

Curriculum Vitae et Studiorum

Personal information

Surname / First name **Valenti Roberto**
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Nationality Italian
Date of birth 13/04/1981



Research

Research Interests Human-computer Interaction, Human-centered computing, Visual Gaze Estimation, Affective Computing, Intelligent Systems, Ambient Intelligence, Machine Learning, Computer Vision.
Current Research My current research addresses the problem of **sensing and understanding users' interactive actions and intentions** for achieving multimodal human-computer interaction in natural settings. More specifically, I'm interested in the estimation of the human visual gaze for enhanced human-computer interaction and human-human behavior analysis, therefore my main research topics include precise eye location estimation, facial expression recognition, head and body pose estimation by means of off-the-shelves hardware. The research done so far addressed the area of analyzing the user's behavior in his personal environment (e.g., home, car or office).

Project Participations

FP6-2005-IST-5 – MIAUCE **Multimodal Interactions Analysis and Exploration of Users within a Controlled Environment**
Founding Institution European Commission
Project Partners CNRS – Lille (F), SYLIS (F), Univ. of Amsterdam (NL), Univ. of Glasgow (UK), Univ. of Namur (B), Visual-Tools SA (Sp), Tilde (Latvia)
Project Leader Dr. Chabane Djeraba (CNRS)
Description The project aims to investigate and develop techniques to analyze the multi-modal behavior of users within the context of real applications. The multi-modal behavior takes the form of eye gaze/fixation, eye blink and body move. The project studies and develops techniques that capture and analyze multi-modal behavior in controlled environments. As a result of such analysis, the information is adapted to the user needs and situation. We study the usage and effectiveness of our techniques in three different applications: security, marketing, and interactive web TV. The objective is to develop techniques for human – controlled environment interaction, rather than human – computer interaction or human – human interaction.

FP6-2005-NEST – SYNTEX **Measuring Feelings and Expectations Associated with Texture**
Founding Institution European Commission
Project Partners Profactor (Austria), University of Groningen (Netherlands), Univ. of Amsterdam (NL), University of Leeds (UK), Prodimtec (Spain), University of Linz (Austria), Fundermax (Austria)
Project Leader Dr. Christian Eitzinger (Profactor)
Description SYNTEX aims at providing methods and a theory to objectively measure, model and predict the emotions and feelings conveyed by textures. The project will have substantial impact on product design in its most general sense. Designers of buildings (architects), consumer products, interfaces of computer programs, internet pages, and games, will profit from the ability to use texture in a predictable way to communicate additional information and achieve intended psychological effects. SYNTEX thus aims at (1) the development of a new measurement method to 'calculate' the degree to which certain feelings or emotions are associated with a particular texture in an individual subject; (2) a new investigative method for the modeling of human interpretation of visual and haptic textures; and (3) a method to synthesize artificial textures specified to evoke certain feelings and emotions. The consortium consists of a well-balanced group with backgrounds in psychology, neurophysiology, mathematics, machine vision and product design, thus combining the interdisciplinary knowledge required to achieve the goals of SYNTEX.

MUSCLE Network of Excellence

Founding Institution

Project Leader

Description

Multimedia Understanding through Semantics, Computation, and Learning

European Commission

Dr. Nozha Boujemaa (INRIA)

MUSCLE is an EU-sponsored Network of Excellence that aims at establishing and fostering closer collaboration between research groups in multimedia datamining and machine learning. The Network integrates the expertise of over forty research groups working on image and video processing, speech and text analysis, statistics and machine learning. The goal is to explore the full potential of statistical learning and cross-modal interaction for the (semi-)automatic generation of robust meta-data with high semantic value for multimedia documents. In particular, MUSCLE researchers are developing software tools and research strategies to enable users to move away from labor-intensive case-by-case modeling of individual applications, and allow them to take full advantage of generic adaptive and self-learning solutions that need minimal supervision.

Publications

- R. Valenti, N. Sebe and T. Gevers
Image Saliency by Isocentric Curvedness and Color, IEEE International Conference on Computer Vision, 2009
- H. Joho, I. Arapakis, J. Jose, R. Valenti and N. Sebe
Exploiting Facial Expressions for Affective Video Summarization, ACM International Conference on Image and Video Retrieval, July 2009.
- R. Valenti, Z. Yucel and T. Gevers.
Robustifying Eye Center Localization by Head Pose Cues. IEEE Conference on Computer Vision and Pattern Recognition, June 2009.
- R. Valenti, N. Sebe, and T. Gevers.
Simple and Efficient Visual Gaze Estimation. In International Workshop on Multimodal Interactions Analysis of Users in a Controlled Environment, October 2008.
- R. Valenti and T. Gevers.
Accurate Eye Center Location through Invariant Isocentric Patterns. Submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence.
- R. Valenti and T. Gevers.
Accurate Eye Center Location and Tracking using Isophote Curvature. In IEEE Conference on Computer Vision and Pattern Recognition, June 2008.
- R. Valenti, N. Sebe, and T. Gevers.
Facial Features Matching using a Virtual Structuring Element. In IS&T/SPIE 20th annual Symposium on Electronic Imaging, January 2008.
- R. Valenti, A. Jaimes, and T. Gevers.
Facial Expression Recognition as a Creative Interface. In International Conference on Intelligent User Interfaces, January 2008.
- R. Valenti, N. Sebe, T. Gevers, and I. Cohen.
Machine Learning Techniques for Multimedia, chapter 7, pages 159-188. Springer, 2008.
- R. Valenti, N. Sebe, and T. Gevers.
Facial Expression Recognition: a Fully Integrated Approach. In International Workshop on Visual and Multimedia Digital Libraries, September 2007.
- R. Valenti, N. Sebe, and T. Gevers.
Facial Feature Detection using a Virtual Structuring Element. In Annual Conference of the Advanced School for Computing and Imaging, June 2007.

Technical Demos

- Facial Expression Recognition as a Creative Interface. In International Conference on Intelligent User Interfaces, January 2008.
- Facial Expression Recognition, International Conference on Image Analysis and Processing, September 2007.

Teaching Assistant

Multimedia Information Systems.

Multimedia Information Systems. Master level course which focuses on the current issues in Multimedia Content Analysis. It covers the main problems and challenges in video analysis, including shot-break detection, video summarization and browsing, higher-level semantic and affective analysis, human-computer interaction issues, the use of computer graphics techniques in video production, and several learning strategies. Voted by the students as **the most interesting course** in 2007.

Multimedia Information Systems Project.

Master level practical course in which the students are asked to prepare a research proposal on emerging technologies in multimedia (free choice). The goal is to give the students the ability to write scientific proposals and the skills to review the proposals written by others. Every student is preparing a final project proposal which is presented in front of the whole class and each research proposal is reviewed by me and the other students.

Thesis Supervisions

Aspasia Beneti Robust Emotion Recognition by Using Pose Cues, M.Sc., graduated 2007.
 Roeland C. Weve Head Pose Estimation Using a Cylindrical Face Model, M.Sc., graduated 2007.
 Gijs Kruitbosch Recognizing Focus Areas using Isophote Pupil Location, B.Sc., graduated 2008.

Memberships

Institute for Electrical and Electronics Engineers (IEEE): Student Member since 2008.

Work experience

September 2006 - Present **Intelligent Systems Lab Amsterdam, University of Amsterdam**
 Occupation or position held Ph.D.
 Main activities and responsibilities Researcher in the MIAUCE project (www.miauce.org)
 Name and address of employer Faculty of Science/Informatics Institute, Kruislaan 403, 1098 SJ, Amsterdam
 Type of business or sector IT, Computer Science, Artificial Intelligence

January 2006 - Present **Aixiom V.O.F.**
 Occupation or position held Managing Director, co-founder
 Main activities and responsibilities Research, design and development of applied Artificial Intelligence software
 Name and address of employer Self employed, Sarphatistraat 153E, 1018GD Amsterdam. (<http://www.aixiom.com>)
 Type of business or sector IT, Computer Science, Artificial Intelligence

September 2005 – January 2006 **University of Amsterdam**
 Occupation or position held Mentor for new Master Students in Artificial Intelligence
 Main activities and responsibilities Integration of new students, helping them with administrative, educational and social issues.
 Name and address of employer StudiJob, Sarphatistraat 131A, 1018GD Amsterdam. (<http://www.studijob.nl>)
 Type of business or sector Educational

Education

September 2004 – September 2006 **Master in Artificial Intelligence with high honors**
 Institution University of Amsterdam. (<http://science.uva.nl>)
 Main subjects Multimodal Intelligent Systems, Machine Learning, Adaptive Knowledge Systems, Multi Agent Systems, Multimedia, Information Retrieval, Autonomous Systems, Internet Information, Grid Computing, Advanced Database Techniques, Scientific Visualization, Virtual Reality.

October 2000 – July 2004 **Laureato in Informatica (Bachelor in Computer Science) Grade: 97/110**
 Institution Alma Mater Studiorum, University of Bologna. (<http://cs.unibo.it>)
 Main subjects Programming Methods, Algorithms and Data Structures, Databases and Information Systems, Computer Networks, Computer System Architecture, Operating Systems, Computer Graphics, Computer System Security, Internet Technology, Logic, Discrete Mathematics, Mathematical Analysis, Statistics, Physics.

October 1996 – July 2000 **Perito Industriale Capotecnico in Informatica (Industrial Expert and Technical Leader in Informatics) Grade: 88/100**
 Institution Industrial Technical Institute "Enrico Fermi", High school. (<http://www.itisap.it>)

Main subjects Mathematics, Computer Science, Computer Systems, Electronics, Statistics, Chemistry, Physics , Law and Economy, Technological Design, Biology

Internships

January 2004 – June 2004 **Internship in Interfaces Technology and usability**
 Company Extrasmallstudio, viale abruzzi 25, 20131, Milano, Italy (<http://www.extrasmallstudio.com>)

January 2000 – June 2000 **Internship in computer assembly and network infrastructures**
 Company Red Hot Computer Store, via Piemonte 26, Ascoli Piceno, Italy

Personal skills and competences

Mother tongue **Italian**

Other language(s) **English, Spanish, Dutch**

	Understanding				Speaking				Writing	
	Listening		Reading		Spoken interaction		Spoken production			
English	C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User	C2	Proficient User
Spanish	A1	Basic User	A1	Basic User	A1	Basic User	A1	Basic User	-	None
Dutch	A1	Basic User	A1	Basic User	A1	Basic User	A1	Basic User	-	None

(*) according to the Common European Framework of Reference for Languages, table 2, available at http://culture2.coe.int/portfolio/documents_intro/common_framework.html

Social skills and competences Team spirit and team management obtained during university projects (teams up to 12 people)
 Good ability to adapt to new multicultural environments acquired by living and studying in a foreign country and interacting with international students;
 Good communication and presentation skills gained during various talks;

Computer skills and competences Perfect command of Operating Systems (Windows XP, Unix-like, Apple Mac OS X);
 Excellent knowledge of most important programming languages (C++, Java);
 Good command of Microsoft Office tools (Word, Excel, PowerPoint, Access);
 Good knowledge of Website developing tools and languages (XHTML, CSS, XSL, PHP, JavaScript, Ruby on Rails);
 Some experience with Database Systems.
 Some experience in 2D and 3D graphic design applications such as PhotoShop and 3Dstudio MAX gained through leisure activities;

Artistic skills and competences Piano/Organ/Keyboard, 8 years of lessons, winner of various national and international contests.
 Guitar, self trained.

Hobbies and sports Gaming, Chess, Speleology (caving), Skiing, Bridge (6th position in a national contest, 1st of my category), painting.

Driving licence Category B.

Additional information

References and list of grades available upon request.
 Please refer to the website <http://staff.science.uva.nl/~rvalenti> for additional information.