

## FACULTY VITAE

### 1. Name Yu (Hugh) LIANG

### 2. Education

B.E.	Computer Science and Tech.	Tsinghua Univ.	1990
M.E.	Computer Science	Beijing University of Tech.	1995
Ph.D.	Computer Science	Chinese Academy of Sciences	1998
Ph.D.	Applied Math	Univ. of Ulster	2005

### 3. Academic experience

- Associate Professor / Computer Science (08/13 – now), Department of Computer Science and Engineering, University of Tennessee at Chattanooga.
- Associate Professor /Computer Science (04/13-08/13), Department of Mathematics and Computer Science, Central State University.
- Summer Faculty Fellow (05/2012-08/2012), Sensor Directorate, U.S. Air Force Office of Scientific Research.
- Summer Faculty Fellow (05/2011-08/2011), Sensor Directorate, U.S. Air Force Office of Scientific Research.
- Assistant Professor /Computer Science (08/07-04/13, tenured in August 2012), Department of Mathematics and Computer Science, Central State University.
- Visiting Assistant Professor /Computer Science (08/06-08/07), Department of Computer and Software Engineering, Embry-Riddle Aeronautical University.
- Research Scientist / Computational Science (05/05-08/06), Center for Advanced Materials and Smart Structures(CAMSS), North Carolina A&T State University.
- PostDoc / Scientific Computing (08/02-05/05), Army High-performance Computing Research Center, University of Minnesota.
- PostDoc / Scientific Computing (08/01-08/02), Department of Computer Science, University of Minnesota.

### 4. Non-academic experience

- Technique Director (part time), Beijing Long-Mark Computer Co., 7/1991-8/1995
- System Engineer (full time), Beijing Wire Communication Co., 8/1990-8/1992

### 5. Certifications or professional registration

N/A

### 6. Current membership in professional organizations

- SPIE
- Sigma-Xi

### 7. Honors and awards

- College Faculty Leadership Award, Central State University, 2012.
- U.S. Air Force Summer Faculty Fellowship Program, 2012
- U.S. Air Force Summer Faculty Fellowship Program, 2011.

- Vice-Chancellor Scholarship of University of Ulster, 1998-2001.
- Oversea Research Scholarship of United Kingdom, 1998-2001.

#### **8. Service activities (selected in the period since the last general review)**

- Member of Editorial Board and Program Committee Member, First International Workshop on Security Technology for Smart Device (STSD 2015), URL: <http://interworkshop.org/STSD2015/> .
- Member of Editorial Board, International Journal of Security Technology for Smart Device (IJSTSD), URL: <http://www.sersc.org/journals/IJSTSD/>
- National Science Foundation (NSF) review panelist for Applied Mathematics program, and the 2015 NSF Graduate Research Fellowship Program (GRFP).
- Member of Editorial Board, Journal of Mathematical Research and Applications, URL: <http://www.academicpub.org/jmra/> .
- Panel Expert for the Secondary Career-Technical Alignment Initiative (SCTAI), Ohio Board of Regents.
- Technique Program Committee member of the Embedded Computing and Systems Track, the 6th International Conference on Frontier of Computer Science and Technology (FCST 2011: <http://trust.csu.edu.cn/conference/fcst2011/> )
- Symposium chairs of the 10th International Conference on Algorithm and Architectures for Parallel Processing (2010) (<http://cse.stfx.ca/~ica3pp2010/>)

#### **9. Most Important Publications And Presentations From The Past Five Years**

Book and Book Chapters:

- Y. Liang, The Use of Parallel Polynomial Preconditioners: In the Solution of Systems of Linear Equations, ISBN-10: 3659344494, ISBN-13: 978-3659344497, LAP LAMBERT Academic Publishing.
- R. Mohan and Y. Liang, Chapter 10: Tensile and Flexural Deformation of Nickel Nanowires via Molecular Dynamics Simulations, Cutting Edge Nanotechnology. Edited by Dragica Vasileska. Intechweb.org, ISBN 978-953-7619-93-0, 2010.

Journal Papers:

- Y. Liang, R. Kanapady, and L. T. Laurence, Augmented FETI-DP Method Based on Polynomial
- Preconditioning. Mathematical and Computer Simulation (Impact Factor: 1.109, Under Review).
- Y. Liang, C. Chao, and K. Kendricks, A Hadoop-enabled Predictive Analytics about Carp Aggregation, Journal of Computer Science and Information Technology. (Accepted on June 2015).
- Y. Liang, R. Kanapady, P. Chung, Z. Shi, and B. Wang, A Hessian-Free Newton-Raphson Method for the Configuration of Physics Systems Featured by Numerically Asymmetric Force Field, Mathematical and Computer Simulation (Impact Factor: 1.109, Accepted on June 2015).

- Y. Liang, W. Melvin, S. I. Sritharan, S. Fernandes, and D. Barker, A Crowd Motion Analysis Framework Based on Analog Heat-Transfer Model, American Journal of Science and Engineering Vol 2, No. 1, 2013, pp. 33-43.
- Y. Liang, M. Szularz and L. T. Yang, Finite-element-wise Domain Decomposition Iterative Solvers Based on Polynomial Preconditioning, DOI: 10.1016/j.mcm.2012.11.017, Mathematical and Computer Modeling (Impact Factor: 1.346). Volume 58, Issues 1–2, July 2013, Pages 421-437
- R. Mohan, Y. Purohit, Y. Liang, Deformation Behavior of Nanoscale Material Systems with Applications to Tensile, Flexural and Crack Propagation, Journal of Computational and Theoretical Nanoscience (Impact Factor: 0.911), Volume 9, Number 5, May 2012, pp. 649-661(13). DOI : 10.1166/jctn.2012.2075.
- J. Zhang, Y. Liang and Y. Zhang, Atomic-level protein structure refinement using fragment guided molecular dynamics conformation sampling. Structure (Impact Factor: 6.347), 2011 Dec 7; 19(12):1784-95. DOI: 10.1016/j.str.2011.09.022.
- A. Saha, Y. Liang, and S. Kohles, Biokinetic Mechanisms Linked With Musculoskeletal Health Disparities: Stochastic Models Applying Tikhonov's Theorem to Biomolecule Homeostasis, Journal of Nanotechnology in Engineering and Medicine, May 2011, Vol.2/021004-1 – 9, DOI :10.1115/1.4003876.
- S. Kohles, Y. Liang, and A. Saha, Cytoskeletal Strains in Modeled Optohydrodynamically Stressed Healthy and Diseased Biological Cells, Journal of Biophysics, Volume 2012, doi:10.1155/2012/830741.
- S. Kohles, Y. Liang, and A. Saha, Volumetric Stress-Strain Analysis of Optohydrodynamically Suspended Biological Cells, Journal of Biomedical Engineering, December 2010, Vol. 132, 1-7.

#### Conference Papers:

- Y. Liang and C. Wu, "An agent-based mathematical model about carp aggregation", Proc. SPIE 9486, Advanced Environmental, Chemical, and Biological Sensing Technologies XII, 94860Q (May 13, 2015); doi:10.1117/12.2180323; <http://dx.doi.org/10.1117/12.2180323>.
- Y. Liang ; and C. Wu, A Sensor-Oriented Information System Based on Hadoop Cluster, ICOMP'14 - International Conference on Internet Computing and Big Data (July 21-24, 2014, USA) (Acceptance rate: 26%)
- Y. Liang ; Michael Henderson ; Shane Fernandes and Josh Sanderson, Vehicle tracking and analysis within a city, Proc. SPIE 8751, Machine Intelligence and Bio-inspired Computation: Theory and Applications VII, 87510F (June 3, 2013); doi:10.1117/12.2014561; <http://dx.doi.org/10.1117/12.2014561>.
- J. Sanderson, Y. Liang. No-reference image quality measurement for low-resolution images , Proc. SPIE 8744, Automatic Target Recognition XXIII, 874404 (June 3, 2013); doi:10.1117/12.2015014; <http://dx.doi.org/10.1117/12.2015014> .
- S. Fernandes, Y. Liang. Chipping and segmentation of target of interest from low-resolution electro-optical data, Proc. SPIE 8744, Automatic Target Recognition XXIII, 87440R (June 3, 2013); doi:10.1117/12.2015972; <http://dx.doi.org/10.1117/12.2015972>.

- Y. Liang, W. Melvin, S. I. Sritharan, S. Fernandes, and D. Barker, CMA-HT, a Crowd Motion Analysis Framework Based on Heat-transfer-analog Model. Proc. SPIE 8402, Evolutionary and Bio-Inspired Computation: Theory and Applications VI, 84020J (May 1, 2012); doi:10.1117/12.919088.

#### **10. Recent Professional Development Activities**

- PI (FY 2013-2016), Collaborative: TUES: Software Defined Radio Laboratory Platform for Enhancing Undergraduate Communication and Networking Curricula, \$100K, National Science Foundation: DUE Program (NSF Proposal Number: DUE 1323340).
- Co-PI (FY 2013-2015), Application of Sensor Network, \$99,996, National Science Foundation: Supplement Program (NSF Proposal Number: DUE 1240734).
- Co-PI (FY 2013-2015), A Design Proposal for the Center of Cyber Sensor Networks for Human and Environmental Applications, \$596,670, National Science Foundation: Solicited Program (NSF Proposal Number: 1240734).
- PI (FY 2013-2018), Computational Methods in Fracture Mechanics, \$75K/year, Minority Leader Program of U.S. Air Force (POC: Dr. Gregory A Schoeppner; Contract No: FA8650-05-D-1912)
- PI (FY 2013-2014), A Self-Optimization and Cooperative Control Sensor Network and Its Application in Sensor-oriented Problems, \$100K, Minority Leader Program of U.S. Air Force (POC: Mr. Darrell Barker).
- PI (FY 2012-2013), Enabling Technology in Computational Material Science, \$75K, Minority Leader Program of U.S. Air Force (POC: Dr. Gregory A Schoeppner).
- PI (FY 2011-2012), High Performance Computing for Composite Manufacturing Process Modeling, \$45K, Minority Leader Program of U.S. Air Force (POC: Dr. Gregory A Schoeppner).
- PI (summer of 2012), Application of Analogous Fluid-Dynamics-in-Porous-Medium Model in Crowd Motion Analysis, Summer Faculty Fellowship Program (SFFP) of U.S. Air Force (POC: Mr. Darrell Barker).
- Co-PI (FY 2012-2016), NSF RI: Large: Collaborative Research: A Robotic Network for Locating and Removing Invasive Carp from Inland Lakes, \$292,832 for three years, National Science Foundation (NSF Proposal Number: 1111542).
- PI (Summer of 2011), Electronic Sandbox System, A State-of-Art Infrastructure for Layered Sensing Application, Summer Faculty Fellowship Program (SFFP) of U.S. Air Force (POC: Mr. Darrell Barker).
- PI (FY 2011-2013), Multiscale Motion Analysis, \$50K, Minority Leader Program of U.S. Air Force (POC: Ms. Olga Mendoza-Schrock).
- Co-PI (FY 2010-2011), Predict Enemy's Intention according to the Infrared Persistent Surveillance Data, \$25K, Minority Leader Program of Air Force (POC: Ms. Olga Mendoza-Schrock).
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