

Dr. Zhen Jiang's Research

Dr. Jiang's research mainly focuses on the information modeling in *wireless sensor networks* (WSNs). In every area of life there is an opportunity for research and improvement with the idea of "Going Green" in mind. By providing green techniques in informatics, Dr. Jiang's goal is to improve the utilization of the resources in WSNs versus replacing the entire network by another deployment or at least extending the lifetime so replacement is needed less often. Sensors are usually tiny devices and cannot get recharged after they are deployed. The power and computational ability in each one is critically limited. An efficient resource management is the key to many applications such as environmental surveillance and target detection. This research strategy in dynamic networks has been extended to many other areas such as Vehicle Networks, or Social Networks.

Dr. Jiang's research also involves the use of object-oriented methods and pattern design. The pattern distills the knowledge and experience of many practitioners and is highly extensible and reusable. Currently, Dr. Jiang focuses on educational patterns that are applied to the National Security Agency (NSA) certificate education program for those students who are not computer science majors. Because many prerequisite courses of computer programming are skipped in such a program, new teaching models in the classroom are required in order to quickly prepare the students for their careers in computer information technology. Dr. Jiang's practice includes a newly proposed MatLab course that will be offered for all majors at CAS college.

Dr. Jiang's research has been granted by many fund resources, internal and external, including the National Science Foundation (NSF), IBM, CASSDA, and the local FDC at WCU. Currently, he supervises two undergraduate students for a project (CCF 0936942) which is granted by the Research Experience for Undergraduates (REU) program at NSF. Since he joined WCU in 2002, he has published more than 40 technique papers in top level journals and conferences in his research areas. His book "From Problem Toward Solution: Wireless Sensor Networks Security" has been published by Nova Publishers in 2009.

His collaboration with more than 10 domestic and foreign universities is supported by NSF grants and has been highly recognized. He was invited and serves as an NSF panelist, an external reviewer for Hong Kong Research Grant Council, and a panelist for the office of Global Environment for Network Innovations (GENI). He is in the Ph.D. advisor committee for Lisa Mathews (Old Dominion University) and the external reviewer for tenure and promotion at Missouri State University. He serves as an area editor in the editorial board for International Journal of Ad Hoc & Sensor Wireless Networks and MASAUM Journal of Computing. He was often invited to give talks, including the recent seminar talk given for the Computer & Information Science Department at University of Delaware.

Dr. Jiang is also active in many committees. He is the member of the graduate study committee and the evaluation committee of Computer Science Department. He was a member of the EPT and the NFO committees of WCU. He is involved in the organization of many IEEE conferences and workshops, including the recent one for IEEE MASS 2016 as the finance and registration chair. He serves technique committee for more than 50 IEEE conference and workshops. He is invited to review technique papers by more than 30 journals. He is a member of IEEE and ACM.