

Fernando Flores-Mangas

CONTACT INFORMATION	Computer Science Department University of Toronto PT 265C D4 6 King's College Rd. Toronto, ON, M5S 3H5	<i>Office:</i> (416) 946-8769 <i>Mobile:</i> (416) 827-2972 <i>E-mail:</i> mangas@cs.toronto.edu <i>WWW:</i> www.cs.toronto.edu/~mangas
CITIZENSHIP	Mexico	
RESEARCH INTERESTS	Computer vision, medical imaging, machine learning	
EDUCATION	University of Toronto , Toronto, ON, Canada Ph.D, Computer Science, (To be completed in 2009) <ul style="list-style-type: none">• Thesis topic: shape priors for 3D image segmentation• Advisor: Allan Jepson, Ph.D• Area of study: computer vision Universidad Nacional Autonoma de Mexico, (UNAM) National Autonomous University of Mexico , Mexico City, Mexico M.Sc., Computer Science, Aug 2005 <ul style="list-style-type: none">• <i>Magna cum Laude</i>• Thesis topic: analysis of ultrasound images with neural networks• Advisor: Lucia Medina, Ph.D• Area of study: machine learning, computer vision Instituto Tecnologico Autonomo de Mexico, (ITAM) Mexico Autonomous Institute of Technology , Mexico City, Mexico Double B.Eng., Computer Engineering, and Telematics Engineering, Dec 2001 <ul style="list-style-type: none">• <i>Magna cum Laude</i>, with honors in both mayors• Thesis topic: computer vision, medical imaging• Advisor: Ma. Elena Algorri-Guzman, Ph.D	
AWARDS	Mexico Autonomous Institute of Technology <ul style="list-style-type: none">• Undergraduate scholarship, 1996• Best Thesis Award, 2003 (Honorable mention) National Association for Engineering Schools and Faculties (Mexico) <ul style="list-style-type: none">• Best Student Award, 2003 Robocup American Open American Open <ul style="list-style-type: none">• Small-Size Robot Soccer, 3rd Place, 2003• Small-Size Robot Soccer, 2nd Place, 2004 National Council for Science and Technology (Mexico) <ul style="list-style-type: none">• M.Sc. Scholarship, 2004, 2005 National Autonomous University of Mexico <ul style="list-style-type: none">• M.Sc. Scholarship, 2004, 2005	

ACADEMIC
EXPERIENCE

University of Toronto, Toronto, ON, Canada

Graduate Student **January 2006 to present**

Currently in second year of the Computer Science PhD program.

Teaching Assistant **September 2006 to present**

- Lectured on CSC258 - Computer Organization's lab.
- Provided assistance to second-year engineering students.
- Graded lab assignments.

Microsoft, Redmond, WA, USA

Research Internship **January to April 2005**

- One of the first four graduate students from Microsoft's Latin America Research Internship program, first from Mexico.
- Worked on a mobile technology, health related project: HealthGear.
- Research involved hardware, software and signal processing. The whole framework was granted a patent. *Please, refer to Publications and Patents sections.*
- Mentor: Nuria Oliver
- Manager: Mary Czerwinski.

Research Internship **September to December 2005**

- Worked on a mobile technology, fitness training project: MPTrain.
- Research involved signal processing and technology integration.
- One of our publications from this project was awarded a "Best paper" nominee.
- Patents were granted for developed data-processing techniques, algorithms and the whole framework. *Please, refer to Publications and Patents sections.*
- Mentor: Nuria Oliver
- Manager: Mary Czerwinski.

UNAM, Mexico City, Mexico

Research Assistant **August 2003 to September 2005**

- Worked on ultrasonic signal analysis using neural networks.

ITAM, Mexico City, Mexico.

Research Assistant, CANNES Laboratory **August 2001 to July 2003**

- Co-led a mobile-robotics team. Research topics included: real time computer vision, artificial intelligence, control, wireless communications, and hardware.
- Built two generations of award winning robots from scratch within these two years.
- Development of several software and hardware projects.

Research Assistant, Neuroimaging Laboratory **August 1999 to February 2001**

- Researched on computer vision and medical imaging.
- Developed a semi-automatic segmentation and classification tool for medical images.
- Published contributions from undergraduate-thesis research project. Presented results on international conferences and journals.

Teacher Assistant **August 1998 to July 1999**

- Held laboratory sessions and tutorials.
- Developed software for faculty's research projects.
- Provided assistance on a help desk.

JOURNAL
PUBLICATIONS

- Algorri, M.E.; Flores-Mangas, F., “Classification of anatomical structures in MR brain images using fuzzy parameters”, *IEEE Transactions on Biomedical Engineering*, vol.51, no.9, pp. 1599-1608, Sept. 2004.
- Flores-Mangas F.; Algorri M.E.; Villaseor M., “A tool for analysis, segmentation an reconstruction of MR brain images”, *V Mexican Symposium on Medical Physics, American Institute of Physics Conference Proceedings, Juriquilla, Quertaro, Mexico*, pp. 107-114, March 2001.

CONFERENCE
PUBLICATIONS

- Oliver, N.; Flores-Mangas, F. 2006. “MPTrain: a mobile, music and physiology-based personal trainer”. In *Proceedings of the 8th Conference on Human-Computer interaction with Mobile Devices and Services. MobileHCI '06*, vol. 159. ACM Press, 21-28. Helsinki, Finland, September 12 - 15, 2006. *Best paper nominee*.
- Oliver, N.; Flores-Mangas, F. “HealthGear: A real-time wearable system for monitoring and analyzing physiological signals”. In *Proceedings of the international Workshop on Wearable and Implantable Body Sensor Networks (BSN'06) - Volume 00. IEEE Computer Society, Washington, DC*, 61-64. April 03 - 05, 2006.
- Alonso, F.; Algorri, M.E.; Flores-Mangas, F., “Composite index for the quantitative evaluation of image segmentation results”, *Engineering in Medicine and Biology Society, IEMBS '04. 26th Annual International Conference of the IEEE*, vol.1, no., pp. 1794-1797 Vol.3, 1-5 Sept. 2004.
- Algorri M.E.; Flores-Mangas F., “Classification of MR Images using Fuzzy Logic”, *MICAI/TAINA, Merida, Yucatan, Mexico*, pp. 273-283, April 2002.
- Villasenor, M.A.; Flores-Mangas, F.; Algorri, M.E., “Anatomical models for virtual reality and web-based applications”, *Engineering in Medicine and Biology Society, Proceedings of the 23rd Annual International Conference of the IEEE* , vol.4, no., pp. 3769-3772 vol.4, 2001

PATENTS

- US Patent # 20070113725, Oliver, Nuria Maria; Flores-Mangas, Fernando; “Algorithm for providing music to influence a user’s exercise performance”, May, 2007.
- US Patent # 20070113726, Oliver, Nuria Maria; Flores-Mangas, Fernando; “Using music to influence a person’s exercise performance”, May, 2007.
- US Patent # 20070118043, Oliver, Nuria Maria; Flores-Mangas, Fernando; “Algorithms for computing heart rate and movement speed of a user from sensor data”, May, 2007.
- US Patent # 20070027367, Oliver, Nuria Maria; Flores-Mangas, Fernando; Howard, Dane Michael; Lang, Eric G.; Sanchez, Russell I.; Sinclair, Michael Jack; Tan, Alfred Yong-Hock; Thompson, Ralph Donald III; “Mobile, personal, and non-intrusive health monitoring and analysis system”, February, 2007.

PROFESSIONAL
EXPERIENCE

Vision Consulting, Mexico City, Mexico

Software Analyst and Designer

March to July 2002

- Insurance Policy Management System, multi-user optimization.
- Multi-threaded Visual C++ interface communicates to server's COM objects using XML.
- Contributions on application's performance improvement and interfacing.

Artesoft, Mexico City, Mexico

Software Analyst and Designer

March to July 2002

- Telephone switch information analysis system. Output to an oversized LED display for call-center management purposes (Summer job).

TECHNICAL SKILLS Extensive hardware and software development experience includes:

VISUAL C++:

- Multi-threaded, object-oriented programming.
- OpenGL rendering, graphical user interfaces.
- Projects targeted to various platforms: PCs, mobile devices (i.e. SmartPhones).
- Applications span from stand-alone 2D image manipulation tools, to high level vision and machine-learning algorithm implementations with real time acquisition, network/bluetooth interactions and 3D graphical user interfaces.

MATLAB: Linear algebra, Fourier transforms, image/signal processing.

Other programming experience: Pascal, Lisp, ADA, SQL, HTML, Java, assembler and others.

Applications: Microsoft Office, Windows, T_EX, L^AT_EX and B_IB_TE_X.