

# Parthipan Siva

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## Education

- 2012 **PhD in Computer Science**, *Queen Mary University of London, School of Electronics Engineering and Computer Science*, London, UK.
- 2007 **MASc in Systems Design Engineering**, *University of Waterloo, Department of Systems Design Engineering*, Waterloo, Canada.
- 2005 **BASc in Systems Design Engineering**, *University of Waterloo, Department of Systems Design Engineering*, Waterloo, Canada.

## Publications

### Refereed Journals

- [1] P. Siva, G. W. Brodland and D. A. Clausi. *Detecting mitoses in time-lapse images of embryonic epithelia using intensity analysis*. *Annals of Biomedical Engineering*, 37:12, 2646-55, 2009.
- [2] P. Siva, G. W. Brodland and D. A. Clausi. *Detection of mitoses in embryonic epithelia using motion field analysis*. *Computer Methods in Biomechanics and Biomedical Engineering*, 12:2, 151-163, 2009.

### Refereed Conferences

- [1] P. Siva, C. Russell, and T. Xiang. *In defence of negative mining for annotating weakly labelled data*. *Proceedings of the European Conference on Computer Vision (ECCV)*, Florence, 2012.
- [2] Z. Shi, P. Siva, and T. Xiang. *Transfer learning by ranking for weakly supervised object annotation*. *Proceedings of the British Machine Vision Conference (BMVC)*, Surrey, 2012
- [3] P. Siva and T. Xiang. *Weakly supervised object detector learning with model drift detection*. *Proceedings of the 13th IEEE International Conference on Computer Vision (ICCV)*, Barcelona, 2011.
- [4] P. Siva and T. Xiang. *Weakly supervised action detection*. *Proceedings of the British Machine Vision Conference (BMVC)*, Dundee, 2011.
- [5] P. Siva and T. Xiang. *Action detection in crowd*. *Proceedings of the British Machine Vision Conference (BMVC)*, Aberystwyth, 2010. **Best Poster**
- [6] P. Siva, G. W. Brodland and D. A. Clausi. *Automated detection of mitosis in embryonic tissues*. *Proceedings of the 4th Canadian Conference on Computer and Robot Vision (CRV)*, Montreal, 2007.
- [7] P. Siva and C. C. W. Hulls. *Dynamic segmentation of small image windows for visual servoing*. *Proceedings of the IEEE International Conference on Mechatronics and Automation (ICMA)*, Niagara Falls, 2005. **Finalist Best Student Paper**

## Workshops

- [1] P. Siva, C. C. W. Hulls and W. J. Wilson. *Dynamic segmentation of small image windows for visual servoing*. Space, Vision, and Advance Robotics Workshop (SVAR), MDA Space Missions (formerly MD Robotics), Brampton, 2005.

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## PhD thesis

Title *Automatic annotation for weakly supervised learning of detectors*  
Supervisors Dr. Tao Xiang  
Examiners Vittorio Ferrari and Lewis Griffin  
Description Developed weakly supervised algorithms for automatic annotation of objects in images.

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## MASc thesis

Title *Quantifying the frequency and orientation of mitoses in embryonic epithelia*  
Supervisors Prof. David A. Clausi and Prof. G. Wayne Brodland  
Description Developed image processing algorithms for identifying frequency and orientation of cell divisions in time lapse images of live axolotal embryo epithelia.

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## Experience

### Academic

- 2009–2012 **Teaching Assistant**, *Queen Mary University of London*, London, UK.  
  - Coordinated and assessed lab works for:
    - DCS 150 - Fundamentals of web technology (3 terms)
    - DCS 302 - Multimedia (1 term)
- 2007 **Program Co-Chair for BICV**, *University of Waterloo*, Waterloo, Canada.  
  - Co-Chaired Biomedical Imaging and Computer Vision Symposium.
  - Organized and recruited industry demonstration exhibits.
- 2005–2007 **Teaching Assistant**, *University of Waterloo*, Waterloo, Canada.  
  - Designed and presented lectures on object oriented programming in C++.
  - Coordinated and assessed lab works for:
    - SYDE 121 - Digital Computation (3 terms)
- 2004–2005 **Undergraduate Research Assistant**, *University of Waterloo*, Waterloo, Canada.  
Supervisor: Dr. Carol Hulls  
  - Developed novel image thresholding algorithms for dynamic image window segmentation.
  - Implemented image thresholding algorithms on a real-time visual servoing system.
  - Evaluated local and global image thresholding algorithms for small images.
- 2004 **Undergraduate Research Assistant**, *University of Waterloo*, Waterloo, Canada.  
Supervisor: Prof. Ed Jernigan  
  - Researched into the creation of Perceptual Importance Maps.
  - Implemented Gabor filters tuned to the human visual system for retrieval of important features.
- 2000–2005 **Pattern Recognition Projects**, *University of Waterloo*, Waterloo, Canada.  
Computer vision projects during my BAsC includes:  
  - Symbol detection for the international aerial robotics competition.
  - Face detection for a course on machine learning.
  - Digital watermarking for Leitch Technologies.

## Industry - Research

- 2007–2009 **Computer Vision Developer**, *Aimetis*, Waterloo, Canada.
- Developed real-time surveillance applications in C++ with optimized C, IPP, and SSE code.
  - Designed and implemented following real-time surveillance products:
    - people-tracking for indoor environments such as retail stores
    - overhead people-counting at bottleneck areas such as store entrances
    - abandoned baggage detection in public areas such as airports
    - identifying shoplifting in retail stores
  - Improved existing product lines:
    - Pan-Tilt-Zoom camera tracking of moving objects
- 2005 **Computer Vision Researcher**, *Tangam Gaming Inc.*, Waterloo, Canada.
- Developed real-time automated tracking of card games like blackjack.
  - Presented the system at the Global Gaming Expo 2005 in Las Vegas.
  - System implemented in C++ and OpenCV.
- 2002–2003 **Student Hardware Designer**, *Leitch Technologies*, Toronto, Canada.
- Developed firmware for television broadcast equipment using C, VHDL, and assembly
  - Products designed include:
    - C firmware for an analog distribution amplifier
    - VHDL circuit for multi-standard video validation system
    - Assembly firmware for synchronizing clocks

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## Awards

- 2012 Best Poster, Research Open Day, Queen Mary University of London
- 2012 People's Choice Award, Research Open Day, Queen Mary University of London
- 2011 Best Oral Presentation, EECS Post Graduate Conference, Queen Mary University of London
- 2010 Best Poster, British Machine Vision Conference
- 2009–2012 EPSRC Scholarship
- 2007 The Sandford Fleming Foundation Teaching Assistantship Award, University of Waterloo
- 2006–2007 NSERC Alexander Graham Bell Canada Graduate Scholarship - Masters (CGS-M)
- 2006–2007 President's Graduate Scholarship, University of Waterloo
- 2005 Finalist for best student paper, IEEE International Conference on Mechatronics and Automation