CURRICULUM VITAE

Jung-Ha An

(Work): Siemens Corporate Research
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Education

Doctoral Degree (Ph.D): Mathematics - 2005
University of Florida, Gainesville, Florida

Master of Science Degree (M.S): Mathematics - 1997
Chonbuk National University, Chonju, South Korea

Bachelor of Science Degree (B.S): Mathematics - 1995
Chonbuk National University, Chonju, South Korea

Employment History

Industrial Postdoctoral Associate: Institute for Mathematics and its Applications (IMA)
University of Minnesota, Minneapolis, Minnesota
September, 2005 - August, 2007
— Attending IMA Thematic Year Imaging Workshop at IMA (September, 2005 - August, 2006)
— Working at Industrial Partner, Siemens Corporate Research (September, 2006 - August, 2007)

Instructor/Teaching Assistant: Department of Mathematics
University of Florida, Gainesville, Florida
September, 1999 - August, 2005

Dissertation

Topic: Various Methods in Shape Analysis and Image Segmentation and Registration
Supervisor: Dr. Yunmei Chen - Professor, University of Florida

Research Interests

Partial Differential Equations, Calculus of Variations, Statistical Shape Analysis, Mathematical Modeling, Image Processing and Analysis, Pattern Recognition and Classification, Mathematical Biology, and Medical Imaging.

Research Experiences

2006 - Current: Computed Tomography (CT) Human Liver Image Segmentation Project
- Developing an efficient image segmentation algorithm using a modified Mumford-Shah model and Gaussian convolution with an application to CT human liver images (with Chenyang Xu and Mikael Rousson)

— Working in Collaboration with Siemens Research Corporate

2006 - Current: Nerve Ultrasound Image Segmentation Project and Developing New Discrete Distance Measurement for Generating Prior Shape
- Nerve ultrasound image segmentation using a modified Mumford-Shah algorithm and prior information (With Steven Damelin and Paul Bigeleisen)
- Obtaining the new discrete distance measurement for generating prior shape using a Green's theorem with an application to human heart cardiac borders (With Simon Morgan)

— Working in Collaboration with IMA, University of Minnesota

2004 - 2005: Developing a Region Based Simultaneous Segmentation and Registration Algorithm
- Obtaining a simultaneous segmentation and registration algorithm using a piecewise constant modified Mumford-Shah model with an application to simulated human brain images (With Yunmei Chen)

2003 - 2004: Developing an Edge Based Simultaneous Segmentation and Registration Algorithm and Generating Prior Shape
- Obtaining a simultaneous segmentation and registration algorithm using an edge detector function and prior shape and intensity information (With Yunmei Chen, Feng Huang, David Wilson, and Edward Geiser)
- Generating prior shape using various statistical methods (With Yunmei Chen)

2002 - 2003: Simultaneous Clustering and Classification of Human Heart Cardiac Borders
- Obtaining a simultaneous clustering and classification using a Self-Organizing map and a Procrustes distance measurement with an application to human heart cardiac borders (With Yunmei Chen, David Wilson, Myron Chang, and Edward Geiser)

Teaching Experiences

1999 - 2005: Lecturer and Teaching Assistant in Trigonometry (MAC1114), Precalculus (MAC1147), Survey of Calculus (MAC 2233), Analytic Geometry and Calculus I (MAC 2311), Analytic Geometry and Calculus II (MAC 2312), and Elementary Differential Equations (MAP 2302) Courses at the University of Florida
— Best Course Evaluation: Trigonometry - 4.11/5
Precalculus - 5/5
Survey of Calculus - 4.86/5
Analytic Geometry and Calculus I - 4.95/5
Analytic Geometry and Calculus II - 4.86/5
Elementary Differential Equations - 4.33/5

2001 - 2002: Upward Bound Program Instructor at the University of Florida
1999 - 2005: Over Thirty Privately Tutored American Students
1996 - 1999: Extensive Teaching Experience in South Korea

Responsible for all course duties including course policy, creating course web-page, writing lesson plans, conducting discussions and lectures, and assigning grades.

Publications

Jung-ha An and Yunmei Chen
”A Modified Piecewise Constant Mumford-Shah Model Based Simultaneous Image Segmentation and Registration”
Submitted

Jung-ha An and Yunmei Chen
”Region Based Image Segmentation using a Modified Mumford-Shah Algorithm”
To appear in Scale Space Variational Methods (SSVM) in Computer Vision, 2007

Jung-ha An, Yunmei Chen, Myron Chang, David Wilson, and Edward Geiser
”Generating Geometric Models through Self-Organizing Maps”
Multiscale optimization methods and applications,
Nonconvex Optim. Appl., 82, Springer, pp. 241–250, New York, USA, 2006

Jung-ha An, Yunmei Chen, Feng Huang, David Wilson, and Edward Geiser
”A New Variational PDE Based Level Set Method for Simultaneous Segmentation and Non-Rigid Registration”
Medical Image Computing and Computer-Assisted Intervention (MICCAI),
pp. 286–293, California, USA, 2005

Jung-ha An
”Various Methods in Shape Analysis and Image Segmentation and Registration”
Dissertation, University of Florida, 2005

Thomas Grandine, Jung-ha An, Viktoria Averina, Giulio Ciraolo, Wondimagegnehu Germew, Derek Hansen, Guo Luo, and Todd Moeller
”Surface Registration via Umbilics”
2004 IMA Summer Program: Mathematical Modeling in Industry - A Workshop for Graduate Students, August 9 - 18, 2004, University of Minnesota, Minneapolis, Minnesota

Gregory Hicks, Jung-ha An, Ibrahimou Boubakari, Richard Burgess, Kavuri Hariharanath, Billy Jackson, and Matthew Walker
”The Unifying of Perspective on Attitude and Shape Control”
CRSC Technical Report, CRSC-TR04-41, pp. 1–14, December 2004.
(http://www.ncsu.edu/crsc/reports/reports04.htm)

In Preparation:

”Nerve Ultrasound Image Segmentation using a Modified Mumford-Shah Model and Prior Information”
(With Steven Damelin and Paul Bigeleisen)
”A New Geometric Discrete Distance Measurement using a Green’s Theorem”
(With Simon Morgan)
”Efficient Segmentation of Piecewise Smooth Images through Gaussian Convolutions”
(With Chenyang Xu and Mikael Rousson)
”Generating Prior Shape and Simultaneous Image Segmentation and Registration”
(With Yunmei Chen)

Presentations and Talks

”Medical Imaging with Variational Partial Differential Equation(PDE) Methods”
Invited Talk, October, 2006, Department of Mathematics, Georgia Southern University, Georgia

”Generating Prior Shape and a Simultaneous Segmentation and Registration”
Invited Talk, July, 2006, Kyungbook National University, South Korea

”A Modified Mumford-Shah Model Based Simultaneous Segmentation and Registration”
Invited Talk, May, 2006, SIAM Conference on Imaging Science, Minneapolis, Minnesota

”A Method for Simultaneous Image Segmentation and Registration”
Invited Talk, April, 2006, Siemens Corporate Research, Inc., Princeton, New Jergy

”A Modified Mumford-Shah Model Based Simultaneous Segmentation and Registration”
Poster Presentation, March, 2006, Second Young Researchers Workshop in Mathematical Biology, Mathematical Biosciences Institute (MBI), Ohio State University, Columbus, Ohio

”Image Segmentation using a Modified Mumford-Shah Model”
Poster Presentation, January, 2006, New Mathematics and Algorithms for 3-D Image Analysis, Institute

for Mathematics and its Applications (IMA) Imaging Workshop, Minneapolis, Minnesota

”A Modified Mumford-Shah Model Based Simultaneous Segmentation and Registration”
Poster Presentation, December, 2005, Integration of Sensing and Processing, Institute for Mathematics and its Applications (IMA) Imaging Workshop, Minneapolis, Minnesota

”A New Variational PDE Based Level Set Method for Simultaneous Segmentation and Non-Rigid Registration”
Poster Presentation, October, 2005, MICCAI 2005, Palm Springs, California

”A New Variational PDE Based Level Set Method for Simultaneous Segmentation and Non-Rigid Registration”
Invited Talk, September, 2005, Institute for Mathematics and its Applications (IMA) Postdoctorate Seminar, Minneapolis, Minnesota

”Various Statistical Methods for Shape Analysis”
Invited Talk, November, 2004, SIAM Gators Seminar, Gainesville, Florida

”A Joint Segmentation and Non-Rigid Registration with an Application to Medical Imaging”
Invited Talk, October, 2004, SIAM Gators Seminar, Gainesville, Florida

”Surface Registration via Umblics”
Invited Talk, October, 2004, SIAM Gators Seminar, Gainesville, Florida

”The Unifying of Perspective on Attitude and Shape Control”
Invited Talk, September, 2004, SIAM Gators Seminar, Gainesville, Florida

”Shape Analysis and Image Segmentation and Registration”
Invited Talk, June, 2004 Chonbuk National University, Chon-ju, Chonbuk, South Korea

”A Joint Segmentation and Non-Rigid Registration with an Application to Medical Imaging”,
Invited Talk, May, 2004 Chonnam National University, Kwang-ju, Chonnam, South Korea

”A Joint Segmentation and Non-Rigid Registration with an Application to Medical Imaging”,
Poster Presentation, May, 2004, 2004 SIAM Imaging conference, Salt Lake city, Utah

”Generating Geometric Models Through Self-Organizing Maps”
Invited Talk, March 2004, 2004 SIAM Gators Student Workshop, Gainesville, Florida

Attended Conferences

2007 AMS and MAA Joint National Mathematics Meeting, New Orleans, Louisiana
(Will Attend from January 5 to January 8, 2007)
2006 SIAM Conference on Imaging Science, Minneapolis, Minnesota

2006 Second Young Researchers Workshop in Mathematical Biology,
Mathematical Biosciences Institute (MBI), Columbus, Ohio
(Financial Support from MBI, Ohio State University)
2005 Medical Image Computing and Computer-Assisted Intervention (MICCAI)
Palm Springs, California
2004 IMA Mathematical Modeling in Industry - A Workshop for Graduate Student,
University of Minnesota, Minneapolis, Minnesota
(Financial Support from IMA, University of Minnesota)
2004 IMSM Workshop for Graduate Students, North Carolina State University, Raleigh,
North Carolina (Financial Support from CRSC and SAMSI, North Carolina State University)
2004 SIAM Imaging conference, Salt Lake city, Utah
2004 SIAM Gators Student Workshop, University of Florida, Gainesville, Florida
(This workshop was funded by the National Science Foundation)
2003 Applied Inverse Problems: Theoretical and Computational Aspects,
University of California Los Angeles, Los Angeles, California
(Financial Support from IPAM, University of California Los Angeles)
2002 Fall Southeastern AMS Section Meeting, Orlando, Florida
2001 Stochastic Processes Seminar, University of Florida, Gainesville, Florida

Awards

Graduate Student CLAS Travel Award, 2005, University of Florida
Graduate Student Teaching Award (University-wide), April, 2005, University of Florida
(http://clasnews.clas.ufl.edu/news/clasnotes/0504/honors.shtml)
Award for Excellence in Teaching, March, 2005, Department of Mathematics, University of Florida
SIAM Graduate Student Travel Award, March, 2004
Award for Excellence in Teaching, March, 2003, Department of Mathematics, University of Florida
Award for Academic Achievement by an International Student, April, 2000, University of Florida
Korean National Science Scholarship (1997-1998)

Honors

Referee for the IEEE Transactions on Image Processing (2006)
A chair for CP6 Image Segmentation session in SIAM Conference on Imaging Science (2006)
Organizer of the Institute for Mathematics and its Applications (IMA) Postdoctorate seminar at the University of Minnesota (2005-2006)
Referee for the Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR) conference (2005)
Organizer and Editor of the SIAM Gator Student Workshop at the University of Florida (2004)
(http://www.siam.org/siamnews/10-04/Gators.htm)
Vice President of the SIAM Gator Chapter at the University of Florida (2003-2004)
Treasurer of the SIAM Gator Chapter at the University of Florida (2002-2003)
Vice President of the Noetherian Ring Chapter at the University of Florida (2001-2002)

Secretary of the Graduate Mathematics Student Organization at the University of Florida (2000-2001)

Professional Affiliations

Medical Image Computing and Computer-Assisted Intervention (MICCAI) Society
Society for Industrial and Applied Mathematics (SIAM)
American Mathematical Society (AMS)
Korean Mathematical Society

Computer Skills

Operating Systems: Unix (Linux) and Windows
Applications: Word Processing (MS-Word) and Text Formatting (Latex/Tex)
Programming: Matlab and C/C++