

# ZHAOLIN CHEN

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(February 2009)

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## EDUCATION

Feb 2004 – May 2008

Doctor of Philosophy, Monash University, Australia

*Thesis title: Image Reconstruction in Accelerated Magnetic Resonance Imaging – A Systems Approach*

(The Douglas Lampard Research Prize and Medal)

Sep 1998 – Jul 2002

Bachelor of Engineering, Harbin Institute of Technology, China

*Thesis title: Temperature collecting system for a small barn*

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## APPOINTMENTS AND AFFILIATIONS

Feb 2008 –

Postdoctoral Research Fellow, Neuroimaging division, Florey Neuroscience Institutes, Australia

Sep 2008 –

Honorary Research Fellow, Department of Electrical and Electronic Engineering, University of Melbourne, Australia

Dec 2007 – Dec 2009

Adjunct Research Associate, Department of Electrical and Computer Systems Engineering, Monash University, Australia

Nov 2008 – Apr 2009

Visiting Scientist, Neuroscience Research Institute, South Korea

Mar 2004 – Dec 2007

Teaching assistant and tutor, Monash University, Australia

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## RESEARCH INTERESTS

- Magnetic resonance image reconstruction, signal analysis and parameter mapping
  - Magnetic resonance imaging pulse sequence programming
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- Neurodegenerative disease studies using MRI
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**AWARDS AND HONORS**

May 2008

Douglas Lampard Research Prize and Medal, Monash University

*Selection Criteria: Best PhD thesis for the year of 2007 at the Department of Electrical and Computer System Engineering of Monash University.*

Mar 2007 – Jul 2007

Doctoral Completion Scholarship, Monash University

Feb 2004 – Jul 2007

Monash Departmental International Postgraduate Research Scholarship, Monash University

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**GRANTS AND FELLOWSHIPS**

Aug 2009

Travel and Conference Grant, Ian Potter Foundation

Jul 2008 – Jul 2009

Fellowship of Melbourne Strategic Research Initiatives Fund (SRIF), University of Melbourne

*Project title: The development of Magnetic Resonance Microscopy in brain degeneration.*

Sep 2005

Postgraduate Travel Grant, Monash Research Graduate School, Monash University

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**PROFESSIONAL TRAINING**

Nov 2008

Certificate of Siemens IDEA pulse sequence programming, Siemens Med Training Center, USA

Nov 2008

Certificate of Siemens ICE image calculation, Siemens Med Training Center, USA

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**PROFESSIONAL ACTIVITIES AND MEMBERSHIPS**

- Co-chair of the Biomedical Instrumentation, Signal processing and Imaging session, the 7th IEEE International Conference on Control and Automation (ICCA'09)
  - Reviewer of Computerized Medical Imaging and Graphics (2009, 2010)
  - Member of Institute of Electrical and Electronics Engineers (IEEE) (2007-)
  - Member of International Society of Magnetic Resonance in Medicine (ISMRM) (2010-)
  - Professional Engineer (Engineers Australia) (2007-)
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**INVITED PLATFORM PRESENTATIONS**

- The Seventh IEEE International Conference on Control and Automation (ICCA'09)  
*Title: 2D IIR filter for parallel Magnetic Resonance image reconstruction*
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- Neuroscience Research Institute, South Korea, 2008, 2009  
*Title: MR phase imaging*
  - The 2007 IEEE International Conference on Image Processing (ICIP'07)  
*Title: FB analysis of pMRI and its application to  $H^\infty$  optimal SENSE reconstruction*
  - The 2005 IEEE Engineering in Medicine and Biology 27th Annual Conference (EMBC'05)  
*Title: Adaptive k-space updating methods for dynamic MRI sequence estimation*
  - Neuroimaging Group (Division) seminar series, FNI
  - CTIE seminar series, Monash University
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**COMPUTER  
SKILLS**

- Programming languages: Matlab, C-Mex, C/C++
  - Professional packages: FSL, MRicro, ImageJ, OsiriX, Freesurf
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**OTHER  
QUALIFICATION**

Mar 2004  
Certificate of First Aid (Basic level), Monash University, Australia

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**PATENTS**

1. Jingxin Zhang and **Zhaolin Chen**. Method of Parallel Magnetic Resonance Image Processing, International Patent (no. WO/2008/151380), Publication date: 18.12.2008. <http://www.wipo.int/pctdb/en/wo.jsp?WO=2008151380>
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**PUBLICATIONS***Journals:*

1. **Zhaolin Chen**, Leigh Johnston, and Gary Egan. Novel MRI contrasts using complex MR images: with an application to visualise cortical structure. *Magnetic Resonance in Medicine*, January 2010. (Under review)
2. Amanda Ng, Leigh Johnston, Jingxin Zhang, **Zhaolin Chen**, Nathan Faggian, Zang-Hee Cho, Gary Egan. Optimised Contrast Images: Enhanced Image Contrast from MRI Magnitude and Phase Data, *IEEE Transaction on Medical Imaging*, January 2010. (Under review)
3. **Zhaolin Chen**, Leigh A Johnston, Dae Hynk Kwon, Se Hong Oh, Zang-Hee Cho, and Gary F Egan. An optimised framework for reconstructing and processing MR phase images, *NeuroImage*, Vol. 49, pp. 1289-1300, 2010. (*IF* = 5.694 @2008)
4. **Zhaolin Chen**, Jingxin Zhang, Ran Yang, Peter Kellman, Leigh A Johnston, and Gary F Egan. IIR GRAPPA for Parallel MR Image Reconstruction, *Magnetic Resonance in Medicine*, Epub ahead of print, October 2009. (*IF* = 3.449 @2008)
5. **Zhaolin Chen**, Jingxin Zhang, and Khee K. Pang. Adaptive keyhole methods for dynamic magnetic resonance image reconstruction, *Computerized Medical Imaging and Graphics*, Vol. 31, pp. 458-468, 2007. (*IF* = 1.192 @2008)

*Full paper proceedings:*

1. **Zhaolin Chen**, Jingxin Zhang, Ran Yang, Peter Kellman, Leigh A Johnston and Gary F Egan. 2D IIR filter for parallel Magnetic Resonance image reconstruction, *the Seventh IEEE International Conference on Control and Automation (ICCA'09)*, pp. 1792-1795, Christchurch, New Zealand, December 9-11, 2009.
  2. **Zhaolin Chen**, Leigh A Johnston, Nathan Faggian, Mike Kean, Jingxin Zhang and Gary F Egan. A Multistage Parallel Magnetic Resonance Image Reconstruction Method, *Digital Image Computing: Techniques and Applications (DICTA 2008)*, pp. 327-334, Canberra, Australia, December 1-3, 2008.
  3. Nathan Faggian, **Zhaolin Chen**, Leigh A Johnston, Oh Se-Hong, Zang-Hee Cho and Gary F Egan, A method for Shape Analysis and Segmentation in MRI, *Digital Image Computing: Techniques and Applications (DICTA 2008)*, pp. 335-342, Canberra, Australia, December 1-3, 2008.
  4. **Zhaolin Chen**, Jingxin Zhang and Li Chai. Weighted  $H_{\infty}$  optimization approach to parallel MR image reconstruction, *the 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'07)*, pp. 2061-2064, Lyon, France, August 23-26, 2007.
  5. **Zhaolin Chen**, Jingxin Zhang and Li Chai. A Noncausal IIR FB approach to PMR image reconstruction, *the 4th IEEE-EMBS International Summer School and Symposium on Medical Devices and Biosensors (ISSS-MDBS'07)*, pp. 124-127, St Catharine's College, Cambridge, UK August 19-22, 2007.
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6. Ke Liu, **Zhaolin Chen**, Jingxin Zhang. Time Varying Filter Bank Approach to Parallel k-t MRI, *the 4th IEEE-EMBS International Summer School and Symposium on Medical Devices and Biosensors (ISSS-MDBS'07)*, pp. 143-146, St Catharine's College, Cambridge, UK August 19-22, 2007.
  7. **Zhaolin Chen**, Jingxin Zhang, Shengpeng Li, and Li Chai. FB analysis of pMRI and its application to  $H_\infty$  optimal SENSE reconstruction, *the 2007 IEEE International Conference on Image Processing (ICIP'07)*, San Antonio, Texas, USA, September 16-19, 2007.
  8. **Zhaolin Chen**, Jingxin Zhang, and Li Chai. Parallel MR Image Reconstruction using IIR FB, *the 2007 IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI'07)*, pp. 129-132, Metro Washington, D.C., USA, April 12-15, 2007.
  9. **Zhaolin Chen**, Jingxin Zhang, and Khee K. Pang. Adaptive k-space updating methods for dynamic MRI sequence estimation, *the 2005 IEEE Engineering in Medicine and Biology 27th Annual Conference (EMBC'05)*, pp. 7401-7404, Shanghai, China, September 1-4, 2005.
  10. **Zhaolin Chen**, Jingxin Zhang, and Khee K. Pang. Adaptive keyhole SVD method for dynamic MRI reconstruction, *the Eighth International Symposium on Signal Processing and Its Application (ISSPA'05)*, pp. 211-214, Sydney, Australia, August 28-31, 2005.

*Conference Abstracts:*

1. **Zhaolin Chen**, Leigh A. Johnston, Gary F. Egan. Maximal contrasts using MR complex data: with an application to visualise cortical structure. *ISMRM 18th scientific meeting and exhibition*, Stockholm, Sweden, 2010 (accepted)
  2. Nathan Faggian, Nellie Georgiou-Karistianis, **Zhaolin Chen**, India Bohanna, Sara Pia Carron, Leigh Johnston, Julie Stout, Andrew Churchyard, Gary F. Egan. Increased iron related MR phase signals in the striatum in Huntington's disease: a novel MR neurodegenerative biomarker, *ANS/AuPS 2010*, Sydney, Australia, Jan 31 – Feb 3, 2010.
  3. Kelvin J. Layton, M. Morelande, **Zhaolin Chen**, Bill Moran, Peter M. Farrell, Gary F. Egan, Leigh A. Johnston. *Coil sensitivity estimation in polar coordinates*, *the third international workshop on parallel MRI*, Santa Cruz, CA, USA, October 23-26, 2009.
  4. Nathan Faggian, Nellie Georgiou-Karistianis, **Zhaolin Chen**, India Bohanna, Sara Pia Carron, Leigh Johnston, Julie Stout, Andrew Churchyard, Gary F. Egan. Increased iron related MR phase signals in the striatum in Huntington's disease: a novel MR neurodegenerative biomarker, *World Congress of Huntington's Disease 2009*, Vancouver, Canada, September 12-15, 2009. **(Selected for platform presentation)**
  5. **Zhaolin Chen**, Leigh A. Johnston, Zang-Hee Cho, and Gary F. Egan. Phase optimized sensitivity estimation method for SENSE, *ISMRM 17th scientific meeting and exhibition*, pp. 2850, Hawaii, USA, April 18-24, 2009.
  6. Amanda Ng, Nathan Faggian, **Zhaolin Chen**, Jingxin Zhang, Gary F. Egan, and Leigh A. Johnston. The Optimised Projection Image method for targeted tissue contrast enhancement, *ISMRM 17th scientific meeting and exhibition*, pp. 2868,
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Hawaii, USA, April 18-24, 2009.

7. **Zhaolin Chen**, Nathan Faggian, Leigh A. Johnston, Mike Kean, Zang-Hee Cho, and Gary F. Egan. High resolution magnitude and phase images of human brains in 3T and 7T MRI, *3rd Australian Workshop on Mathematical and Computational Neuroscience*, pp. 32, Melbourne, Australia, November 20-22, 2008.
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