

Dr. Dewan Tanvir Ahmed

○ CITIZENSHIP STATUS

Canadian Permanent Resident (eligible to apply for Canadian Citizenship on December 2010)
Citizen of Bangladesh

○ ACADEMIC QUALIFICATION

Ph.D. in Computer Science [October, 2009]

School of Information Technology and Engineering (SITE)
University of Ottawa, Canada

Ph.D. Thesis:

Architectural Challenges and Solutions for Peer-to-Peer Massively Multiplayer Online Games

M.Sc. in Computer Science and Engineering [September, 2004]

Bangladesh University of Engineering and Technology
Dhaka, Bangladesh

M.Sc. Thesis:

A Hybrid Admission Control Algorithm for Multimedia Server

B.Sc. in Computer Science and Engineering [April, 2002]

Bangladesh University of Engineering and Technology
Dhaka, Bangladesh

B.Sc. Thesis:

Bangla Character Recognition using Nearest Neighbor Concept

○ R&D INTERESTS

Distributed systems
Multimedia communication
Computer networks
Real-time systems
Ad hoc networks, Wireless Sensor Networks
Swarm Intelligence
Large-scale collaboration like massively multiplayer online games
Game design and modeling
Peer-to-Peer systems and application modeling
Fault tolerance

○ INDUSTRIAL EXPERIENCE AND DEVELOPMENT SKILLS

Senior Software Engineer, Bangladesh Japan Information Technology (BJIT)
November 2001 - May 2002, Dhaka, Bangladesh

Programming Languages and Tools

C/C++, Java, Assembly Language, Prolog, Python, JSP, PHP, My SQL
MATLAB, ns2, OPNET

Hardware Projects

- Design and implementation of Arithmetic Logic Unit (ALU) and Multiplier circuit
- Design and implementation of 4-bit microprocessor [Implementing a list of instructions and running programs using instructions]
- Implementation of TCP/IP model of network for microcomputer using communication ports [Software written in Visual C++]

Software Projects (designer/developer)

- Animation game like Raptor [Using C/C++]
- Telephone Management System [My SQL and Visual Basic]
- E-commerce Trading System of a Motor Car Company [Using Java and My SQL]
- Simple Operating System for booting and running program with file & memory management [Using Microsoft Assembly Language and C/C++]
- Medical Diagnostic System in a Hospital [Using Turbo/GNU Prolog]
- Mail Server [Using Visual C/C++]
- Bangla Mail Server [Using Java Servlet]

○ ACADEMIC EXPERIENCE

Postdoctoral Fellow [Oct 2009 – present]

Discover Lab, School of Information Technology and Engineering
University of Ottawa, Canada

Research Assistant [May 2005 – September 2009]

Discover Lab, School of Information Technology and Engineering
University of Ottawa, Canada

Teaching Assistant [Fall 2005 - present]

School of Information Technology and Engineering (SITE)
University of Ottawa

Digital Systems I, Higher Layer Network Protocols, Operating System Principles, Introduction to Computing II, Data Structures and Algorithms, Computing Concepts for Business

Faculty

Lecturer - Full Time [05/2002 - 03/2005]

Bangladesh University of Engineering and Technology [Top ranked university in Bangladesh]

Computer Science & Engineering (CSE)

Courses delivered

Structured Programming, Compiler Design, Computer Networks, Computer Graphics, Pattern Recognition, Software Engineering, Software Development, VLSI Design, Digital Logic Design and Microprocessors

Instructor of CISCO regional and local network academy

○ RESEARCH PROJECTS

Research Staff, in the following University of Ottawa projects:

- MASSIVE GAIN: Massively Multiuser Virtual Environments and Games with Haptic Interaction

- HARVEST: A Framework for Haptic, interactive Virtual Environments for Tele-presence
- Advanced Protocols for Multi-Participant Multimedia Communications
- MUSES_SECRET: Multimodal- Surveillance System for Security-Related Applications
- Advanced Protocols for Multi-Participant Multimedia Communications
- Massively Multiuser Virtual Environments and Online Gaming

○ SCHOLARSHIPS

- Admission Scholarship at University of Ottawa for the entire PhD program as an International Student [a few positions]
- International Tuition Fee Scholarship
- BUET Dean's List Honor Scholarship (2nd, 3rd and 4th year of B.Sc.)
- Education Board Scholarship in 12th Grade Examination (a few positions out of 0.5 million)
- Education Board Scholarship in 10th Grade Examination (a few positions out of 0.8 5million)

○ AWARDS

- **Student Researcher of the year 2009**
Ottawa Centre for Research and Innovation (OCRI), Canada
- Faculty of Engineering's **Dean's Honor List, University of Ottawa**
Inscribed on the 2007-2008
- **Best Poster Award** in Computer Science
Faculty of Engineering Research and Graduate Studies Day, 2008
- Student Travel Grant Award
IEEE International Instrumentation and Measurement Technology Conference
Victoria, BC, Canada, 2008
- **Best Paper Award**
IEEE WETICE COPS workshop, Paris, France, 2007
- Research Travel grants
University of Ottawa (three times)

○ SCHOLARLY ACTIVITIES

Organizing Conferences or meetings

- Technical Program Committee, ACM Multimedia – System track, 2010
- Technical Program Committee, IEEE SPS Multimedia Signal Processing Conference, 2010
- Program Committee, Massively Multiuser Online Gaming Systems and Applications, Special Issue of Springer's Multimedia Tools and Applications, 2009
- Technical Program Committee, IEEE International Workshop on Haptic Audio Visual Environments and Games, 2008
- Technical Program Committee, International Workshop on Massively Multiuser Virtual Environments, IEEE Virtual Reality, 2008
- Member of Program Committee, IEEE Collaborative Service-oriented P2P Information Systems, 2007

Technical Reviewer for

- IEEE Transactions on Mobile Computing (TMC)
- ACM Transactions on Multimedia Computing, Communications, and Applications (TOMCCAP)
- IEEE Journal on Selected Areas in Communications
- International Journal of Advanced Media and Communication (IJAMC)
- International Journal of Computer Games Technology (IJCGT)

- ACM Multimedia – ACM MM 2005, 2006, 2007, 2008, 2010
- IEEE International Workshop on Mobile Peer-to-Peer Computing 2007, 2008, 2009, 2010
- IEEE International Instrumentation and Measurement Technology Conference 2008-2010
- IEEE conference on Information Sciences, Signal Processing and their Applications - 2010
- ACM International workshop on Network and Operating Systems Support for Digital Audio & Video – NOSSDAV 2007-2010
- IEEE International Conference on Embedded and Multimedia Computing, 2010
- IEEE Collaborative Service-oriented P2P Information Systems – COPS 2007
- ACM Computer Supported Cooperative Work – 2006
- Multimedia Computing and Networking (MMCN), 2008

○ SELECTED PRESENTATIONS

1. Model and Measurement of MMOG Time-Constraint Relaxation Algorithm, Singapore, May 5-7, 2009
2. A Dynamic Area of Interest Management and Collaboration Model for P2P MMOGs, Vancouver, Canada
3. A Microcell Oriented Load Balancing Model for Collaborative Virtual Environments, Istanbul, Turkey
4. A Distributed Interest Management Scheme for Massively Multi-user Virtual Environments, Istanbul, Turkey
5. LOADER: A Location-Aware Distributed Virtual Environment Architecture, Istanbul, Turkey
6. Model and Measurement of State Dissemination in MMOGs, Victoria, BC, Canada
7. Hierarchical HMM Model and Measurement of Online Gaming Traffic Patterns, Victoria, BC, Canada
8. An Auxiliary Area of Interest Management for Synchronization and Load Regulation in Zonal P2P MMOGs, Ottawa, Canada
9. A Distributed Topology Control Algorithm for P2P Based Simulations, Crete Island, Greece
10. Performance Enhancement in MMOGs Using Entity Types, Chania, Crete Island, Greece
11. A Visibility-Driven Approach to Managing Interest in Collaborative Virtual Environments with Dynamic Load Balancing, Chania, Crete Island, Greece
12. Improving Gaming Experience in Zonal MMOGs, Augsburg, Germany
13. The Roots and the Rationale behind the ALM Based Collaboration, Paris, France
14. A Dominating Set Based Peer-to-Peer Protocol for Real-Time Multi-Source Collaboration, Paris, France
15. Architectural Analysis of Multicast Routing Protocols for Wireless Ad Hoc Networks, Martinique, French Caribbean
16. Design Issues of Peer-to-Peer Systems for Wireless Ad Hoc Networks, Martinique, French Caribbean
17. Multi-Level Hashing for Peer-to-Peer System in Wireless Ad Hoc Environment, White Plains, NY, USA
18. BM-ALM: An Application Layer Multicasting with Behavior Monitoring Approach, San Diego, CA, USA
19. MPEG-21 Based Temporal Adaptation of Live H.264 Video, San Diego, CA, USA
20. A Novel Method for Supporting Massively Multi-user Virtual Environments, Ottawa, ON, Canada
21. Zone Based Messaging in Collaborative Virtual Environments, Ottawa, ON, Canada
22. A Hybrid P2P Protocol for Real-time Applications, Manchester, UK

○ PUBLICATIONS

Refereed Journals (published)

1. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, Jauvane C. Oliveira, A Hybrid P2P Communications Architecture for Zonal MMOGs”, *Multimedia Tools and Application (Springer Netherlands)*, vol. 45, 1(3), pp. 313-345, 2009

2. Shervin Shirmohammadi, Ihab Kazem, **Dewan Tanvir Ahmed**, Madeh El-Badaoui, Jauvane C. Oliveira, "A Visibility-Driven Approach for Zone Management in Simulations", *SCS Simulations*, V. 84(5), 215-229, 2008
3. Mojtaba Hosseini, **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, Nicolas D. Georganas, "A Survey of Application-Layer Multicast Protocols", *IEEE Communications Surveys and Tutorials*, vol. 9, I(3), pp. 58-74, 2007
4. **Dewan Tanvir Ahmed**, Mosharaf Kabir Chowdhury, Mohammad Mostafa Akbar, "Admission Control Algorithm for Multimedia Server: A Hybrid Approach", *International Journal of Computers and Applications*, ACTA Press, 2006

Book Chapters

1. **Dewan Tanvir Ahmed**, S. Shirmohammadi. "Zoning Issues and Area of Interest Management in MMOGs", *Handbook of Digital Media in Entertainment and Arts*, Borko Furht, Springer, pp. 175-196., and ISBN: 978-0-387-89023-4, 2009
2. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Networking for Massively Multiuser Online Gaming", *Encyclopedia of Multimedia*, pp. 664-670, Borko Furht, Springer, ISBN: 978-0-387-74724-8, 2008
3. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Mobile P2P Computing", *Encyclopedia of Wireless and Mobile Communications*, pp. 751-758, Borko Furht, Taylor & Francis, ISBN: 1420043269, 2008
4. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Multicasting in Mobile Ad Hoc Networks", *Encyclopedia of Wireless and Mobile Communications*, pp. 546-555, Borko Furht, Taylor & Francis, ISBN: 1420043269, 2008

Conference and Workshop Papers

2010:

1. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "A Fault Tolerance Procedure for P2P Online Games", **Proc. Proc. International Conference on Information Sciences, Signal Processing and their Applications**, Kuala Lumpur, Malaysia, May 2010

2009:

2. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "An Algorithm for Measurement and Detection of Path Cheating in Virtual Environments", **Proc. IEEE Conference on Virtual Environments, Human-Computer Interfaces, and Measurement Systems**, Hong Kong, China, May 11-13, 2009
3. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Model and Measurement of MMOG Time-Constraint Relaxation Algorithm", *Proc. IEEE International Instrumentation and Measurement Technology Conference*, Singapore, May 5-7, 2009
4. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Intelligent Path Finding for Avatars in Massively Multiplayer Online Games", *Proc. IEEE Workshop on Computational Intelligence in Virtual Environments*, in *Proc. IEEE Symposium Series on Computational Intelligence*, Nashville, TN, USA, March 30 - April 2, 2009

2008:

5. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, " A Dynamic Area of Interest Management and Collaboration Model for P2P MMOGs", *Proc. IEEE Int. Symposium on Distributed Simulation and Real Time Applications*, Vancouver, BC, Canada, October 2008
6. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, " A Microcell Oriented Load Balancing Model for Collaborative Virtual Environments", *Proc. IEEE Conference on Virtual Environments, Human-Computer Interfaces, and Measurement Systems*, Istanbul, Turkey, July 2008
7. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Model and Measurement of State Dissemination in MMOGs", *Proc. IEEE International Instrumentation and Measurement Technology Conference*, Victoria, BC, Canada, May 2008
8. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "An Expedite State Dissemination Mechanism for MMOGs", *Proc. International Symposium on Parallel Architectures, Algorithms, and Networks*, Sydney, Australia, May 2008
9. Razib Iqbal, **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Distributed Video Adaptation and Streaming for Heterogeneous Devices", *Proc. IEEE Workshop on Mobile Peer-to-Peer Computing*, Hong Kong, China, March 2008

2007:

10. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, Jauvane C. Oliveira, "Performance Enhancement in MMOGs Using Entity Types", *Proc. IEEE Int. Symposium on Distributed Simulation and Real Time Applications*, Chania, Crete Island, October 2007
11. Ihab Kazem, **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "A Visibility-Driven Approach to Managing Interest in Collaborative Virtual Environments with Dynamic Load Balancing", *Proc. IEEE Int. Symposium on Distributed Simulation and Real Time Applications*, Chania, Crete Island, October 2007
12. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, Jauvane C. Oliveira, "Improving Gaming Experience in Zonal MMOGs", *Proc. ACM Multimedia*, Augsburg, Germany, September 2007
13. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, Jauvane C. Oliveira, "State Management in Large Scale Group Communication", *Proc. IEEE Int. Conference on Signal Processing and Communication*, Dubai, UAE, November 2007
14. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "A Framework for Provisioning Overlay Network Based Multimedia Distribution Services", *Proc. IEEE International Conference on Multimedia and Expo*, Beijing, China, July 2007
15. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, A. El Saddik, "A Dominating Set Based Peer-to-Peer Protocol for Real-Time Multi-Source Collaboration", *Proc. IEEE Workshop on Collaborative P2P Information Systems*, Paris, France, June 2007
16. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, Jauvane C. Oliveira, "Supporting Large-Scale Networked Virtual Environments", *Proc. IEEE Conference on Virtual Environments, Human-Computer Interfaces, and Measurement Systems*, Ostuni, Italy, June 2007
17. Choudhury A. Al Sayeed, **Dewan Tanvir Ahmed**, Akbar G. P. Rahbar, "Hybrid Maximal Matching for Input Buffered Crossbar Switches," *Proc. IEEE/ACM Conference on Communication Networks and Services Research*, Fredericton, NB, Canada, May 2007

18. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Architectural Analysis of Multicast Routing Protocols for Wireless Ad Hoc Networks", Proc. IEEE International Conference on Networking, Martinique, April 2007
19. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Design Issues of Peer-to-Peer Systems for Wireless Ad Hoc Networks", Proc. IEEE International Conference on Networking, Martinique, April 2007
20. Ihab Kazem, **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "A Zone Based Architecture for Massively Multiuser Simulations", Proc. SCS/ACM Communications and Networking Simulation Symposium, Norfolk, VA, USA, March 2007
21. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "Multi-Level Hashing for Peer-to-Peer System in Wireless Ad Hoc Environment", Proc. IEEE Workshop on Mobile Peer-to-Peer Computing, White Plains, NY, USA, March 2007

2006:

22. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "BM-ALM: An Application Layer Multicasting with Behavior Monitoring Approach", Proc. IEEE International Symposium on Multimedia, San Diego, CA, USA, December 2006
23. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, Jauvane C. Oliveira, "A Novel Method for Supporting Massively Multi-user Virtual Environments", Proc. IEEE Workshop on Haptic Audio Visual Environments and their Applications, Ottawa, ON, Canada, November 2006
24. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, Ihab Kazem, "Zone Based Messaging in Collaborative Virtual Environments", Proc. IEEE Workshop on Haptic Audio Visual Environments and their Applications, Ottawa, ON, Canada, November 2006
25. **Dewan Tanvir Ahmed**, Shervin Shirmohammadi, "A Hybrid P2P Protocol for Real-time Applications", 15th IEEE International Workshops on Enabling Technologies: Infrastructures for Collaborative Enterprises, Manchester, UK, June 26-28, 2006

○ REFERENCES

Available upon request from

- **Prof. Shervin Shirmohammadi (Ph.D. supervisor)**
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School of Information Technology and Engineering, University of Ottawa, Canada
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- **Prof. Abdulmotaleb El Saddik (research collaborator)**
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