CURRICULUM VITAE

YANWEI (VIVIAN) WU, PH.D.

215 Christensen St.
North Mankato, MN, 56003
Phone: (312) 730-8209
E-mail: yanwei.wu@mnsu.edu
Web: Http://www.iit.edu/~ywu24

EDUCATION

- **ILLINOIS INSTITUTE OF TECHNOLOGY, CHICAGO, IL**
  Doctor of Philosophy in Computer Science, July 2009
  Advisor: Prof. Xiang-Yang Li
  Thesis: "Throughput and Energy Efficiency for Wireless Ad Hoc and Sensor Networks"

- **TIANJIN UNIVERSITY, TIANJIN, CHINA**
  Master of Computer Engineering, March 2003.
  Bachelor of Computer Engineering, June 1998

EXPERIENCE

- **ASSISTANT PROFESSOR:** Department of Computer Science, MSU (2009–Present)

  SUPERVISOR: JOHN KNOX

  - Research on wireless network, algorithm analysis and design, and game theoretical study of networks.
  - Teaching:
    Fall: CS 110 (Computer Science I) and CS 410 (Formal Languages & Abstract Machines).
    Spring: CS 110, CS 350 (Network Architectures), and CS 452 (Network Protocol Internals).
  - Student:

    Brighton Peterson

- **RESEARCH ASSISTANT/ TEACHING ASSISTANT:** Department of Computer Science, IIT (2005–2009)

  SUPERVISOR: XIANG-YANG LI

  - Research on wireless network, algorithm analysis and design, and game theoretical study of networks.
    - Throughput optimization in mesh networks or wireless ad hoc networks
    - Energy efficiency in wireless networks
    - Game theory (zero-sum or hidden action and hidden information) in wireless networks
    - Security problems (saddle attack and key distribution) in wireless networks

  ◆ Six journal papers (including TPDS, TMC) and seven conference papers (including INFOCOM, MOBIHOC) are published in related area

  - Teaching Assistant
    - Theory of Computation, Fall 2008, Fall 2007
    - Cryptography & Network Security, Spring 2008, Spring 2007, Spring 2006
    - Computer Networks, Fall 2006
    - Formal Languages, Spring 2006
    - Introduction to Advanced Studies II (Assembly Language), Fall 2008, Spring 2008, Fall 2007,

Spring 2007

- Introduction to Advanced Studies I (Java and Data Structures), Fall 2007, Spring 2007

❖ **Research Aide:** Decision and Information Science Division, Argonne National Lab (05/2007–08/2007)

Supervisor: Mark Altaweel

◆ Research on social agent-based modeling.

- Developed Shugi, an open source simulation software that addresses pedestrian transportation within road networks and social dynamics.
  - Designed matching algorithms and improved matching time for data processing (more than 3GB).
  - Implemented Imhof Model, Pandolf Model, McDonald Model, Dijkstra Algorithm, A-Star Algorithm, and developed a decision agent-based social model.
  - Implemented scheduling for agents,
  - Parsed GIS data files,
  - Designed GUI,
  - Integrated spatial and social analysis tools (e.g., network analysis) within Shulgi
  - Implemented batch running model by Java and XML (DOM)
- Reworked source code of Repast Simphony for simulation optimization
- One peer-reviewed conference paper is published in related area.

❖ **Assistant Professor:** Department of Computer and Its Application, Tianjin University, China (2003–2005)

◆ Research on computer networks

Research on the Management Technique of Cosmically Ad Hoc Clusters, New faculty funding from School of Electronics Information Engineering, Tianjin University.

◆ Teaching:

- Compiler Principles, core course for undergraduate student in Computer Science
- Computer Foundations, course for graduate student outsides of Computer Science Department

Computer Experience

❖ **Windows System**

◆ Developed Shugi, an open source agent based modeling software to simulate pedestrian traffics in social network by Java.

- Designed matching algorithms and improved the matching time for data with more than 3GB,
- Implemented Imhof Model, Pandolf Model, McDonald Model, Dijkstra Algorithm and A star Algorithm,
- Implemented the scheduling for the agents,
- Parsed GIS files,
- Designed GUI,
- Implemented batch running model by Java and XML (DOM).

◆ Dig into source codes of Repast S, the agent simulation software developed by ANL.

◆ Developed test suite for empirical validation and analysis of our algorithms, using VC++, STL, MATLAB, lp_solver and so on.

◆ Designed and maintained web site for aaim07 using HTML, CSS.

◆ Designed and developed for operations support systems for ViewMeeting at Viewtran (ShenZhen).

- Designing and developing underline database using SQLServer,
- Implemented user management, equipment management, authentication, prepay and fee calculation, UI design with international language using C# and XML

- **UNIX/LINUX SYSTEM**
  - Design and implemented client-server database query, query on P2P system with centralized management and query on P2P system with decentralized management on Babbage cluster. The hardware platform is Sun UltraSparce Cluster and the software is SunOS 5.8 and gcc compilers.
  - Implemented Miller-Rabin primarily test and RSA digital signature algorithm on Babbage server with Unix and JDK environment.
  - Evaluated students' programs, Miller-Rabin primarily test, Solovay-Strassen primarily test, RSA digital signature algorithm/ DSA digital signature algorithm on Babbage Server for cs549 Cryptography & Network Security.
  - Helped students in CS401 to code and study abstract data structures, array, queue, stack, hash table and so on, and evaluate their codes on Babbage server with Unix and JDK environment.

HONORS AWARDED

- **Research Assistant Scholarship**, Illinois Institute of Technology, 2005
- **Teaching Assistant Scholarship**, Illinois Institute of Technology, 2006 – 2009
- **Travel Award**, IEEE MASS, Atlanta, 09/2008
- **Travel Award**, IEEE PerCom 2008, Hong Kong, March, 2008
- **Travel Award**, EXCILL, University of Illinois at Urbana-Champaign, 11/2006
- **Travel Award**, IEEE MASS, Vancouver, Canada, 10/2006
- **Excellent Graduate Student**, Tianjin University, 2000-2003

PUBLICATIONS

UNDER REVIEW

1. Yanwei Wu and Shaojie Tang and Xufei Mao and Xiang-Yang Li
   The Asymptotic Capacity for Large Scale Wireless Ad Hoc Networks
   Submitted to IEEE Transaction on Mobile Computing(TMC)
2. Yanwei Wu and Xiang-Yang Li
   Stochastic Routing in Wireless Mesh Networks with Attack
   Submitted to IEEE Transactions on Vehicular Technology(TVT) and under revision
3. Yanwei Wu and Xiaohua Xu and Shaojie Tang
   Energy Efficient Data Aggregation in Multi-hop Wireless Sensor Networks
   Submitted to INFOCOM 2010

JOURNAL

1. Yanwei Wu and Mark Altaweel and Scott Branting
   Route Selection and Pedestrian Traffic: comparing GIS-T and Integrated Modeling Approaches
   International Journal of Geographical Information Science (accepted to publish), 2009

2. Yanwei Wu and Shaojie Tang and Ping Xu and Xiang-Yang Li
   Dealing With Selfishness and Moral Hazard in Non-Cooperative Wireless Networks
   IEEE Transaction on Mobile Computing(TMC) (accepted to publish), 2009

3. Yanwei Wu and Xiang-Yang Li and Yunhao Liu and Wei Lou
   Energy-Efficient Wake-up Scheduling for Data Collection and Aggregation
   IEEE Transaction on Parallel and Distributed Systems (TPDS) (accepted to publish), 2009
4. Xiang-Yang Li and Ashraf Nusairat and Yanwei Wu and Yong Qi and JiZhong Zhao and Xiaowen Chu
   Joint Throughput Optimization for Next Generation Wireless Mesh Networks
   IEEE Transaction on Mobile Computing (TMC) , Volume 8, Page 895-909, July 2008
5. Xiang-Yang Li and Yu Wang and Haiming Chen and Xiaowen Chu and Yanwei Wu and Yong Qi
   Reliable and Energy Efficient Routing for Static Wireless Ad Hoc Networks with Unreliable Links
   TPDS (accepted to publish) , 2008.
6. Xiang-Yang Li, Peng-Jun Wan, Wen-Zhan Song and Yanwei Wu
   Efficient Throughput for Wireless Mesh Networks by CDMA/OVSF Code Assignment
   Journal Ad Hoc & Sensor Wireless Networks (accepted to publish), 2008
7. Fan Li, Yu Wang, Xiang-Yang Li, Ashraf Nusairat and Yanwei Wu
   Gateway placement for throughput optimization in wireless mesh networks
   ACM MONET Special Issue on Advances in Wireless Mesh Networks. December, 2007
8. Sun Xuemei, Yang Liu, Ren Changming, Wu Yanwei
   An Improved Algorithm of Weight Cluster Production for AD HOC Network
   Computer Engineering and Application (in Chinese), Vol.40, 2004
9. Yanliu, Ren Changming, Wu Yanwei
   A Research on Random Pattern Classifier Using Parzen Window
   Accepted by HeNan Science (in Chinese)
10. Sun Wei, Zhu Jiang, Ren Changming, Wu Yanwei
    GRID RESOURCE FRAMEWORK BASED ON WEB SERVICE － WSRF
    Accepted by Microcomputer Processor(in Chinese)
11. Wu Yanwei, Ren Changming
    Specification of Blue Tooth HCI USB Transport Layer
    Computer Engineering (in Chinese), February 2002, Vol.28 No.2

CONFERENCE

1. Junchao Ma, Wei Lou, Yanwei Wu and Xiang-Yang Li
   Energy Efficient TDMA Sleep Scheduling in Wireless Sensor Networks
   IEEE INFOCOM 2009.
2. ShaoJie Tang, Xiaobin Wu, Yanwei Wu, XuFei Mao, Ping Xu, GuiHai Chen and Xiang-Yang Li
   Low Complexity Stable Link Scheduling for Maximizing Throughput in Wireless Networks
   IEEE SECON 2009. (81 out of 431=18.8%)
3. Xiang-Yang Li and Yanwei Wu and Ping Xu and Guihai Chen and Mo Li
   Hidden Information and Actions in Multi-Hop Wireless Ad Hoc Networks
   The 9th ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc'08) (Acceptance Ratio: around 15%)
4. Xiang-Yang Li and Jizhong Zhao and Yan-Wei Wu and Shao-Jie Tang and Xiao-Hua Xu and Xu-Fei Mao
   Broadcast Capacity for Wireless Ad Hoc Networks,
   The Fifth IEEE International Conference on Mobile Ad-hoc and Sensor Systems (IEEE MASS 2008), (Acceptance Ratio: 26 out of 250)

5. Xiang-Yang Li and Yanwei Wu
Maximizing Throughput Multicast Routing for Wireless Networks
International Conference on Wireless Algorithms, Systems and Applications (WASA), Chicago, IL, 2007

6. Xiang-Yang Li and Yanwei Wu
Stochastic Security in Wireless Mesh Networks via Saddle Routing Policy
International Conference on Wireless Algorithms, Systems and Applications (WASA), Chicago, IL, 2007

7. S. BRANTING, Y. WU, R. SRIKRISHNAN and M. R. ALTAWEEL
SHULGI: A Geospatial Tool for Modeling Human Movement and Interaction
the Agent 2007: Complex Interaction and Social Emergence, Northwestern University, Chicago, IL, 2007

8. Xiang-Yang Li and YanTai Shu and HaiMing Chen and XiaoWen Chu and Yanwei Wu
Energy Efficient Routing With Unreliable Links in Wireless Networks
The Third IEEE International Conference on Mobile Ad-hoc and Sensor Systems (IEEE MASS 2006), (Acceptance Ratio: 49 out of 197, 25%)

9. Wei Sun, Yuanyuan Zhang, Yanwei Wu, Yasush Inoguchi
Practical Task Flow Scheduling for High Throughput Computational Grid
ICPP Workshops 2006: 291-297

10. YAN-WEI WU, XUE-MEI SUN, CHANG-MING REN, JIAN-GUO WEI, YAN-XIA SUN
RESEARCH ON HUMAN-LIKE INTELLIGENT PID CONTROL ALGORITHM IN THE TEMPERATURE CONTROL
IEEE The Second International Conference on Machine Learning and Cybernetics, November 02-05, 2003

11. XUE-MEI SUN, CHANG-MING REN, YAN-WEI WU, LU-QIAO NING, JIAN-RONG WANG
THE DESIGN AND APPLICATION OF NEURAL NETWORK CONTROLLER BASED ON GENETIC ALGORITHMS
IEEE The Second International Conference on Machine Learning and Cybernetics, November 02-05, 2003

TALKS

1. *BroadCast Capacity for Wireless Ad Hoc Networks*
IEEE MASS 2008

2. *Maximizing Throughput Multicast Routing for Wireless Networks*
WASA, Chicago, IL, 2007

3. *Stochastic Security in Wireless Mesh Networks via Saddle Routing Policy*
WASA, Chicago, IL, 2007

4. *Energy Efficient Routing With Unreliable Links in Wireless Networks*
IEEE MASS 2006

PROFESSIONAL SERVICE AND VOLUNTEER WORK

REVIEWER FOR CONFERENCES AND JOURNALS:

INFOCOM 2009, AD HOC NETWORKS, ICC'09 WN, CMC'09, ICDCN'09, CCNC'09, MobiHoc'08, INFOCOM 2008, ToN'08, SCN'08, EUC'2008, MSN'08, Dial M-POMC 2008, AdHoc-NOW 2008, HPCC-08, TPDS'08, ICPP'08, ICWMC 2008, ICCCN 2008, COCOON'08, FAW'08, ACM FOWANC08, ICDCS'08, ICC'08 WN, MASS 2007, IEEE JSAC SI Noncooperative 2006, ICCCN'06

Web Master and Referee for AAIM'07 Conference:

I designed and maintained the web site for AAIM'07 conference. I also worked as the referee of AAIM'07 conference hold at Portland, OR.

Referee for Chicago Education Forum:

- I worked as a referee for Chicago Education Forum 2007 at the Argonne National Laboratory, Chicago
- I worked as a referee for Chicago Education Forum 2008 at the Fermi National Accelerator Laboratory, Chicago

Volunteer at Alder Planetarium Museum:

- I worked as a Space Visualization Lab Guide.

Professional References

Dr. Xiang-Yang Li

Associate Professor
Department of Computer Science
Illinois Institute of Technology
10 W 31st Street
Chicago, IL 60616
Phone: (312)567-5207
Email: xli@cs.iit.edu

Dr. Pengjun Wan

Professor
Department of Computer Science
Illinois Institute of Technology
10 W 31st Street
Chicago, IL 60616
Phone: (312)567-5156
Email: wan@cs.iit.edu

Dr. Mark Altaweel

Social Simulation Scientist
Argonne National Laboratory
Computation Institute Fellow
University of Chicago

9700 South Cass Ave., Bldg. 900
Argonne, IL 60439
Phone: (630) 252-1379
Email: maltaweel@anl.gov

Dr. Yuanyuan Yang

Professor
Department of Electrical & Computer Engineering
State University of New York
215Light Engineering Building
Stony Brook, NY 11794-2350
Phone: (631)632-8474
Email: yang@ece.sunysb.edu