

# Curriculum Vitae for Christopher Thomas

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## Degrees:

- PhD, Computer Science and Engineering, York University, 2011
- MAsC, Computer Engineering, University of Toronto, 2003
- BASc, Computer Engineering, University of Toronto, 2000

## Research Interests:

- Swarm-based distributed sensing and computing.
- Image sensors.
- Signal and image processing.
- Self-reconfigurable modular robotics.
- High-performance microprocessors.

## Research Projects:

- Micrite (2006-2011) – Self-contained sensors under 100 microns in size organized into an ad-hoc sensing network.
- Very Small Array (2005-2011) – Standalone image/spectral sensors with on-die diffractive array optics.
- Object Location System (2003-2004) – Mixed mode CMOS image sensors that find spot centroids at very high frame rates.
- JETTY Cache Snoop Filter (2001-2003) – Device that hashes cache tag information, servicing cache snoop requests known to miss without performing a full tag lookup.

## Conference Publications:

- “Mitigating Polarization Effects in On-Die Diffractive Optics for a CMOS Image Sensor”, Christopher Thomas, Richard I. Hornsey, IS&T/SPIE 20th Annual Symposium on Electronic Imaging Science and Technology, 2008
- “A diffractive multispectral image sensor with on- and off-die signal processing and on-die optics in 0.18 micron CMOS”, Christopher Thomas, Richard I. Hornsey, IS&T/SPIE 19th Annual Symposium on Electronic Imaging Science and Technology, 2007
- “An image sensor with on-die diffractive optics in 0.18-micron bulk CMOS”, Christopher Thomas, Richard I. Hornsey, IS&T/SPIE 18th Annual Symposium on Electronic Imaging Science and Technology, 2006
- “CMOS Imager Design for Fast Centroid Readout”, Christopher Thomas, Mayes Mullins, Paul J. Thomas, Richard Hornsey, Kevin Yip, IEEE Canadian Conference on Electrical and Computer Engineering, 2004
- “Pixel-parallel CMOS active pixel sensor for fast object location”, Ryan Burns, Christopher Thomas, Paul Thomas, Richard Hornsey, SPIE International Symposium on Optical Science and Technology, Aug. 2003

## Theses:

- “Micrite: A Sub-100-Micron Distributed Sensor System”, Christopher Thomas, PhD Thesis, York University, 2011
- “Application of Enhanced JETTY Snoop Filters to Reducing Bus Traffic and Snoop Power in SMP and CMP Systems”, Christopher Thomas, MAsC Thesis, University of Toronto, 2003

## Relevant work history:

- September 2011-present:  
Adjunct member of the Vision Sensor Laboratory at York University  
Supervisor: Prof. Richard Hornsey (hornsey@cse.yorku.ca)  
Tasks:
  - Mixed-signal integrated circuit R&D.
  - Image sensor chip R&D.
  - Lab representative at selected academic conferences.
- September 2004-August 2011:  
Research assistant with the Vision Sensor Laboratory at York University, as part of degree work.  
Supervisor: Prof. Richard Hornsey (hornsey@cse.yorku.ca)  
Tasks:
  - Image sensor chip R&D.
  - Distributed sensor mote R&D.
  - Lab representative at selected academic conferences.
  - Development of test equipment to support VISOR Lab projects.
  - Documentation of lab-made test equipment and experimental devices.
- September 2004-April 2010:  
Teaching assistant with the Computer Science and Engineering department at York University.  
Supervisors: Various. Most recent: Prof. John Hofbauer (hofbauer@cse.yorku.ca)  
Tasks:
  - Supervising laboratories and addressing student questions regarding material.
  - Marking assignments and tests.
- May 2003-August 2004:  
Research staff with the Vision Sensor Laboratory at York University  
Supervisor: Prof. Richard Hornsey (hornsey@cs.yorku.ca)  
Tasks:
  - Image sensor chip R&D.
  - Documentation and characterization of existing custom image sensor chips.
- September 2001-August 2003:  
Research assistant with the Electrical Engineering Computer Group at University of Toronto, as part of degree work.  
Supervisor: Prof. Andreas Moshovos (moshovos@eecg.toronto.edu)  
Tasks:
  - Research into novel variants of traffic-filtering hardware for microprocessor caches.
  - Development of simulation tools to perform memory subsystem simulations of multiprocessor systems.
- September 2001-April 2002:  
Teaching assistant with the Computer Engineering department at the University of Toronto.  
Supervisors: Prof. Andreas Veneris (veneris@eecg.toronto.edu), Prof. Tarek Abdelrahman (tsa@eecg.toronto.edu)  
Tasks:
  - Running tutorial sessions to address student questions regarding material.
  - Supervising laboratories and addressing student questions regarding material.
  - Assisting with formulation and marking of assignments and tests.
  - Assisting with supervision of course newsgroups.