

# Oscar Beijbom

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EDUCATION	<b>University of California, San Diego</b> Ph.D. in Computer Science, expected graduation date: June 2015 M.S. in Computer Science, June 2012. GPA 3.67  <b>Lund University</b> B.S. & M.S. in Engineering Physics, March 2007. GPA 4.9 (3-5 scale)	
ACADEMIC EXPERIENCE	<b>Department of Computer Science, UCSD</b> San Diego, USA. <i>"Annotating the Worlds Oceans: Computer Vision Methods for Scientific Data Analysis"</i> Advisor: Professor David Kriegman	<i>Graduate Student Researcher</i> September 2009 - <ul style="list-style-type: none"><li>• Texture based recognition &amp; segmentation in organic images.</li><li>• Cost sensitive learning for Support Vector Machines and Boosting.</li><li>• Underwater color correction methods for computer vision.</li><li>• CoralNet: A web tool for automated underwater image annotation<ul style="list-style-type: none"><li>– Manual and automated annotation of user uploaded images</li><li>– Used by researchers, agencies and private parties globally</li><li>– Provides a ever-growing web-scale dataset for texture based image analysis.</li></ul></li></ul>
	<b>Department of Mathematics, Lund University</b> Lund, Sweden <i>"Single Image Focus Level Assessment Using Support Vector Machines"</i> Advisor: Professor Karl Åström. My thesis work was done in collaboration with a company in Lund, Sweden: Cellavision AB. Cellavision manufactures equipment for automatic analysis of blood smears. [ <a href="http://www.cellavision.com">www.cellavision.com</a> ]	<i>M.S. Thesis Scholar</i> September 2006 - March 2007 <ul style="list-style-type: none"><li>• Developed novel method for autofocus that utilize a multi-class machine learning methodology and low-level image features, including color and texture. The method is protected with an international patent, and it's implemented in the Cellavision products. The Master's thesis report received several awards.</li><li>• Worked with Cellavision engineers to collect training and test data.</li></ul>
	<b>Department of Mathematics</b> Lund, Sweden SME-robot is a large, international EU financed project. [ <a href="http://www.smerobot.org">www.smerobot.org</a> ]	<i>Research Assistant</i> March 2007 - June 2007 <ul style="list-style-type: none"><li>• Worked on robot camera calibration using structure from motion.</li></ul>
PROFESSIONAL EXPERIENCE	<b>Microsoft Research</b> Seattle, WA Microsoft Research is Microsofts research department, and one of the largest computer science research institutes in the world. I was a summer intern in the Computational User Experience group where I worked with Neel Joshi and Dan Morris on estimating nutritional information from images of food.	<i>Research Intern</i> July 2013 - September 2013 <ul style="list-style-type: none"><li>• Project scoping, definition, and investigation of related work.</li><li>• Managed data collection from several food vendors</li><li>• Developed novel algorithms for robust nutritional estimation from food images.</li></ul>

**Hövding AB**

Malmö, Sweden

*Head of Research*

June 2007 - September 2009

I was the first employee at Hövding, the company behind the “invisible” bicycle helmet with the same name. The helmet is a collar that is worn around the neck. It contains a folded up airbag that inflates and protects the user in the event of an accident. Hövding received the 2011 Index Award. [www.hovding.com]

- Responsible for hardware and software development for the accident detection system.
- Developed a real time algorithm, based on machine learning, that takes data from motion sensors as input, and determines if a rider is in an accident. International patent is pending.
- Managed large-scale data collection with stunt actors and students.
- Worked with subcontractors to develop and identify electronic components
- Hired, and managed a team of engineers.

**McKinsey & Company**

Stockholm, Sweden

*Junior Consultant*

June 2005 - September 2005

McKinsey is a management consulting firm, advising corporations, banks, and holding companies on strategic and tactical issues. [www.mckinsey.com]

- Worked in a small team to quickly collect and analyze data for tasks such as mergers & acquisitions, procurement, and marketing.

TEACHING  
EXPERIENCE**Department of Computer Science, UCSD**

San Diego, USA

*Teaching Assistant*

2013 -

- *Introduction to Computer Vision*. Led sections, gave occasional lectures, prepared and graded homework assignments.

**Lund University**

Lund, Sweden

*Graduate student instructor*

2001 - 2004

- *Linear Algebra*. Prepared and led sections.
- *Calculus*. Prepared and led sections.
- *Static and Dynamic mechanical systems*. Prepared and led sections.
- *Programming in Java*. Prepared and led sections and labs.

PUBLICATIONS &  
PATENTS

O. Beijbom, M. Saberian, N. Vasconcelos, D. Kriegman. *"Guess Averse Loss Functions For Cost-Sensitive Multiclass Boosting"*. International Conference on Machine Learning (ICML), Beijing, 2014. (In submission).

T. Treibitz, B.P.Neal, D.I.Kline, O. Beijbom, P.L.D. Roberts, B.G. Mitchell *"Wide Field-of-View Daytime Fluorescence Imaging of Coral Reefs"*. Journal of the Marine Technology Society, 2013.

S. Branson, O. Beijbom, S. Belongie. *"Efficient Large-Scale Structured Learning"*. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Portland, Oregon, 2013.

O. Beijbom, P.J. Edmunds, D.I. Kline, G.B. Mitchell, D. Kriegman. *"Automated Annotation of Coral Reef Survey Images"*. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), Providence, Rhode Island, 2012.

O. Beijbom. *"Domain Adaptations for Computer Vision Applications"*. Research exam: University of California San Diego, arXiv:1211.4860, April 2012.

	<p>O. Beijbom. <i>"A method, device, and computer program product for event detection while preventing misclassifications"</i> (W83960002). International filing date: 20.07.2009.</p> <p>S. Hedlund, O. Beijbom, M. Almers. <i>"A method for determining an in-focus position and a vision inspection system"</i> (PCT/EP20008/051993). International filing date: 19.02.2008.</p> <p>O. Beijbom. <i>"Single Image Focus Level Assessment Using Support Vector Machines"</i>. Master's Thesis Report, Lund University, 2007.</p>
IN PREPARATION	<p>O. Beijbom, P. J. Edmunds, T-Y Fan, J. Smith, C. Roelfsema, M. Dunlap, V. Moriarty, B. Neal, S. Chan, T. Treibitz, D. I. Kline, B. G. Mitchell, D. Kriegman, <i>"Towards Automatic Annotation of Scientific Image Data: A Study On Coral Reef Ecology"</i>, Science, 2014</p> <p>O. Beijbom, T. Treibitz, B. Neal, D. Kline, B.G. Mitchell, D. Krigeman. <i>Automatic Underwater Image Analysis using Fluorescence Information</i>, Marine Ecology Progress Series, 2014</p>
CONFERENCE TALKS	<p>O. Beijbom, T. Treibitz, B. P. Neal, D. Kriegman, S. Belongie, P.J.Edmunds, D.I.Kline, B.G.Mitchell, <i>"Automated Coral Reef Image Annotation Using Computer Vision"</i>, International Coral Reef Symposium, 2012.</p> <p>O. Beijbom, T. Treibitz, B. P. Neal, D. Kriegman, S. Belongie, P. J. Edmunds, D. I. Kline, B. G. Mitchell, <i>"Automated Coral Reef Analysis Using Computer Vision"</i>, American Society of Limnology and Oceanography Aquatic Sciences Meeting, 2011.</p>
SERVICES	<p><b>Reviewer for the following journals and conferences</b>  Neural Information Processing Systems (NIPS), Computer Vision and Image Understanding (CVIU), International Conference on Computer Vision (ICCV)</p> <p><b>Östgöta Nation Student Choir</b> <span style="float:right"><i>Chairman</i></span>  Lund, Sweden <span style="float:right">2004 - 2005</span>  The Östgöta Nation Student Choir is a choir at Lund University with <math>\sim 50</math> singers.</p> <ul style="list-style-type: none"> <li>• Hired a new conductor.</li> <li>• Organized concerts and events.</li> <li>• Planned the repertoire.</li> </ul> <p><b>Tekonomorden</b> <span style="float:right"><i>Founder</i></span>  Lund, Sweden <span style="float:right">2002 - 2005</span>  Tekonomorden brings economics and engineering students together by arranging exclusive dinners for invited members every semester.</p> <ul style="list-style-type: none"> <li>• Cofounders, and event manager.</li> </ul>
SKILLS	<p><b>Languages:</b> Native Swedish, fluent English, good Spanish and German  <b>Programming Languages:</b> C, C++, Java, Python, MATLAB, Prolog, OCaml  <b>Other computer skills:</b> Vim (editing), Django(web development)</p>