

21.10.2008

Alvaro CASSINELLI

[Researcher & Media Artist]

Biography



Alvaro Cassinelli (IT/UR) was born in Montevideo, Uruguay, in 1972. In 1990 he obtained both French and Uruguayan Bachelor degree, and a grant to pursue his studies in France. In 1996 he obtained a Graduate Engineering diploma from the Ecole Nationale Supérieure des Telecommunications (ENST), in Paris. He completed the same year a Doctoral Qualifying Degree (DEA) in physics (laser and matter interaction) from the University of Paris-XI/ENST/Ecole Polytechnique. In 2000 he received a Ph.D degree from the University of Paris-XI Orsay for his work on *optoelectronic stochastic parallel processors for image processing*. Since 2001 he has been working as a Research Fellow, Research Assistant and since 2006 as Assistant Professor at the Ishikawa-Namiki-Komuro Lab, Department of Information Physics and Computing, University of Tokyo. His research interests included fundamental aspects of computing (optical computing, quantum computing) as well as optical telecommunications; more recently, he has been working on artificial vision systems, interactive image processing, robotics, and novel human-machine interfaces using state-of-the-art optical technology. Since 2006 he has been actively involved in the creation and development of the Meta-Perception Group (of which he is the leader), a group specialized in human-computer interfaces. In parallel, he enjoys applying the results of this research to his more personal works as a Media Artist, and has been awarded several prizes in this arena, including the Grand Prize at the 9th Japan Media Art Festival and an Honorary Mention at Ars Electronica 2006.

Current affiliation

Assistant Professor,
Meta-Perception group / Ishikawa-Komuro Lab,
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Some relevant links:

- Ishikawa-Komuro Lab: www.k2.t.u-tokyo.ac.jp
- Meta-Perception Group: www.k2.t.u-tokyo.ac.jp/perception
- Web page (laboratory): www.k2.t.u-tokyo.ac.jp/members/alvaro/
- Archive of media-art works: www.k2.t.u-tokyo.ac.jp/members/alvaro/works/



Meta-Perception Group

Publications

In scientific journals:

- A. Cassinelli, M. Naruse and M. Ishikawa, **Multistage Network with Globally Controlled Switching Stages and its implementation using Optical Multi-interconnection Modules**, IEEE/OSA Journal of Lightwave Technology, Vol.22, No.2, pp.315-328, February (2004).
- A. Cassinelli, P. Chavel and M. Desmulliez, **Dedicated Optoelectronic Stochastic Parallel Processor (OSPP) for real-time image processing: motion detection demonstration and design of a hybrid CMOS/SEED based prototype**, Applied Optics, Vol.40, No.35, pp.6479-6491, December (2001).
- A. Cassinelli, **Optoelectronic Stochastic Parallel Processors for real-time image processing**, full-length article submitted in 2000 to Annl.Phys. France.
- R. Pankoke, A. Cassinelli, P. Sillard, C. Dorrer, P. Leishing et R. Frey, **Generateurs et amplificateurs parametriques optiques monomode transverse**, Ann.Phys.Fr. 20, pp.593-594 (1995).

In proceedings:

- N. Ogawa, K. Kikuta, H. Oku, T. Hasegawa, A. Cassinelli and M. Ishikawa. **Proposal for Real-World-Oriented Interaction System with Microorganisms and Its Preliminary Study**. IPSJ, Vol. 49, No. 10, Oct. (2008).
- Cassinelli, A., and Ishikawa, M. (2008). **Boxed Ego**, Devices that Alter Perception Workshop (DAP 2008) in conjunction with UbiComp, Sept. 21st, Seoul, South Korea (2008).
- Reynolds, C., Cassinelli, A., and Ishikawa, M. (2008). **Aural Antennae**, Devices that Alter Perception Workshop (DAP 2008) in conjunction with UbiComp, Sept. 21st, Seoul, South Korea (2008).
- Zerroug, A., Cassinelli A. and Ishikawa, M. (2008). **Spatial coverage vs. sensorial fidelity in VR**, Devices that Alter Perception Workshop (DAP 2008) in conjunction with UbiComp, Sept. 21st, Seoul, South Korea (2008).
- Stephane, P., Riva G. and Cassinelli A. (2008). **Creation of Sympathetic Media Content**, Devices that Alter Perception Workshop (DAP 2008) in conjunction with UbiComp, Sept. 21st, Seoul, South Korea (2008). Y. Watanabe, A. Cassinelli, T. Komuro and M. Ishikawa. **The Deformable Workspace: a Membrane between Real and Virtual Space**, IEEE Tabletops and Interactive Surfaces, Oct. 1-3, Amst., the Netherlands, (2008).
- Reynolds, C., Cassinelli, A., Watanabe, Y., and Ishikawa, M. **Manipulating Perception**. 6th European Conference on Computing and Philosophy, June 16 - 18, Montpellier, France (2008).
- Reynolds, C., Cassinelli, A., and M. Ishikawa **Meta-perception: reflexes and bodies as part of the interface**. Conference on Human Factors in Computing Systems (CHI 2008), April 5-10, Florence, Italy (2008).
- Reynolds, C., Cassinelli, A., and M. Ishikawa **Economically Autonomous Robotic Entities**. Workshop on Roboethics in conjunction with IEEE Inter. Conf. on Robotics and Autom. (ICRA'07). April 10-14, Rome, (2007).
- 伊藤崇仁, AlvaroCassinelli, 小室孝 and 石川正俊, **タンジブルスクリーンを用いた3次元物体表現 (Volume Slicing Display)**, 計測自動制御学会 システムインテグレーション部門学術講演会 (SI2006).
- Cassinelli, A., Reynolds, C. and Ishikawa, M. (2006) **Augmenting spatial awareness with Haptic Radar**. Tenth International Symposium on Wearable Computers (ISWC), October 11 - 14, 2006, Switzerland, pp.61-64 (2006).
- A. Cassinelli, C. Reynolds, and M. Ishikawa, **Haptic Radar**. The 33rd International Conference and Exhibition on Computer Graphics and Interactive Techniques (SIGGRAPH), August 1, (2006), Boston, Massachusetts, USA.
- A. Cassinelli, T. Ito and M. Ishikawa, **Khronos Projector**. Interactive Tokyo 2005, Miraikan Museum of Science and Technology, Tokyo, 25-26 August (2005). One page abstract (english/japanese, p.23).
- A. Cassinelli and M. Ishikawa. **Khronos Projector**. Emerging Tech., SIGGRAPH2005, Los Angeles (2005).
- A. Cassinelli, S. Perrin and M. Ishikawa, **Smart Laser-Scanner for 3D Human-Machine Interface**, ACM SIGCHI 2005, Portland, Oregon. Extended Abstract, pp.1138-1139 (2005).
- A. Cassinelli, A. Goulet, M. Naruse, F. Kubota and M. Ishikawa, **Load-balanced optical packet switching using two-stage time-slot interchangers**, Proc. 2004 IEICE, Sept. 21-24, Tokushima, Japan, pp.49-50 (2004).
- A. Goulet, A. Cassinelli, M. Naruse, F. Kubota and M. Ishikawa, **A load-balanced optical packet switch architecture with an O(1) scheduling complexity**, 9th Optoelectronics and communications Conference/3rd International Conference on Optical Internet (OECC/COIN 2004), July 2004, (2004).
- A. Cassinelli, S. Perrin and M. Ishikawa, **Markerless Laser-based Tracking for Real-Time 3D Gesture Acquisition**, ACM SIGGRAPH 2004, Los Angeles, 8-12 August (2004).

- S. Perrin, A. Cassinelli and M. Ishikawa, **Gesture Recognition Using Laser-based Tracking System**, 6th International Conference on Automatic Face and Gesture Recognition 2004 (FG 2004), Seoul, Korea, 17-19 May 2004, pp.541-546, (2004).
- A. Cassinelli, M. Naruse, A. Goulet and M. Ishikawa, **Arbitration-free Time-Division Permutation Switching Suitable for All-Optical Implementation**, IEICE meeting, Yamanashi Univ., 18-19 Dec. (2003).
- S. Perrin, A. Cassinelli and M. Ishikawa, **Laser-Based Finger Tracking System Suitable for MOEMS Integration**, Image and Vision Computing, New Zealand (IVCNZ), Massey Univ., 26-28 Nov., pp.131-136, (2003).
- A. Cassinelli, M. Naruse and M. Ishikawa, **Stage-Distributed Time-Division Permutation Routing in a Multistage Optically Interconnected Switching Fabric**, 29th European Conference on Optical Communication (ECOC-IOOC 2003), September 21-25, Rimini, Italy, pp.830-831 (2003).
- A. Cassinelli, M. Naruse, M. Ishikawa and F. Kubota, **Reconfigurable optical interconnections using multi-permutation-integrated fiber modules**, Extended Abstracts of the Optics Japan 2003 Conference, Japanese Society of Applied Physics (JSAP), Kanagawa, Tokyo, March 2003, p.1256 (27a-W12), (2003).
- M. Naruse, A. Cassinelli, M. Ishikawa: **Two-dimensional fiber array with integrated topology for short-distance optical interconnections**, 2002 IEEE LEOS Annual Meeting (Glasgow, 2002.11.14)/Conference Proceedings, pp.722-723, (2002).
- A. Cassinelli, M. Naruse, M. Ishikawa and F. Kubota, **A modular, guided wave approach to plane-to-plane optical interconnects for multistage interconnection networks**, Extended Abstracts of the Optics Japan 2002 Conference, Japanese Society of Applied Physics (JSAP), Koganei, Tokyo, Nov. 2-4, p.124-125 (3aES4), (2002).
- M. Naruse, A. Cassinelli, M. Ishikawa: **Real-Time Alignment Using Mechanical Dynamics of Optical Interconnection Systems**, OSA Annual Meeting & Exhibit 2002 (Orlando, 2002.10.1). Conf. p.77, (2002).
- A. Cassinelli, M. Naruse, M. Ishikawa, **Quad-tree image compression using reconfigurable free-space optical interconnections and pipelined parallel processors**, Proc. of the Optics in Computing conference, Grand Hotel Taipei (Taiwan) April 8-11 2002, pp.23-25, (2002).
- A. Cassinelli, M. Naruse, and M. Ishikawa: **Elemental optical fiber-based blocks for building modular computing parallel architectures**, The 49th Spring Meeting, 2002, The Japan Society of Applied Physics (JSAP) and Related Societies, (Kanagawa 2002.3.27), Extended Abstracts, pp.1204. (2002).
- P. Chavel, A. Cassinelli, I. Glaser, **Optoelectronic implementation of cellular automata for complex vision algorithms**, ROMOPTO 2000, 6th Conf. no Optics, September 4-7, Bucharest, Romania, (2000).
- P. Chavel, A. Cassinelli and I. Glaser, **Optoelectronic cellular automata for real time vision**, OC'2000, Canada, Quebec 18-23 juin 2000, SPIE 2000, pp.374-381, conference invitee, (2000).
- A. Cassinelli, P. Chavel, **Video-Rate Optoelectronic Parallel Processors for Image Processing using Simulated Annealing**, III. Euro Amer. Workshop on Optoelectronic Information Processing, pp.27, 31 May-2 June 1999, Colmar, France (1999).
- A. Cassinelli, Ph. Lalanne, P. Chavel and I. Glaser, **Demonstration of Video-Rate Optoelectronic Parallel Processors for Noise Cleaning in Binary Images by Simulated Annealing**, OC'98, Bruges. SPIE Proc. Vol 3490, p; 163-166 (1998).

PhD Dissertation:

- **"Processeurs Paralleles Optoelectroniques Stochastiques pour le traitement d'images en temps reel"** (Optoelectronic Stochastic Parallel Processors for real time image processing and application to motion detection), University of Paris XI, (IOTA, Laboratoire Charles Fabry, CNRS). Sept. 21, 2000.

Invited talks & Workshops

- **Time Delayed Cinema**, invited talk at Microwave/ New Media Art Festival, Hong Kong 4-15 Nov. (2006)
- **El Khronos Projector: un interfaz para pintar con el Tiempo**, [ArtFutura](#), Barcelona 25-28 Oct. (2007).
- **Workshop on Physical Computing** (Processing and Arduino/Wiring, focused in communication protocols), "Invention Workshop" course (発明工作)) at the [Yotsuya Art Studium](#), 17 Nov (2007).
- **Workshop on Physical Computing** (focused on motor control), 13.12.2007. Ishikawa-Namiki-Komuro Lab.
- Invited as a teacher at the **Interactivos?08 international workshop** at the MEDIALAB-PRADO (Madrid), on the theme "Vision Play". Lead by Alvaro Cassinelli and Simone Jones, with the participation of Daniel Canogar, Julian Oliver and Pablo Valbuena, from May 30th through June 14th 2008.
- Invited talk at the Tokyo **C-Wave symposium**.
- "**Devices that Alter Perception**" (DAP 2008) workshop co-chair in conjunction with UbiComp 2008. Sept., 21st 2008. Seoul, Korea.
- **Research and Media Art at the Ishikawa-Komuro Laboratory**, Ars Electronica Campus exhibition (9.9.2008).
- Invited talk at Samsung Electronic headquarters, Suwon, Korea (25.9.2008).
- **From Science to Art and beyond**, Invited talk at Hong-Ik University, Seoul, Korea, (25.9.2008).

Awards and grants:

- Grant by the French government to study in France.
- NHK Digital Stadium, Best Selection Award (aired at NHK-BS2, 8/10/2005).
- NHK Digital Stadium, Finalist Award (aired at NHK-BS, 14/1/2006).
- Panasonic Prize at the Digital Art Festival 2005 (9-13/12/2005).
- Grand Prize [Art Division] at the 9th Japan Media Art Festival (24/2-5/3/2006).
- Honorary Mention at Prix Ars Electronic 2006 (Interactive Art Category).

Patents, Trademarks

- *Optical Switch Architecture* (2004)
- *Cascaded 2D integrated fiber arrays with interleaved topologies for short-distance reconfigurable optical interconnections*, (2002)
- *Trademark on Khronos Projector system ("KhronoTouch")* (2007)

Reviewing activity

- IEEE (Transactions on Communications, Photonics Technology Letter)
- IEEE Conference on Virtual Reality International Conference on Robotics and Automation (ICRA)
- Elsevier, Optics and Lasers in Engineering
- International Journal of Imaging Systems and Technology (IJIST, Korea)

Professional Memberships

- ACM (Association for Computer Machinery) Professional Member / SIG Affiliation: SIGCHI
- IEICE (The Institute of Electronics , Information and Communication Engineers)

Media Art Exhibitions (solo or collaborative works)

- The [Khronos Projector](#) interactive installation:
 - [Split Film Festival](#) (Croatia), 3/6-10/7/2005 (presented by Luc Foubert and Alex)
 - [Interactive Tokyo 2005](#) (25-26/8/2005).
 - [NHK Digital Stadium, Best Selection Award](#) (aired at NHK-BS2, 8/10/2005).
 - [NHK Digital Stadium, Finalist Award](#) (aired at NHK-BS, 14/1/2006).
 - [Digital Art Festival 2005](#) (awarded the Panasonic Prize) (9-13/12/2005).
 - [9th Japan Media Art Festival, \(Grand Prize in Art Division\)](#) the (24/2-5/3/2006).
 - [Laval Virtual](#) (France), (25-30/4/ 2006)
 - Aired in "[On a tout essaye](#)" TV program, France2 television (4/5/2006).
 - [TIMESCAPE](#) installation at the Okamura Design Space (collaboration with architect Hiroshi Naito), Tokyo (13-28/07/2006) and featured on TV-Tokyo, 知恵の和 program 13/08/2006. Picture Gallery [here](#).
 - Honorary Mention at [Prix Ars Electronic 2006](#) (Interactive Art Category). Piece exhibited at the O.K. Center for Contemporary Art in Linz, Austria. (Prix Ars and Cyberarts 2006 exhibition, 31/08-8/10/2006).
 - Exhibited (for two years since 2006) at the [Ars Electronica Center \(AEC\)](#) in Linz, Austria.
 - [Future of Design Pavillon](#) at [WIRED NEXTFEST 2006](#) in New York (20/09-01/10/2006).
 - [Animatronica](#) - Microwave International New Media Arts Festival, Hong Kong (4-15/11/2006). ([Invited talk here.](#))
 - NTT InterCommunication Center "[Sight & Sound: Watch the sound, listen to the images](#)" exhibition, 14/7-2/9 2007. Featured a system with *spatialized sound* on the screen.
 - [Future of Design Pavillon](#) at [WIRED NEXTFEST 2007](#), Los Angeles, Convention Center (13-16/09/2007)
 - Festival [ArtFutura](#), Barcelona 25-28 Oct. (2007).
 - "[Openplay](#)", [Digital Art Festival Taipei](#), 23/11 - 2/12 Taipei, Taiwan (2007)
 - [VIA Festival International](#) (20-22/3 in Maubeuge), and [EXIT08 festival international](#) (28/3-5/4, Maison des Arts de Creteil), France (2008).
 - [Tokyo Science and Technology museum](#), (6/7/2008, Tokyo).
 - J-PARC opening ceremony, Ibaraki-ken (10.8.2008)
 - [Scopitone Festival](#) (Nantes, France, 17-21 Sept. 2008)
- "[dischorde](#)" interactive sound/video installation with [Philippe Chatelain](#) and [Daito Manabe](#). Museum of Contemporary Art (MOT), Tokyo (2007). Video extract: [\[wmv-13MB\]](#)
- Video Material for VJ performance in France, with Philippe Chatelain & Valerie Lavey.
- [Flat Elephant Walks](#), 12-27.7.2007, Okamura Design Space R / New Otani Garden Coat, Tokyo. By Shin Egashira with the help of Okamura technical team, Yuji Fukui (mechanical structures) & Alvaro Cassinelli (visual interaction). Video: [LQ: [wmv-20MB](#) / HQ: [wmv-60MB](#)]
- Experiment at [dorkbot swiss tokyo 2007](#) (interactive sound/image with S. Perrin). Video: [\[wmv -40MB\]](#)
- [NoForkDroise](#) (toys + percussions) + alvaro cassinelli (interactive visuals), N.1. Live performance at [Nana Hari](#) (22.12.2007). Video: [\[wmv-45MB\]](#)
- [NoForkDroise](#) + alvaro cassinelli (interactive visuals & midi sound), N.2. Live performance at [Nana Hari](#) (19.1.2008). Video: [\[wmv-88MB\]](#)
- [boxedEgo](#) interactive-art installation commissioned for [Sonar/SonarMatica 2008 FUTURE PAST CINEMA](#) (curated by Jose Luis de Vicente, Oscar Abril Ascaso and Advanced Music. With the collaboration of Medialab-Prado and the Museu de Cinema de Girona).
- [boxed Ego](#), [Sticky Light](#) and Wireless Haptic Radar at [Ars Electronica - Tokyo University Campus Exhibition](#)

Media Appearances

- "*Khronos Projector*" at BS2, **NHK Digital Stadium** (Oct. 8, 2005), best selection award.
- "*Khronos Projector*" at **France 2 French broadcasting television** ("*On a tout essaye*").
- "*Haptic Radar*" featured at NTV Japan Television (「世界一受けたい授業」, *日本テレビ*, 2008.06.07)
- "*Laser Scanner Reads Air Writing*", article on **DiscoveryChannel.com** (Sept. 1, 2005)
- **Discovery Channel** (covering WIRED NEXT FEST), about "*Khronos Projector*"
- **Daily Planet** (Discovery Channel Canada), about "*Haptic Radar*".
- **RTVE** (radio television Espanola), interview 17.6.2008.
- Several journals and international magazines, including **Nikkei Shinbun** (Japan), **ArtTop** (Japan), **ID Magazine**, **Wired Magazine** (USA), **Liberation** (France), **L'Ordinateur Individuel** (France), etc.

Work experience

- 2005-** **Assistant Professor**, University of Tokyo, Ishikawa-Komuro Lab, Dept. of Information Physics and Computing. Leader of the Meta-Perception group, specialized on human-computer interfaces and new media-art related research.
- 2000-2005** **Research Fellow** (CREST/SORT), University of Tokyo, Ishikawa-Namiki Lab. Involved mainly in the Optoelectronic Computing and Sensor Fusion Group. Primary research themes: optical networking and human computer interfaces using laser technology.
- 1998-99** **Teaching assistant** (examiner) in physics at Louis-Le-Grand (first year Univ. level).
- July/Sept. 96** Internship at the **ENST Optoelectronic Laboratory**, Paris, France.
- July/Sept. 95** Internship in the **Quantum Optics laboratory at Ecole Polytechnique**, Paris, France.
- July 1994** Internship with a small electronic/telecommunication company in Montevideo, Uruguay.
- 1994-95** Private tuition in mathematics to first year University students, Paris, France.
- 1989** Developed and commercialized the first true light-pen for the micro-computer Zx-Spectrum, Montevideo, Uruguay.

Miscellanea

- As a Ph.D. student (1996-2000) I collaborated yearly (technical report) for the European Commission.
- Since 2005, I've been working on personal projects as media artist, and collaborator on several media art installations in Japan. I did several workshops on physical computing and interactive art to art students.
- Since 2006, I've been consultant for a large Japanese furniture company (Okamura) planning the design of the "office of the future", as well as a big car maker (Nissan) designing a futuristic personal mobility system.

Knowledge of computer languages

- Programming languages: C++, LISP, PASCAL, MATLAB, LabView, ASSEMBLER (68000 and Z80).
- Specialized Software: Photoshop, Video Editing Tools (Adobe Premiere, Vegas, etc.)
- Systems: UNIX, VAX/VMS, MS-DOS, LINUX.
- Others: OpenGL, OpenCV, OpenFrameWorks, Processing/Arduino, Python, MAX/MSP.

Spoken languages

- Bilingual [Spanish / French](#). Fluent [English](#). Good knowledge of [Italian](#). Conversational [Japanese](#).