CHAIWOOT BOONYASIRIWAT

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RESEARCH INTERESTS

Geophysical inverse problems, scientific computing and visualization

EDUCATION

2004 – 2009 University of Utah
Ph.D. Scientific Computing

2005 – 2009 University of Utah
M.S. Geophysics

2002 – 2004 University of Utah
M.S. Computational Engineering and Science

1998 – 2002 Mahidol University
B.S. Physics

WORK EXPERIENCE

Postdoctoral Research Fellow, September 2009 – February 2011
Center for Seismic Imaging and Fluid Modeling (CSIM)
Division of Physical Science and Engineering
King Abdullah University of Science and Technology

Research Assistant, 2005-2009
Utah Tomography and Modeling/Migration (UTAM) Consortium
Department of Geology and Geophysics, University of Utah
Research: seismic inversion and imaging, numerical modeling

Internship, Summer 2008
ConocoPhillips, Houston, Texas
Responsibility: velocity estimation of 2D land data from the Canadian Foothills using seismic waveform tomography

Internship, Summer 2007
ConocoPhillips, Houston, Texas
Responsibility: velocity estimation of 2D synthetic data using seismic waveform tomography

Internship, Fall 2006
INCO, Canada
Responsibility: software development for traveltime tomography

Internship, Summer 2006
Total E&P, Houston, Texas
Responsibility: 2D plane-wave migration in tilted coordinates

Research Assistant, 2002-2004
Computational Science and Engineering Online (CSEO) Project
Department of Chemistry, University of Utah
Research: scientific visualization and software development

PUBLICATIONS AND PRESENTATIONS

1. G. T. Schuster, W. Dai, G. Zhan, and **C. Boonyasiriwat**, 2011, Theory of multisource crosstalk reduction by phase-encoded statics: Geophysical Journal International (in press).
2. **C. Boonyasiriwat** and G. T. Schuster, 2010, 3D multisource full-waveform inversion using dynamic random phase encoding, Proceeding of Society of Exploration Geophysicists, Expanded Abstracts, 1044-1049.
3. W. Dai, G. T. Schuster, and **C. Boonyasiriwat**, 2010, 3D multi-source least-squares reverse time migration, Proceeding of Society of Exploration Geophysicists, Expanded Abstracts, 3120-3124.
4. **C. Boonyasiriwat**, G. Zhan, M. Hadwiger, M. Srinivasan, and G. T. Schuster, 2010, Multisource reverse-time migration and full-waveform inversion on a GPGPU, Proceeding of 72th European Association of Geoscientists and Engineers Conference & Exhibition, Barcelona, Spain, June 14-17.
5. **C. Boonyasiriwat** and G. T. Schuster, 2010, 3D multisource full-waveform inversion using dynamic quasi-Monte Carlo phase encoding, Proceeding of European Geosciences Union General Assembly, Vienna, Austria, May 3-7.
6. **C. Boonyasiriwat** and G. T. Schuster, 2010, Target-oriented full-waveform inversion, Proceeding of European Geosciences Union General Assembly, Vienna, Austria, May 3-7.
7. **C. Boonyasiriwat**, G. T. Schuster, P. Valasek, and W. Cao, 2010, Applications of waveform inversion to marine data: Geophysics **75**, no. 6, R129-R136.
8. **C. Boonyasiriwat**, K. Sikorski, and C. Tsay, 2010, Circumscribed ellipsoid algorithm for fixed points: Mathematics of Computation, S 0025-5718(2010)02443-3.
9. **C. Boonyasiriwat**, P. Valasek, P. Routh, B. Macy, W. Cao, and G. T. Schuster, 2009, A multiscale method for time-domain waveform tomography, Geophysics **74**, no. 6, WCC59-WCC68.
10. **C. Boonyasiriwat**, 2009, Fixed-point Computation and Seismic Waveform Tomography, Ph.D. Thesis, University of Utah.
11. **C. Boonyasiriwat**, 2009, Application of Waveform Inversion to Two-dimensional Gulf of Mexico Data, M.S. Thesis, University of Utah.
12. **C. Boonyasiriwat**, P. Valasek, P. Routh, and X. Zhu, 2009, Application of multiscale waveform tomography for high-resolution velocity estimation in complex geologic environments: Canadian Foothills synthetic data example, The Leading Edge **28**, 454.

13. **C. Boonyasiriwat**, P. Valasek, P. Routh, W. Cao, G. T. Schuster, and B. Macy, 2008, An application of time-domain multiscale waveform tomography to marine data, Proceeding of Society of Exploration Geophysicists, Expanded Abstracts **27**, 3704.
14. Cao, W., G. T. Schuster, G. Zhan, S. M. Hanafy, and **C. Boonyasiriwat**, 2008, Demonstration of super-resolution and super-stacking properties of time reversal mirrors in locating seismic sources, Proceeding of Society of Exploration Geophysicists, Expanded Abstracts **27**, 3018.
15. Cao, W., T. W. Fei, Y. Luo, M. N. Alfaraj, G. T. Schuster, and **C. Boonyasiriwat**, 2008, Estimation of hydro-fracture source location with time reversal mirrors, Proceeding of Society of Exploration Geophysicists, Expanded Abstracts **27**, 1421.
16. **C. Boonyasiriwat**, P. Valasek, P. Routh, W. Cao, G. T. Schuster, and B. Macy, 2008, Multiscale waveform tomography with an adaptive early-arrival muting window, Workshop on Full Waveform Inversion, 70th EAGE Conference & Exhibition, Rome, Italy.
17. **C. Boonyasiriwat**, K. Sikorski, and C. Xiong, 2007, A note on two fixed point problems: Journal of Complexity **23**, 952-961.
18. Truong, T. N., M. Nayak, H. H. Huynh, T. Cook, P. Mahajan, L. T. Tran, J. Bharath, S. Jain, H. B. Pham, **C. Boonyasiriwat**, N. Nguyen, E. Andersen, Y. Kim, S. Choe, J. Choi, T. E. Cheatham, III, and J. C. Facelli, 2006, Computational Science and Engineering Online (CSEOnline): A cyber-infra-structure for scientific computing, Journal of Chemical Information and Modeling **46**, 971-984.
19. J. B. Willis, **C. Boonyasiriwat**, and G. T. Schuster, 2004, Digital Log of the Mapleton, Utah Mega-trench: Optical Analysis of a Trench Wall Using Morphological Image Processing Operations, Geoscience in a Changing World, 2004 Annual Meeting & Exposition, Denver.
20. Truong, T. N., T. Cook, M. Nayak, **C. Boonyasiriwat**, L. T. Tran, and S. Zhang, 2004, Computational Science and Engineering On-line: an integrated web-based environment for multi-scale modelling of complex reaction systems, Molecular Physics **102**, 4, 353-360.
21. **C. Boonyasiriwat**, 2004, Fortran 77 Implementation of the Circumscribed Ellipsoid Algorithm, M.S. Thesis, University of Utah.
22. **C. Boonyasiriwat** and W. Siripunvaraporn 2002, One-dimensional Electromagnetic Modeling using Finite Difference and Finite Element Methods: The Magnetotelluric Method, London International Youth Science Forum (LIYSF), London.
23. **C. Boonyasiriwat** and W. Siripunvaraporn, 2002, Calculating the Magnetotelluric Sensitivity Matrix using Reciprocity, The 6th Annual National Symposium on Computational Science and Engineering, April 3-5, Thailand.
24. **C. Boonyasiriwat** and W. Siripunvaraporn, 2001, Algorithm for generating an adaptive grid for solving one-dimensional Maxwell's equations, 27th Congress on Science and Technology of Thailand, 17-08P-01, 366-367.
25. **C. Boonyasiriwat** and K. Jaroensutasinee, 1999, Simulation of wave motion by JAVA," 25th Congress on Science and Technology of Thailand, G-01, 1198-1199.
26. **C. Boonyasiriwat** and K. Jaroensutasinee, 1998, The Projectile Motion CAI using JAVA, 49th INTEL International Science and Engineering Fair (ISEF), Forth Worth, Texas.

GRANTS AND FELLOWSHIPS

- 2011-2012 Research grant from Thailand Research Fund (approved)
- Scholarship from the Development and Promotion of Science and Technology Talents Project (DPST) of Thailand, 1995-2008

- Research grant from the Junior Science Talent Project (JSTP) of Thailand, 2001
- Software development grants from the National Electronic and Computer Technology Center (NECTEC), Thailand, 1997-2001

AWARDS AND HONORS

- Outstanding Physics Student with the Highest GPA Award from Professor Taeb Nilanithi Foundation, Thailand, 2002
- Outstanding Science Student from the Mahidol University, Thailand, 2002
- Outstanding Physics Student with the Highest GPA Award from Faculty of Science, Mahidol University, Thailand, 2001
- Second place for education software in NECTEC Small Software Competition, Thailand, 1998
- First place for internet software in NECTEC Small Software Competition, Thailand, 1997