Pablo L. Sala
Department of Computer Science, University of Toronto
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Research Interests

Object recognition, image segmentation, perceptual grouping and shape abstraction; also shape modeling, indexing and matching.

Education

- Sep 2004 – present **Ph.D. Student in Computer Vision**
  GPA: 4.0 / 4.0 (A average)
  Dept. of Computer Science, University of Toronto
  Supervisor: Prof. Sven Dickinson

- 2004 **M.S. Computer Science**
  GPA: 3.95 / 4.0 (A average)
  Dept. of Computer Science, University of Toronto
  Supervisor: Prof. Sven Dickinson
  Thesis: *Selection of an Optimal Set of Landmarks for Vision-Based Navigation.* (Available at `http://www.cs.toronto.edu/~psala/Papers/MScThesis.pdf`)

- 2002 **Licentiate in Computer Science** (Six-year program)
  GPA: 8.31 / 10 (*Distinguished*)
  Dept. of Computer Science, University of Buenos Aires
  Supervisor: Prof. Hugo Scolnik
  Thesis: *Extensions to SNARK93, a Framework for Evaluation of Image Reconstruction Algorithms.* (In Spanish)

Publications

Refereed Conference Papers and Journal Articles

- **Spatiotemporal Contour Grouping using Abstract Part Models**
  Pablo L. Sala, Diego Macrini, and Sven Dickinson.
  Proceedings of the *Asian Conference on Computer Vision* (ACCV), Queenstown, New Zealand, November 2010.

- **Contour Grouping and Abstraction using Simple Part Models**
  Pablo L. Sala and Sven Dickinson.
  Proceedings of the *European Conference on Computer Vision* (ECCV), Crete, Greece, September 2010.

- **Model-Based Perceptual Grouping and Shape Abstraction**
  Pablo L. Sala and Sven Dickinson.
  Proceedings of the *IEEE Computer Society Workshop on Perceptual Organization in Computer Vision* (POCV) in conjunction with *IEEE Computer Society Conference on Computer Vision and Pattern Recognition* (CVPR), Anchorage, Alaska, June 2008.

- **Landmark Selection for Vision-Based Navigation**
  Pablo Sala, Robert Sim, Ali Shokoufandeh, and Sven Dickinson.
  IEEE Transactions on Robotics (T-RO), 22(2), pp. 334-349, April 2006.

- **Landmark Selection for Vision-Based Navigation**
  Pablo L. Sala, Robert Sim, Ali Shokoufandeh, and Sven Dickinson.
  Proceedings of the *IEEE/RSJ International Conference on Intelligent Robots and Systems* (IROS), pp. 3131-3138, Sendai, Japan, September 2004.

Technical Reports

- **Robust Segmentation, Registration, and Decoding of Tri-2D High Density Color Barcode**
  Pablo Sala and Gavin Jancke.
  Technical Report MSR-TR-2006-119, Microsoft Research, Redmond, WA, September 2006.

Non-refereed papers

- **Discovering Non-continuous Structural Motifs in Non-Homologous Proteins**
  Pablo Sala, University of Toronto, CSC 2427 - Algorithms in Molecular Biology project report, 2006.

- **A recognition system for symbols of electronic components in hand-written circuit diagrams**
  Pablo Sala, University of Toronto, CSC 2515 - Machine Learning project report, 2004.

- **A Scale-Invariant Line Feature Transform**
  Pablo Sala, University of Toronto, CSC 2523 - Computational Vision II project report, 2003.

- **An Image Stabilization System**
  Pablo Sala, University of Toronto, ECE 1772 - Motion Analysis in Computer Vision project report, 2003.
- **A Robust Super-Resolution Method for Images of 3D Scenes**
  Pablo Sala, University of Toronto, CSC 2530 - Visual Modeling project report, 2002.

Invited Presentations

- **Optimal Landmark Selection for Vision-Based Navigation**
  School of Electrical & Computer Engineering, Purdue University, West Lafayette, IN, September 7, 2006.
- **Landmark Selection for Vision-Based Navigation**
  Department of Electrical & Computer Engineering, Dalhousie University, Halifax, NS, Canada, April 19, 2006.

Scholarships and Awards

- Apr 2010 – Mar 2011, University of Toronto Fellowship ($22,000 CDN)
- Sep 2008 – Aug 2009, University of Toronto Fellowship ($21,700 CDN)
- Sep 2008 – Aug 2009, Monica Ryckman Scholarship ($5,000 CDN)
- Sep 2007 – Aug 2008, Ontario Graduate Scholarship ($15,000 CDN)
- Sep 2007 – Aug 2008, Department of Computer Science, U. of Toronto Top-Up ($10,000 CDN)
- 2006 Selected as a finalist for the Microsoft Research and LiveLabs PhD Fellowship 2007
- Sep 2006 – Aug 2007, Ontario Graduate Scholarship in Science & Technology ($15,000 CDN)
- Sep 2006 – Aug 2007, Department of Computer Science, U. of Toronto Top-Up ($10,000 CDN)
- Sep 2002 – Aug 2006, University of Toronto Fellowship ($19,000 CDN / year)

Teaching Experience

Development of Academic Material for New Undergraduate Courses

University of Toronto

- CSC 420 *Introduction to Image Understanding*

Teaching Assistant

University of Toronto

- CSC 420 *Introduction to Image Understanding*
- CSC 320 *Introduction to Visual Computing*
- CSC 263 *Data Structures and Analysis*
- CSC 378 *Data Structures and Analysis of Algorithms*
- CSC 180 *Introduction to Computer Programming*
- CSC 108 *Introduction to Computer Programming*

University of Buenos Aires

- *Topics in Cryptology*
- *Cryptology*
- *Functional Programming*
- *Algorithms and Data Structures II*
- *Computer Programming II*

Professional Experience

Microsoft Research, Redmond, WA

- Mar 13, 2007 – Mar 11, 2008 (Job title: Researcher) Contract position (through agency VOLT) working from Canada. I extended the approach for reading MS High-Density Color Barcodes, which I had come up with during my internship with MSR. Such extensions included delving reliable and efficient methods to segment and read the barcode under various challenging imaging conditions including perspective distortion, noisy and low quality images (such as those from mobile phone cameras), as well as blemishes and barcode alterations.
  Microsoft Tag (`http://www.microsoft.com/tag/`) is the result of this technology.

- Jun 12, 2006 – Sep 1, 2006 (Job title: Researcher) Summer Internship, working with Gavin Jancke. We developed an efficient method for robust segmentation, registration, and decoding of MS 2D High-Density Color Barcode, across several input devices, working under different lighting conditions on barcodes generated by various printing devices on a variety of media quality.

Synthesis Information Technology S.A., Buenos Aires, Argentina

- Sep 1, 1999 – May 2, 2001 Program Manager of the e-Business Unit.
- Sep 9, 1996 – Aug 31, 1999 Software Designer in the R&D Department, developing applications for on-line transaction processing.

Programming Skills

Languages

- C/C++
- Matlab
- Fortran
- 80x86 Assembler

Operating Systems

- Windows
- Linux

References

- **Sven Dickinson**
  Associate Professor and Department Chair
  Department of Computer Science, University of Toronto
  (416) 978-3853; sven@cs.toronto.edu

- **Gavin Jancke**
  Director Of Engineering
  Microsoft Research - Redmond, WA
  (425) 706-2937; gavinj@microsoft.com