

## Jeroen Chua

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### CONTACT INFORMATION

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Brown University  
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### RESEARCH INTERESTS

**Machine Learning:** Bayesian models, grammar models, hierarchical models, variational inference  
**Vision:** Object detection/localization, object tracking, image denoising, medical image analysis

### EDUCATION

- Brown University**, Providence, RI 2012 – Present  
*PhD Candidate in Computer Science (expected completion date: June 2017)*
- Thesis topic: A Unified Approach For Vision Tasks Using Probabilistic Grammars and Belief Propagation
  - Thesis advisor: Professor Pedro Felzenszwalb
- University of Toronto**, Toronto, ON 2010 – 2012  
*MASc in Electrical and Computer Engineering*
- Thesis: Factorizing shape and colour with patch-based shapelet models
  - Thesis advisor: Professor Brendan Frey
- University of Toronto**, Toronto, ON 2005-2010  
*BASc in Engineering Science- major in Computer Engineering (honours)*
- Thesis title: Object recognition with movable patches and HOG descriptors
  - Thesis advisor: Professor Brendan Frey

### RESEARCH EXPERIENCE

- Brown University**, PhD Candidate 2012 – Present  
Working on approximate inference and learning methods for probabilistic grammars with Prof. Pedro Felzenszwalb. Applications in image denoising, object detection/localization, object tracking, and medical image analysis.
- Microsoft Research**, Research Intern Summer 2014  
Worked on Counting Grid models, with applications in document visualization and retrieval, and scene classification. Worked with Dr. Nebojsa Jojic.
- University of Toronto**, MASc. Student 2010 – 2012  
Worked on generative patch-based computer vision models for object recognition, scene understanding, and image segmentation with Prof. Brendan Frey
- University of Toronto**, Research Assistant 2009 – 2010  
Worked on patch-based models in computer vision with Prof. Brendan Frey
- University of Toronto**, Research Assistant Summer 2008  
Enhanced a Linux-based academic computer security system with Prof. Ashvin Goel
- University of Toronto**, Research Assistant Summer 2006  
Discovered recipes to cheaply synthesize nanoparticles with useful optical properties with Prof. M. Cynthia Goh.

INDUSTRY EXPERIENCE	<b>Google Inc.</b> , Software Developer Engineer Intern Worked on the Google Earth Engine team to build an online framework to allow efficient computation of forest coverage from satellite images.	Summer 2010
	<b>Altera Corporation</b> , Software Developer Engineer Intern Developed software test infrastructure. Wrote and edited FPGA teaching material to be used in universities.	2008 – 2009
	<b>Artificial Perceptions Laboratory</b> , Team Lead Led and coordinated the efforts of a team of four to develop a searchable database of pictures of Paris, France.	Summer 2007
CONFERENCE PAPERS	<b>Jeroen C. Chua</b> , Pedro F. Felzenszwalb. Scene Grammars, Factor Graphs, and Belief Propagation. <i>Submitted for publication.</i>	
	<b>Jeroen C. Chua</b> , Inmar E. Givoni, Ryan P. Adams, Brendan J. Frey. Learning Structural Element Patch Models With Hierarchical Palettes. <i>IEEE Conference on Computer Vision and Pattern Recognition, June 2012.</i>	
NON-REFEREED WORK	<b>Jeroen C. Chua</b> , Pedro F. Felzenszwalb. Scene Grammars, Factor Graphs, and Belief Propagation. <a href="https://arxiv.org/abs/1606.01307">https://arxiv.org/abs/1606.01307</a>	
WORKSHOP ABSTRACTS	<b>Jeroen C. Chua</b> , Brendan J. Frey. Sparse coding with stel dictionaries. <i>Snowbird Learning Workshop, December 2012.</i> Oral presentation.	
BOOK CHAPTERS	<b>Jeroen C. Chua</b> , Inmar E. Givoni, Ryan P. Adams, Brendan J. Frey. Bayesian Painting by Numbers: Flexible Priors for Colour-Invariant Object Recognition. <i>Computer Vision and Machine Learning for Image and Video Analysis. Eds. R. Cipolla, S. Battiato, G.M. Farinella - Studies in Computational Intelligence Springer-Verlag press, 2012.</i>	
SERVICE	<b>Reviewer</b> Neural Information Processing Systems(NIPS)	2013-2016
	IEEE Conference on Computer Vision and Pattern Recognition(CVPR)	2011,2012,2015
	IEEE International Conference on Computer Vision (ICCV)	2011
TEACHING	<b>Teaching Assistant</b> Brown University ENG 2912P – Topics in Optimization	Winter 2016
	<b>Teaching Assistant</b> Brown University CS242 – Probabilistic Graphical Models	Fall 2014
	<b>Teaching Assistant</b> University of Toronto ECE244 – Programming Fundamentals	Winter 2010
HONORS AND AWARDS	NSERC Canada Graduate Scholarship, – Master’s, \$17,500	2010 - 2011
	Ontario Graduate Scholarship, \$15,000	2010 - 2011
	NSERC Undergraduate Student Research Award	2008
COMPUTER SKILLS	MATLAB, C/C++, Java, Python Linux, Windows, L <sup>A</sup> T <sub>E</sub> X	