

BIOGRAPHICAL SKETCH			
NAME Dr. Andrew Brett Noske		POSITION TITLE Postdoctoral Researcher	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
James Cook University Cairns, Australia	B.I.T (Honours)	2001-2004	Information Technology Computational Biology
Institute for Molecular Bioscience, University of Queensland Brisbane, Australia	Ph.D.	2005-2009	Structural Cell Biology Computational Biology
NCMIR, University of California San Diego San Diego, USA	Postdoctoral training	2010-current	Neurobiology

RESEARCH ACADEMIC POSITIONS

- 1999** Field research assistant, Dames & Moore, Cairns, Australia. Project: Mammal trapping, bird netting, fish collecting and sorting aquatic macroinvertebrates using microscope
- 2004** Honours student, Dept. of Information Technology, James Cook University, Cairns, Australia. Project: Efficient algorithms for molecular dynamics simulations
- 2005-2009** Ph.D., Division of Molecular Cell Biology, Institute for Molecular Bioscience, University of Queensland, Brisbane, Australia. Project: Multi-scale, spatio-temporal analysis of mammalian cell tomograms

AWARDS

- 2004** University Medal (James Cook University, Cairns, Australia)
- 2004** Australian Postgraduate Award (APA) PhD scholarship (University of Queensland, Brisbane, Australia)
- 2008** *Biochemical Journal* Young Investigator Award (for best presentation by a junior investigator at the Queenstown Molecular Biology meeting)

INVITED TALKS (*COMPETITIVELY-SELECTED)

- 2007** Winter School in Mathematical & Computational Biology, ARC Centre in Bioinformatics & University of Queensland, Brisbane, Australia
- 2007** Boulder Laboratory for 3D Electron Microscopy of Cells, Dept. of Molecular, Cellular & Developmental Biology, University of Colorado, Boulder, CO, USA
- 2008** 'Systems Biology' symposium, Queenstown Molecular Biology meeting, Queenstown, New Zealand
- 2008** 'Mitochondrial Imaging and Dynamics' symposium, *AussieMit* workshop, Monash University, Melbourne, Australia
- 2009** 'Pre- and post-processing methods for segmentation, denoising and feature detection of ET datasets' session, Asia-Pacific Congress on Electron Tomography, University of Queensland, Brisbane, Australia*

POSTERS

- 2007** **AB Noske**, GP Morgan and BJ Marsh. Methods for more accurate/efficient 3D reconstruction of mammalian cells by electron tomography (ET). American Society for Cell Biology (ASCB) annual meeting, Washington, DC, USA
- 2009** BJ Marsh, **AB Noske**, GP Morgan, O Cairncross, MA Ragan, G Johnson. Structure-function complexity of the insulin secretory pathway revealed from comparative whole cell maps of insulin-secreting beta cells

reconstructed in 3D at 10-15nm resolution using cellular electron tomography. American Society for Cell Biology (ASCB) annual meeting, San Diego, CA, USA

2009 G Johnson, **AB Noske**, M Al-Alusi, GP Morgan, BJ Marsh, D Goodsell, A Olson. Automated visualization of subcellular environments: electron tomography in the proteomics era. American Society for Cell Biology (ASCB) annual meeting, San Diego, CA, USA

WORKSHOPS/POSTGRADUATE COURSES

2007 'BioBusiness & Commercialization' workshop, IMBcom Pty Ltd, Brisbane, Australia

2007 'Writing Skills' course, University of Queensland, Brisbane, Australia

2007 'Including Publications into a Thesis' course, University of Queensland, Brisbane, Australia

2007 'Visualization' workshop, Amira Visage Imaging, Sydney, Australia

2008 'Statistics for Biology' course, University of Queensland, Brisbane, Australia

PUBLICATIONS

2007 **AB Noske**, AJ Costin, GP Morgan and BJ Marsh. Expedited approaches to whole cell electron tomography and organelle mark-up in situ in high-pressure frozen pancreatic islets. *J Struct Biol.* 161:298-313

2009 T McComb, O Cairncross, **AB Noske**, DL Wood, BJ Marsh and MA Ragan. Illoura™ a software tool for analysis, visualization and semantic querying of cellular and other spatial biological data. *Bioinformatics.* 25:1208-1210

2011 **AB Noske**, BJ Marsh. Mapping the beta cell in 3D at the nanoscale using novel cellular electron tomography and computational approaches. *BetaSys - Systems biology of regulated exocytosis in pancreatic beta cells.* Springer-Verlag. Chapter 9.

PRESS HIGHLIGHTS

2008 *Faculty of 1000 Biology* evaluation by Terence Frey: <http://www.f1000biology.com/article/id/1100294>

PUBLICATIONS PENDING

AB Noske, J Galea, AJ Costin, GP Morgan, MA Ragan and BJ Marsh. Efficient segmentation of cellular tomograms using novel interpolation techniques. *J Struct Biol.*

AB Noske, GP Morgan, MA Ragan and BJ Marsh. New computational approaches to improve the isotropy and resolution of 3D cellular reconstructions by mathematical analysis of spherical compartments. *J Struct Biol.*

AB Noske, GP Morgan, O Cairncross, MA Ragan and BJ Marsh. Quantitative 3D spatial analysis of compartments involved in insulin biosynthesis and secretion using a comparative whole cell mapping approach by cellular tomography. *Proc Natl Acad Sci USA*

Within the Mark Ellisman lab at the The National Center for Microscopy and Imaging Research (NCMIR) my primary roles is working on hybrid and collaborative segmentation techniques to segment large data sets. As part of this project I am designing a crowd-sourcing application called "CellSculpt" which will integrate with the Cell Centered Database (CCDB) and allow users to segment our large data-sets within their browser from any computer with an internet connection. This "citizen science" project will allow "players" to concurrently segment the same tomograms and will include a set of tools for the quick manual correction of automatically segmented contour - faster than could be achieved by normal manual segmentation. As a postdoctoral employee who spent the majority of his PhD designing segmentation tools, working on large data-sets and reconstructing whole cells using electron tomography, I feel well positioned for this role. In addition to working on this citizen science project, I have also been running tutorials on the popular IMOD tomography suite, and designing plugins which integrating the Neuroscience Information Framework (NIF) and NeuroLex into this program as a plugin, and preparing to start my own biological driver project which involves the reconstruction and crowd-sourced segmentation of whole Ganglion retinal cells using the 3View SBF SEM system.