

CURRICULUM VITAE

SK ALAMGIR HOSSAIN

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EDUCATION

- **PhD. in Computer Science & Engineering** Khulna University
Khulna University *July 2016 - Ongoing*
 - Thesis: Internet of Things based Framework for Situation Awareness in a Smart City
 - Advised by: Prof. Dr. Md. Anisur Rahman.
- **M.Sc. in Computer Science** Ottawa, ON, Canada
University of Ottawa *October 2011*
 - GPA: 9.6 out of 10
 - Thesis: Design and development of a framework to bridge the gap between real and virtual.
 - Advised by: Prof. Dr.-Ing. Abdulmotaleb El Saddik.
- **B.Sc. in Computer Science & Engineering** Khulna, Bangladesh
Khulna University *May 2006*
 - GPA: 3.89 out of 4, and Dean's Honour List each year
 - Thesis: Efficient digital image watermarking technique based on discrete cosine transform and discrete wavelet transform.
 - Advised by: Prof. Dr. Rameswar Debnath.

PROFESSIONAL CERTIFICATION

- **Microsoft Certified Technology Specialist (MCTS)** *July 2008*
Microsoft .NET Framework - Application Development Foundation
 - Online Transcript: <https://mcp.microsoft.com/authenticate/ValidateMCP.aspx>
 - Transcript Id: 802356, Access code: hiramcpd

ACADEMIC AND RESEARCH AWARDS

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|--|-------------|
| PhD Fellowship, ICT Division, Bangladesh) (BDT 15 Lac) | 2016 - 2019 |
| Ontario Graduate Scholarship (OGS for international students) (\$15 000) | 2010 - 2011 |
| Excellence Scholarship, University of Ottawa (\$15 000) | 2010 - 2011 |
| Research Assistantship, University of Ottawa, (\$25 000) | 2010 - 2012 |

RESEARCH INTERESTS

The Internet of Things (IoT), Human-Computer Interaction (HCI), Virtual reality with Haptic, Tangible Computing, Ambient Intelligence and Humanized Computing, Smart Environment and Telesurveillance System

AWARDS & ACHIEVEMENTS

- 2016** ICT Division, Bangladesh, PhD Fellowship (2016-2019)
- 2011** University of Ottawa, Excellence Scholarship (2010-2011)
Ontario Graduate Scholarship (for international students) (2010-2011)
Best Web Designer in *MCRLab web application design competition*
- 2008** Microsoft Certificate of Excellence Award, completed the *MCTS* exam with 97% marks
- 2007** Received Best Finish Award, *Pyxisnet 3D Game Coding Competition*, Dhaka, Bangladesh
- 2006** Second rank with Distinction in B.Sc. in Computer Science & Engineering, Khulna University, Bangladesh
Awarded **1st** according to the visitors votes at BRAC Bank IT FAIR
- 2005** **1st** position in the *Southern Regional Programming Contest 2005*
14th position in the *ACM Int. Collegiate Programming Contest Dhaka Site*
- 2004** **3rd** Position in *Khulna University Programming Contest, 2004*
35th position in the *ACM Int. Collegiate Programming Contest Dhaka Site*
- 2002-06** Solutions to over 500 problems accepted at UVA Online Judge
Topcoder rated member
Education Board Scholarship/Dean's List in the year 2003, 04, 05, 06

WORKING EXPERIENCE

- **Associate Professor** Khulna, Bangladesh
Computer Science and Engineering Discipline, Khulna University *Sep 2015 - Continue*
 - Demonstrated in depth knowledge of theoretical computer science.
 - Significant achievement as a programming contest coordinator.
- **Assistant Professor** Khulna, Bangladesh
Computer Science and Engineering Discipline, Khulna University *Sep 2011 - Sept 2015*
 - Demonstrated in depth knowledge of theoretical computer science.
 - Significant achievement as a programming contest coordinator.
- **Research Assistant** Ottawa, ON, Canada
Discover Lab, University of Ottawa (www.discover.uottawa.ca) *Jan 2010 - Sep 2011*
 - Developed haptic based real and virtual collaborative tool.
 - Demonstrated high quality research and publications.
- **Webmaster** Ottawa, ON, Canada
Faculty of Arts, University of Ottawa. *Nov 2010 - Sep 2011*
 - Provided easy manageable, graphical organization chart for University of Ottawa.
 - Designed & developed *research project management* and *asset management software* .
- **Teaching Assistant** Ottawa, ON, Canada
Faculty of Engineering, University of Ottawa *Sept 2010 - Aug 2011*
 - Marked assignments, examinations, and taught courses. Conducted the lab sessions.
- **Lecturer** Khulna, Bangladesh
Computer Science and Engineering Discipline, Khulna University *Sep 2008 - Dec 2009*
 - Demonstrated in depth knowledge of theoretical computer science.
 - Significant achievement as a programming contest coordinator.

- **Software Engineer** Dhaka, Bangladesh
The Jaxara IT Ltd (www.jaxara.com) *Jan 2008 - Sep 2008*
 - Demonstrated to work in Scrum project management framework.
 - Successfully lead a project called *ASLA LACES*.
- **Software Engineer** Dhaka, Bangladesh
Pyxisnet Ltd (www.pyxisnet.com) *Apr 2007 - Dec 2007*
 - Successfully implemented messaging module in web-based collaborative tool (GC.net) and improved the data archiving method.
- **Summer Intern** Dhaka, Bangladesh
Pacific Bangladesh Telecom Ltd (www.citycell.com) *Dec 2005 - Feb 2006*
 - Successfully developed automatic optical character recognition based subscriber entry management system.
 - Redesigned the company's IT reporting by using Crystal Report and Belarc PC tools.

TEACHING EXPERIENCE

- **Computer Algorithms** Khulna University
Instructor *Summar 2016*
 - Delivered lectures, supervised labs, marked assignments and exams.
- **Human Computer Interaction** Khulna University
Instructor *Summar 2012, 2013, 2014*
 - Delivered lectures, marked assignments and exams.
- **Object Oriented Programming** Khulna University
Instructor *Winter 2012, 2013, 2014*
 - Delivered lectures, supervised labs, marked assignments and exams.
- **WWW Structures, Techniques and Standards** University of Ottawa
Teaching Assistant *Summar 2011*
 - Marked assignments, examinations, and taught the course.
 - Conducted the lab sessions.
- **Professional Practice in Computer Science** University of Ottawa
Teaching Assistant *Winter 2010*
 - Prepared and marked assignments. Conduct the student group discussion sessions.
- **Computer Networks** Khulna University
Instructor *Fall 2008, Fall 2009*
 - Delivered lectures, supervised labs, marked assignments and exams.
- **Database Management System** Khulna University
Instructor *Winter 2009*
 - Delivered lectures, supervised labs, marked assignments and exams.

CONTRIBUTIONS TO RESEARCH AND DEVELOPMENT

a. Book Chapters

- [1] A. Rahman, **SA. Hossain**, and A. El Saddik. Haptic Interaction and Avatar Animation Rendering Centric Telepresence in Second Life. *Multimedia Image and Video Processing (2nd edition)*, March 2012 by CRC Press, pp. 717-739, ISBN: 978-1-4398-3086-4.

b. Articles published or accepted in refereed journals

- [1] **SA. Hossain**, M. Anisur Rahman, and M. Anwar Hossain. (2018). Edge Computing Framework for Enabling Situation Awareness in IoT based Smart City. **Journal of Parallel and Distributed Computing**, 122 (2018): 226-237.
- [2] M. Anwar Hossain, Atif Alamri, Ahmad S. Almogren, **SA. Hossain**, and Jorge Parra. (2014). A Framework for a Context-Aware Elderly Entertainment Support System. **Sensors** 2014, 14(6), 10538-10561.
- [3] M. Shamim Hossain, **SA. Hossain**, AM. Alamri, and A. El Saddik. Ant-based service selection framework in smart home monitoring environment. To be published in *Multimedia Tools and Applications (MTAP)* (accepted).
- [4] **SA. Hossain**, A. Rahman, and A. El Saddik, Measurements of Multi-modal Approach to Haptic Interaction in Second Life Inter-personal Communication System. In *IEEE Transactions on Instrumentation & Measurement*, vol.60, no.11, pp.3547-3558, Nov. 2011.

c. International conference papers

- [1] **SA. Hossain**, M. Anisur Rahman, and M. Anwar Hossain. Detecting Situations from Heterogeneous Internet of Things Data in Smart City Context. *Science and Information Conference. Springer*, July 2018, London, UK.
- [2] T. Tabassum, **SA. Hossain**, and M. Anisur Rahman. A Secure Key Management Technique through Distributed Middleware for the Internet of Things. *Science and Information Conference. Springer*, July 2018, London, UK.
- [3] MNA Hossain, A Pal and **SA. Hossain**. A Wearable Sensor Based Elderly Home Care System in a Smart Environment. *Proceedings of ICCIT 2015 - the 18th International Conference on Computer and Information Technology*, Dhaka, Bangladesh. Dec 2015.
- [4] T. Tasneem, A. Shome and **SA. Hossain**. A Garming Approach In Physical Therapy for Facial Nerve Paralysis Patient. *Proceedings of ICCIT 2013 - the 16th International Conference on Computer and Information Technology*, Khulna, Bangladesh. Dec 2013.
- [5] **SA. Hossain**, T. Tabassum DBF-MLT: NP-Completeness of Specialized Voice Service in Networked Virtual Environment a Peer-to-Peer Approach. *Proceedings of ICCIT 2013 - the 16th International Conference on Computer and Information Technology*, Khulna, Bangladesh. Dec 2013.
- [6] **SA. Hossain**, T. Tabassum Neural net based complete character recognition scheme for Bangla printed text books. *Proceedings of ICCIT 2013 - the 16th International Conference on Computer and Information Technology*, Khulna, Bangladesh. Dec 2013.
- [7] MAA Ahasan, **SA. Hossain**, and AU Siddiquee. (2012). Obstacles invariant navigation of An Autonomous Robot based on GPS. *Proceedings of ICCIT 2012 - the 15th International Conference on Computer and Information Technology*, Chittagong, Bangladesh, Dec. 2012.

- [8] AMohmmad Ullah, MR Islam, SF Aktar, **SA. Hossain**. (2012). Remote-Touch: Augmented reality based marker tracking for Smart Home control. *Proceedings of ICCIT 2012 - the 15th International Conference on Computer and Information Technology*, Chittagong, Bangladesh, Dec. 2012.
- [9] **SA. Hossain**, A. Rahman, and A. El Saddik. Bringing Virtual Events into Real Life in Second Life Home Automation System. *Proceedings of VECIMS 2011 - the IEEE Conference on Virtual Environments, Human-Computer Interfaces and Measurement Systems*, Ottawa, Canada, Sept 2011.
- [10] **SA. Hossain**, A. Rahman, and A. El Saddik. Fusion of Face Networks through the Surveillance of Public Spaces to address Sociological Security Recommendations. *Proceedings of ICME 2011 - the IEEE Conference on Multimedia & Expo*, pp.1-6, Barcelona, Spain, July 2011.
- [11] **SA. Hossain**, A. Rahman, and A. El Saddik. Interpersonal haptic communication in second life. *Proceedings of HAVE 2010 - the 9th IEEE International Symposium on Haptic Audio Visual Environments and Games*, pp.1-4, Arizona, USA, Oct 2010.
- [12] A. Rahman, **SA. Hossain**, and A. El Saddik. Bridging the Gap between Virtual and Real World by Bringing an Interpersonal Haptic Communication System in Second Life. *Proceedings of ISM 2010 - the IEEE International Symposium on Multimedia*, pp. 228-235, Taichung, Taiwan, Dec 2010.
- [13] **SA. Hossain**, A. Rahman, T. Tran, and A. El Saddik. Location aware question answering based product searching in mobile handheld devices. *Proceedings of DS-RT 2010 - the 14th IEEE/ACM International Symposium on Distributed Simulation and Real Time Applications*, pp.189-195, Fairfax, Virginia, USA, Oct 2010.
- [14] A. Rahman, T. Tran, **SA. Hossain**, and A. El Saddik. Augmented rendering of makeup features in a smart interactive mirror system for decision support in cosmetic products selection. *Proceedings of DS-RT 2010 - the 14th IEEE/ACM International Symposium on Distributed Simulation and Real Time Applications*, pp. 203-206, Fairfax, Virginia, USA, Oct 2010.
- [15] **SA. Hossain**, A. Rahman, and A. El Saddik. Haptic based emotional communication system in second life. *Proceedings of HAVE 2010 - the 9th IEEE International Symposium on Haptic Audio Visual Environments and Games*. Demo, pp.1-1, Arizona, USA, Oct 2010.
- [16] SMM. Islam, R. Debnath, and **SA. Hossain**. DWT based digital watermarking technique and its robustness on image rotation, scaling, jpeg compression, cropping and multiple watermarking. *Proceedings of ICICT 2007 - International Conference on Information and Communication Technology*, pp.246-249, Dhaka, Bangladesh, March 2007.
- [17] **SA. Hossain**, SMM. Islam, and R. Debnath. Improvement of the Performance of DCT Based Digital Image Watermarking Technique. *Proceedings of ICCIT 2006 - the 9th International Conference on Computer and Information Technology*, Dhaka, Bangladesh. Dec 2006.
- [18] **SA. Hossain**, and MIA. Khan. Designing 14-Segment Display for English Alphabet. *Proceedings of ICCIT 2006 - the 7th International Conference on Computer and Information Technology*, Dhaka, Bangladesh. Dec 2004.

d. Non-refereed contributions (Technical Reports and Thesis)

- [19] **SA. Hossain**. *Design and development of a framework to bridge the gap between real and virtual*. Master's Thesis, University of Ottawa, Ottawa, Canada, Oct 2011.
- [20] **SA. Hossain**, SMM. Islam. *Efficient Digital Image Watermarking Technique Based On Discrete Cosine Transform and Discrete Wavelet Transform*. Undergraduate Thesis, Khulna University, Khulna, Bangladesh, Dec 2006.

PRESENTATIONS

- **SOA-based Multimedia Services for Intelligent Surveillance** Toronto, Canada
IBM Centers for Advanced Studies: CASCON S3 Workshop Nov 2011
- **Bringing Virtual Events into Real Life in SL Home Automation Sys.** Ottawa, Canada
VECIMS Conference Sept 2011
- **SOA based Service Integration for Int. Surveillance in a Sensor Env.** Ottawa, Canada
MEDIA-Server and Support for Advanced Gaming Environments Workshop Feb 2011
- **Flexible SOA based Service Integration for Intelligent Surveillance** Toronto, Canada
IBM Centers for Advanced Studies: CASCON S3 Workshop Nov 2010
- **DWT Based Watermarking Technique and its Robustness** Dhaka, Bangladesh
International Conference on Information and Communication Technology Mar 2007
- **Improvement of the Performance of DCT Based Watermarking** Dhaka, Bangladesh
9th International Conference on Computer and Information Technology Dec 2006
- **Submarine Cable, prob. and benefits in the context of Bangladesh** Khulna, Bangladesh
Undergraduate Seminar Jun 2006

EXTRA CURRICULAR

- **Reviewer** Barcelona, Spain
IEEE International Conference on Multimedia & Expo (ICME) Jul 2011
- **Programming Contest Coordinator** Khulna, Bangladesh
CSE Discipline, Khulna University 2008-2013
- **Associate member** Dhaka, Bangladesh
Engineers Institution Bangladesh (IEB) 2008-2012
- **Student member** NY, USA
Institute of Electrical and Electronics Engineers Inc. (IEEE) 2003-2007

KEY PROJECTS

- **Broadcasting and Monitoring System www.kusmartclass.org** Khulna University
Smart class room. Dec 2015-Present
- **CSE KU Website www.cseku.ac.bd** CSE Department, Khulna University
Custom PHP site Jan 2013-Present
- **Asset Management System** Faculty of Arts, University of Ottawa, Canada
Web based asset management tool. July 2011-Sept 2012
- **Organization Chart Management Tool** Comm Directorate, University of Ottawa, Canada
Graphical organization chart management tool. Dec 2010-Feb 2011
- **McrLab Website (www.mcrlab.uottawa.ca)** McrLab, University of Ottawa, Canada
Joomla based web site. Sept-Nov, 2010
- **Electronics Shop Management System** Habib Electronics, Bangladesh
Web based electronic shop management system. Sep 2009-Mar 2010
- **FedNet Speech Annotation Tool (www.fednet.net)** Jaxara IT Ltd, Bangladesh
Automated speech to text annotation tool. Aug-Sept, 2010

- **ASLA LACES Site (laces.asla.org)** Jaxara IT Ltd, Bangladesh
CMS based educational web site. Mar-Jul, 2010
- **AGIS Public Site (www.agis.com)** Jaxara IT Ltd, Bangladesh
CMS based public web site for AGIS Inc. Jan-Feb, 2010
- **Groupcare Portal (portal.groupcare.dk)** Pyxisnet Ltd, Bangladesh
Web-based collaborative tools in Denmark. Apr-Dec, 2007
- **IT Asset Management** Pacific Bangladesh Telecom Ltd, Bangladesh
An inventory management system. Dec 2005-Jan 2006
- **Subscriber Entry Management System** Pacific Bangladesh Telecom Ltd, Bangladesh
OCR based automatic form entry tool. Jan-Feb, 2006
- **Programming Contest Control System** Khulna University, Bangladesh
Automated team based programming contest control system. May-Aug, 2005
- **Logic Circuit Simulator** Khulna University, Bangladesh
Graphical electronic logic circuit simulation tool. May-Aug, 2005

REFERENCES

Dr.-Ing. Abdulmotaleb El Saddik

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- Faculty of Engineering, University of Ottawa
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