

David Q. Liu, Ph.D.

Dept. of Computer Science
Indiana Univ. – Purdue Univ. Fort Wayne
Fort Wayne, Indiana 46805

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EDUCATION

Ph.D. Computer Science and Engineering	12/03
Ohio State University, Columbus, OH; GPA 3.7/4.0	
Dissertation Research: "Differentiated Service Support in Optical Burst Switching WDM Networks"	
M.S., Computer Science and Engineering	03/93
Ohio State University, Columbus, OH; GPA 3.8/4.0	
M.S., Operation Research/Control Theory	12/88
Shanghai Jiao Tong University, Shanghai, PRC; GPA 3.8/4.0	
B.S., Mathematics/Statistics	07/86
Nanjing University, Nanjing, PRC; GPA 3.8/4.0	

RESEARCH INTERESTS

Wireless, Mobile Ad Hoc, Sensor && Optical Networks
Distributed && embedded Systems
Mobile, Pervasive, and Grid Computing,
Network Security

PUBLICATIONS

- David Q. Liu, "A Secure and Scalable Routing Protocol for Large Scale Sensor Networks," in preparation.
- David Q. Liu & M. T. Liu, "Burst Scheduling for Differentiated Services in Optical Burst Switching WDM Networks," International Journal of Communication Systems, vol. 17, issue 2, pp. 127-140, March 2004.
- David Q. Liu, "A MAC Protocol for Wireless Video Transmission over Wireless Multi-code CDMA Ad Hoc Networks," Proceedings of the 2003 IEEE Sarnoff Symposium on Advances in Wired and Wireless Communications, pp. 224-227, March 2003.
- David Q. Liu & M. T. Liu, "Optical Burst Switching Reservation Process Modeling and Analysis," Proceedings of IEEE International Conference on Communication Systems (ICCS 2002), vol. 2, pp. 928-932, November 2002.
- David Q. Liu & M. T. Liu, "Differentiated Services and Scheduling Scheme in Optical Burst-switched WDM Networks," Proceedings of IEEE International Conference on Networks (ICON 2002), pp. 23-27, August 2002.
- David Q. Liu & M. T. Liu, "Modeling and Analysis of Differentiated Services Burst Scheduling Scheme in Optical Switching WDM Networks," Proceedings of International Symposium on Performance Evaluation of Computer And Telecommunication Systems (SPECTS'02), pp. 113-117, July 2002.
- David Q. Liu & M. T. Liu, "Priority-based Burst Scheduling Scheme and Modeling in Optical Burst-switched WDM Networks," Proceedings of International Conference on Telecommunications (ICT 2002), vol. 1, pp. 1217-1223, June 2002.

- David Q. Liu, "On ATM SVC and PVC Scalability," Technical Report, Nortel Networks Corporation, Billerica, Massachusetts, September 1999.
- David Q. Liu, "ATM Signaling Design for IP over ATM with NHRP," Technical Report, Nortel Networks, Billerica, Massachusetts, June 1998.
- David Q. Liu & Rich Bedford, "ATM LANE v2 Based Wide Area Virtual LAN (WAVLAN)," Technical Report, Lucent Technologies, Inc., Concord, Massachusetts, October 1997.
- David Q. Liu, "Integration of Signaling System 7 with ATM Signaling," Technical Report, Lucent Technologies, Inc., Columbus, Ohio, July 1996.
- David Q. Liu, "Enhancement of Traffic Routing and Management in CS Packet Network V," Technical Report, CompuServe, Columbus, Ohio, November 1995.

EXPERIENCE

- Assistant Professor of Computer Science** 08/04 - present
 Indiana University – Purdue University Fort Wayne, Fort Wayne, IN
 Teach and advise students.
 Lead research in wireless sensor networks, embedded systems, and security.
- Visiting Assistant Professor** 08/03-05/04
 Earlham College, Richmond, IN
 Taught computer science courses in operating systems, computer organization, and network security.
 Conducted research in DARPA NEST Extreme Scaling project in wireless sensor networks in collaboration with researchers in the Department of Computer Science and Engineering at Ohio State University.
- Teaching and Research Assistant** 09/89-12/94, 03/00-08/03
 Ohio State University, Columbus, OH
 Conducted research in IP, ATM, wireless, and sensor networks with protocols such as RIP, BGP, OSPF, MOSPF, RSVP VOIP, SIP, MPLS, ATM traffic management (QoS, congestion control), IP over ATM, Bluetooth, IEEE 802.11 and TDMA/CDMA. Utilized network simulation tools such as ns-2, GloMoSim, and MatLab.
 Lectured classes in the Department of Computer Science and Engineering and the Department of Mathematics, including computer languages Pascal, C, C++, Java, Data Structures, Calculus, and Differential Equations.
- Lead Software Engineer** 11/99-03/00
 Motorola (River Delta Networks, Inc.), Tewksbury, MA
 Led the architecture and design of the carrier-class FPGA base IP routing and forwarding engine
- Senior Software Engineer** 02/98-11/99
 Nortel Networks Corp, Billerica, MA
 Led the design and implementation of ATM UNI 4.0 signaling for Nortel Networks router products, LANE v2, MPOA, and VRRP support
 Involved in the architecture and design of MPLS with LDP and CR-LDP protocols for core routers, and SONET, Optical IP, and DWDM networks
- Senior Software Engineer** 02/97-02/98
 Lucent Technology, Inc., Boxborough, MA
 Designed and implemented Virtual Private Networks based on ATM LANE v1 with IP layer portable VLAN technology
 Completed the SNMP agent support for the standard LANE 1.0 MIBS
 Designed LANE v2, MPOA and PNNI

Senior Software Developer

01/96-02/97

Sterling Commerce, Inc. (SBC), Dublin, OH

Designed and developed Internet Electronic Commerce System with distributed UNIX and Windows NT commerce servers, replicated database servers, and web servers by using DCOM/CORBA, C++/Java, and ODBC for database access

System Analyst

02/95-01/96

CompuServe, Inc. (AOL), Columbus, OH

Designed and developed the routing and node monitoring mechanism for the CompuServe Packet Switching Network System based on Intel Multibus Architecture

Software Developer

11/94-02/95

Information Dimensions, Inc., Dublin, OH

Provided technical support to BASISplus OpenAPI development
Designed and developed C program in a Unix environment

Software Programmer

06/94-11/94

Brain Tumor Programming Project, Ohio State University, Columbus, OH

Designed and developed a client/server information system using ORACLE 7 with ORACLE CASE & Designer and Forms 4.0, accessed through TCP/IP

Software Engineer

01/89-8/89

Southern Computer-Aided Design, Inc., Shanghai, PRC

Developed data access tools in C for NC (Numerical Control) machine systems

PROFESSIONAL SERVICE

TPC Member, IEEE ICC 2005, Seoul, Korea, 2005

Reviewer for IEEE 2003 International Conference on Communications – Optical Networking, IEEE Journal on Selected Areas in Communications – High-Performance Optical/Electronic Switches/Routers for High-Speed Internet, and IEEE Journal on Selected Areas in Communications (J-SAC) – Optical Communications and Networking (OCN).

Professional Development Fund Committee, Council of Graduate Students, Ohio State University, 2000 – 2001.

NATIONALITY

US Citizen

REFERENCES

Upon request