring 2009 The course centers on a class-wide project, typically an interactive game. The lectures inform the project design and development process. Topics include design and human factors, project management, collaboration, software architecture, graphics, networking. The course emphasizes creativity, teamwork and hands-on experience. www.cs.tufts.edu/comp/150CIS

CS201-Games **Principles of Software Development - Games** - USC Computer Science
Spring 2007 This special session of the last in a series of four undergraduate programming courses caters to students enrolled in, or interested in pursuing, the CS Games major. The course centers around the development and realization of a collaborative class project. www-scf.usc.edu/~csci201g

CS599 **Integrated Media Systems** - USC Computer Science
Fall 2002 This seminar course covers the state-of-the-art technology for integrated media systems. The focus of the course is on the underlying architectures for media rich environments. Such environments integrate multiple modalities (aural, visual, haptic), perform extensive computations, synchronize, store, retrieve, and transmit multiple media streams seamlessly. Students study and present recent technical papers on integrated media systems and architectures. Multimedia processing and application integration techniques are illustrated in a collaborative class project, using the Modular Flow Scheduling Middleware, an open source implementation of the Software Architecture for Immersipresence. www-scf.usc.edu/~csci599z

Courses Taught

Fall 2010 **Software Development (CS121)**
HMC www.cs.hmc.edu/courses/2010/fall/cs121

- Spring 2010 **Web Technologies for Industrial Engineers** (ISE582)
 USC *www-classes.usc.edu/engr/ise/582/2010*
- Spring 2009 **Exploring Computer Science** (EN47/COMP09)
 Tufts *www.cs.tufts.edu/~alex/en47-spring2009*
- Collaborative Development of Interactive Software Systems** (COMP150-CIS)
www.cs.tufts.edu/~alex/comp150cis-spring2009
 Spring 2009 class project finalist in SIGGRAPH 2009 Research Challenge Competition
- Fall 2008 **Exploring Computer Science** (EN47/COMP10)
 Tufts *www.cs.tufts.edu/~alex/en47-fall2008*
- Computer Graphics** (COMP175)
www.cs.tufts.edu/~alex/comp175-fall2008
- Spring 2007 **Principles of Software Development** (CS201-Games)
 USC *www-scf.usc.edu/~csci201g*
- Fall 2002 **Integrated Media Systems** (CS599)
 USC *www-scf.usc.edu/~csci599z*

Research Mentoring

Graduate Students

- Ph.D.
 USC
- Jie Liu: committee co-chair, graduated Spring 2008
- Shih-Ching Yeh: committee chair, graduated Summer 2008
- Joshua Garcia: advisor, Fall 2006-Spring 2007
 Viterbi School of Engineering Graduate Fellowship
- KwangSu Kim: co-advisor, Spring 2005-2006
- M.S.
 Tufts
- Matthew Knowles, Fall 2009
 Project: A visual environment for Hermes/dl
- Gerhard Stoeckel, Fall 2009
 Project: Interactive music system
- Wanyu Wang, Fall 2009
 Project: Epidemiological Data Visualization in Google Earth
- M.S.
 USC
- Deepa Datta, Spring 2007
 Project: Open Document graphics export in VisualSAI
- Shradha Sharma, Spring 2007
 Project: Open Document graphics export in VisualSAI
- Aashish A. Waghachoure, Summer 2005
 Project: Modeling and Implementing Network Topologies in SAI/MFSM
- Cheng Zhu, Fall 2002-Spring 2004
 Projects: IMSC Communicator, VisualSAI
 IMSC Research Assistant
 Went on to a full-time position at IBM
- Janaki Amin, Spring 2004
 Project: Sound Processing with SAI/MFSM

Ada Lijuan Yang, Summer 2003

Project: SAI as a Software Architectural Style (bibliographic research)
IMSC Research Assistant

Gary Jinglin Kuang, Summer 2003

Project: SAI as a Software Architectural Style (bibliographic research)
IMSC Research Assistant

Maurya Shah, Fall 2002-Spring 2003

Project: IMSC Communicator
IMSC Research Assistant
Went on to a full-time position at Qualcomm

Undergraduate Students

USC

Leslie Nguyen (Fall 2005-Spring 2006)

Project: VisualSAI–Automatic code generation
Undergraduate Research Fellowship from USC’s Women in Science and Engineering (WISE)

Joshua Garcia (Fall 2005-Spring 2006)

Project: VisualSAI
USC Renaissance Scholar

Matt Mehne (Fall 2005)

Project: VisualSAI

Mehmet K. Kocamaz (Fall 2002-Spring 2003 and Fall 2004-Spring 2005)

Project: Virtual Daguerreotype, an application of the Virtual Mirror system to the simulation of Daguerreotypes

IMSC Undergraduate Research Fellowship

Went on to the PhD program in Computer Science at the Rensselaer Polytechnic Institute

Adnan Kaya (Fall 2002-Spring 2003 and Fall2004-Spring2005)

Project: Virtual Daguerreotype, an application of the Virtual Mirror system to the simulation of Daguerreotypes

IMSC Undergraduate Research Fellowship

Went on to the PhD program in Electrical Engineering at USC

Umberto Malesci (Fall 2001-Spring 2002)

Project: Virtual Mirror

IMSC Undergraduate Research Fellowship

Transferred to the Massachusetts Institute of Technology, went on to the SM program in Computer Science at MIT

High-School Students

Conrad Koziol, sophomore, Summer 2005

Project: Real-Time image processing – Video Stabilization

JRI

Mentoring: Swarm Computing (Fall 2004-Summer 2005)

This research project, conducted in collaboration with, and in the labs of the Jisan Research Institute (JRI, www.jisan.org), applied swarm engineering principles to parallel and distributed computing. The research group comprised three high school students, who play an integral part in designing the research program, developing the research, analyzing data, and writing up and publishing the results. The students are: Debby Chung (Junior), Jaimie Park (Junior) and James Yang (Junior). The project was supported in part by an NSF supplemental outreach grant through IMSC.

Professional Activities

Meeting and Event Organization

- Co-Organizer Musical Patois - Reflections of Language in Music, Visions and Voices, USC Arts and Humanities Initiatives, Los Angeles, CA, USA, 21 March 2011.
- Co-Organizer *Prosody and Dialog in Music and Speech*, a Radcliffe exploratory seminar, Radcliffe Institute for Advanced Study at Harvard University, Cambridge, MA, USA, 5-6 November 2010.
- Co-Chair International symposium *interactions-humans.computers.music*, Radcliffe Institute for Advanced Study at Harvard University, Cambridge, MA, USA, 25 April 2008.

Panels and Referee Activities

- Program International Conference on New Interfaces for Musical Expression (NIME) 2010
- Committee Mathematics and Computation in Music (MCM) 2009
International Conference on Distributed Multimedia Systems (DMS) 2009, 2008
Vision/Graphics Collaboration Techniques and Applications (MIRAGE) 2009, 2007
International Conference on Pattern Recognition (ICPR) 2006
- Panel NSF CAREER (software engineering and languages, reviewed 9 proposals)
NSF MRI (reviewed 8 proposals)
- Journal article IEEE Transactions on Pattern Analysis and Machine Intelligence
Image and Vision Computing
- referee ACM Computers In Entertainment
Pattern Recognition Letters
Pattern Recognition
Cognitive Science
ETRI Journal
Journal of Systems and Software
Machine Vision and Applications Journal
ISPRS Journal of Photogrammetry and Remote Sensing
International Journal of Computer Science
- Conference paper International Conference on Music Information Retrieval (ISMIR) 2010, 2009, 2008, 2007
International Conference on New Interfaces for Musical Expression (NIME) 2010, 2009, 2008, 2006
- referee Mathematics and Computation in Music (MCM) 2009
International Computer Music Conference (ICMC) 2009
International Conference on Distributed Multimedia Systems (DMS) 2009, 2008
Vision/Graphics Collaboration Techniques and Applications (MIRAGE) 2009, 2007
ACM Multimedia 2007, 2003, 2002, 2000
ACM Multimedia Workshop On Audio and Music Computing 2006
International Conference on Advanced Video and Signal-based Surveillance (AVSS) 2006
International Conference on Pattern Recognition (ICPR) 2006
Frontiers in Education Conference 2006
International Conference on Internet and Web Applications and Services (ICIW) 2008, 2006
Joint Conference on Digital Libraries 2008

Personal

Languages

- French (native)
English (primary language since 1995)
- Computer C++, C, Java, Lisp, Pascal, BASIC

Sports

- Racquetball French National Team:
2002 IRF World Championships, San Juan, Puerto Rico (Bronze Medal doubles - Blue division)
2001 ERF European Championships, Castelbar, Ireland
- Rugby Pasadena RFC old boy (1998-2000)
USC Trojan RFC lettered alumnus (1997-2000)

Music

- 1993-1994 Keyboardist in Paris-based Funk/Jazz fusion band *Overtime*
- 1975-1985 Numerous prizes in regional (Paris), national (France) and international classical piano competitions