

Mohammad Imrul Jubair

Former Researcher, Visualization and Graphics Lab, University of Calgary, Canada.

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EDUCATION

MSc. in Computer Science

University of Calgary, Canada.

Sep 2014 – Dec 2016

- Supervisor: Dr. Usman R. Alim
- CGPA: 3.775 / 4.00
- Courses: Visualization of Scientific Data, Modelling for Computer Graphics, Rendering and Image analysis & Computer Vision.
- Thesis: “**Icosahedral Maps for a Multiresolution Representation of Earth Data**”.
Url: hdl.handle.net/11023/3527 and Slides: bit.ly/jubair-msc-slides

BSc. in Computer Science & Information Technology

Islamic University of Technology, Bangladesh.

Jan 2008 – Oct 2011

- CGPA: 3.85 / 4.00
- Thesis: “**An Enhanced Decision Based Adaptive Median Filtering Technique to Remove Salt and Pepper Noise in Digital Images**”.

INTERESTS

- Visualization • Computer Graphics • Computer Vision

AWARDS, SCHOLARSHIPS AND GRANTS

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|---|----------|
| ▪ Grant for <i>Teaching for Active Learning Course</i> ,
Ahasanullah University of Science & Technology.
Amount: 10000 BDT | Aug 2018 |
| ▪ Workshop Grant , German Climate Computing Center (DKRZ).
In the form of transportation & accommodation. | Oct 2016 |
| ▪ CPSC Travel Award , University of Calgary.
Amount: 1200 CAD | Oct 2016 |
| ▪ Research Award (2nd year of MSc), University of Calgary.
Amount: 6000 CAD | Sep 2015 |
| ▪ Research Award (1st year of MSc), University of Calgary.
Amount: 6000 CAD | Sep 2014 |
| ▪ International Recruitment Graduate Award , University of Calgary.
Amount: 2000 CAD | Sep 2014 |
| ▪ International Student Differential Fee Reimbursement Award ,
University of Calgary.
Amount: 4126.17 CAD | Sep 2014 |
| ▪ OIC Undergraduate Student Scholarship , Islamic University of Technology.
Amount: 12000 USD | Jan 2008 |

TEACHING EXPERIENCE	<ul style="list-style-type: none"> ▪ Faculty Member, Department of Computer Science and Engineering, Ahsanullah University of Science and Technology, Bangladesh. May 2017 – Present <ul style="list-style-type: none"> • Courses: <i>Computer Graphics, Image Processing, Distributed Database Systems</i>. ▪ Teaching Assistant, Department of Computer Science, University of Calgary. Sep 01, 2014 – Dec 31, 2016 <ul style="list-style-type: none"> • Course: <i>CPSC 217 - Introduction to Computer Science for Multidisciplinary Studies-1</i> (Python).
RESEARCH EXPERIENCE	<ul style="list-style-type: none"> ▪ Undergraduate Research Supervisor Mar 2018 – Present <ul style="list-style-type: none"> Department of CSE, Ahsanullah University of Science and Technology, Bangladesh. (see <u>Ongoing Project</u> section for more). ▪ Research Assistant Sep 2014 – Dec 2016 <ul style="list-style-type: none"> Visualization & Graphics Group (VISAGG) at Graphics Jungle, University of Calgary. <u>Undertaken tasks:</u> <ul style="list-style-type: none"> • Explored different NetCDF-based climate models and <i>Digital Earths</i>. • Investigated their data structures. • Applied Atlas of Connectivity Maps (ACM) on a climate model. • Developed a method called “Icosahedral Maps” to extend ACM. ▪ Research Collaborator Nov 2014 – Dec 2016 <ul style="list-style-type: none"> German Climate Computer Center (DKRZ), Hamburg. and National Center for Atmospheric Research (NCAR), USA. <u>Undertaken tasks:</u> <ul style="list-style-type: none"> • Applied “Icosahedral Maps” on the ICON (Icosahedral Nonhydrostatic) model. • Made “Icosahedral Maps” applicable for all types of cells of ICON and partial grids. • Applied MRA on <i>Hurricane Gaston</i>, <i>HD(CP)2</i> and <i>Agulhas Current</i> datasets using “Icosahedral Maps”. • Working with domain experts & collecting feedback.
TRAINING	<ul style="list-style-type: none"> ▪ Training on Designing and developing Moodle-enabled Blended learning courses. offered by Commonwealth of Learning (COL). Jun 25, 2019 – Jun 27, 2019 ▪ Trainee, Teaching for Active Learning Course, Aug 30, 2018 – Sep 1, 2018 offered by Foundation for Learning, Teaching and Research. ▪ Trainee, Asia Pacific Communication Limited, Bangladesh. Oct 18, 2010 – Nov 25, 2010
SKILLS	MATLAB, Python, C, C++, C#, JAVA, modern OpenGL, WebGL, CUDA, Unity3D. <ul style="list-style-type: none"> • Repositories: github.com/imruljubair
SELECTED PUBLICATIONS	<ul style="list-style-type: none"> ▪ Hoque O., Jubair M. I., Islam M. S., Akash A. & Paulson A., “Real Time Bangladeshi Sign Language Detection using Faster R-CNN”, <i>International Conference on Innovation in Engineering and Technology (ICIET)</i>, Dhaka, Dec 2018, [arxiv.org/abs/1811.12813].

- Jubair M. I., Alim U., Röber N., Clyne J. & Mahdavi-Amiri A., “**Icosahedral Maps for a Multiresolution Representation of Earth Data**”, *21st International Symposium on Vision, Modeling and Visualization (VMV)*, Bayreuth, pp. 161-168, Oct 2016.
- Jubair M. I., Alim U., Röber N., Clyne J., Mahdavi-Amiri A. & Samavati. F., “**Multiresolution Visualization of Digital Earth Data via Hexagonal Box Spline Wavelets**”, (Poster), *IEEE Visualization Conference (IEEE VIS)*, Chicago, Oct 2015.
- Jubair M. I. & Banik P., “**A Technique to Detect Books from Library Bookshelf Image**”, *IEEE 9th International Conference on Computational Cybernetics (IEEE ICCCC)*, Hungary, 2013.
- Jubair M. I., Rahman M. M., Ashfaqueuddin S. & Ziko I. M., “**An Enhanced Decision Based Adaptive Median Filtering Technique to Remove Salt and Pepper Noise in Digital Images**”, *14th International Conference on Computer and Information Technology (ICCIT)*, Dhaka, 2011.

FOR MORE: bit.ly/jubair-gscholar

SELECTED COURSE PROJECTS	▪ Implementing Atlas of Connectivity Maps for ICON Grid	Sep 2014
	Course: CPSC 601 – Visualization of Scientific Data, Fall 2014, UofC. Language: MATLAB [github.com/imruljubair/SciVis-Course-Project-Fall-2014]	
	▪ GPU based Multiresolution Visualization of ICON Data	Jan 2015
	Course: CPSC 691 – Rendering, Winter 2015, UofC. Language: GLSL & C [github.com/imruljubair/Visualization-using-GLSL]	
	▪ A Game using OpenGL	May 2010
HOBBY PROJECTS	Course: CIT 4506 – Computer Graphics & Multimedia Systems Lab, IUT. Language: OpenGL (legacy) & C [github.com/imruljubair/A-Game-with-old-OpenGL]	
	▪ A Bank Account Management System	Oct 2009
	Course: CIT 4502 – Visual Programming Lab, IUT. Language: Java & MySQL	
	▪ RayVis	Jan 2019
	Language: MATLAB [github.com/imruljubair/RayVis]	
	▪ Simple Perceptron Simulator for Kids	Aug 2018
	Language: Python [github.com/imruljubair/Simple-perceptron-simulator-for-kids]	
	▪ Environment Mapping using Texture Map	Feb 2015
	Language: OpenGL (legacy) & C [github.com/imruljubair/Environment-Mapping-using-Texture-map]	
	▪ B-Spline Curve Simulator	Feb 2015
	Language: OpenGL (legacy) & C [github.com/imruljubair/B-Spline-Curve-Simulator]	
	▪ A Very Simple Raytracer	Oct 2014
	Language: C++ [github.com/imruljubair/a-very-simple-raytracer]	

ONGOING PROJECTS

- Artificial Jamdani Artists** 2019
- Developing an AI based tool for designer. User will provide a skeleton of the tentative motif and our system will generate it and suggest.
 - We have considered the traditional *Jamdani* and currently the project is in data collection phase.
- Shapes2toon: Generating Cartoon Characters from Simple 2D Shapes** 2019
- Developing a tool where a very simple geometric approximation will be provided and a cartoon character will be created.
 - For example: a very simple combination of rectangles and ellipse, a pose of SpongeBob SquarePants will be generated.
- Toon2real** 2018
- Translating cartoon-styled images into their real-world scenes using GAN.
 - The project stood the 1st runner-up position in *MINDSPARKS'19*.
- Bangladeshi Sign Language Detection App** Apr 2018
- To develop a robotic system to detect Bangladeshi Sign Language (BdSL) from images in real-time.
 - A Fully working tool developed for desktop using Faster R-CNN.
 - Next target is to develop an app for smartphones.
 - A dataset – **BdSLImset** (*Bangladeshi Sign Language Image Dataset*) is created.
[github.com/imruljubair/bdslimset].
- WhYMYFace: What's in Your Mind is in Your Face!** 2018
- A GAN-based application to transfer the emotions from a social media/ blog post of an user to his or her facial expression in profile picture.

TALKS

- **Talk** on – “Using Wavelets to Compress ICON and MPAS data sets”.
Host: German Climate Computing Center (DKRZ), Germany. Oct 14, 2016
- **Seminar talk** on – “Icosahedral Maps for a Multiresolution Representation of Earth Data”.
Host: Department of Computer Science, University of Calgary. Dec 02, 2016
- **Presentation** on – “Icosahedral Maps for the Climate Models”,
at CSEdWeek 2016, University of Calgary. Dec 09, 2016
- **Presentation** on – “Icosahedral Maps for a Multiresolution Representation of Earth Data”,
at VMV 2016, Bayreuth. Oct 2016
- **Presentation** on – “CUDA Programming Basics”, at VISAGG Reading group seminar,
University of Calgary. Mar 2016
- **Presentation** on – “A Hexagonal Box Spline Wavelet for Level of Detail Visualization of Digital Earth Data”, at Computer Science Industrial Day 2015, University of Calgary. Dec 2015
- **Talk** on – “Tessellation: Getting Started”, at Grad Seminar Series (CPSC 691 Rendering Course),
University of Calgary. Mar 2015
- **Presentation** on – “An Enhanced Decision Based Adaptive Median Filtering Technique to Remove Salt and Pepper Noise in Digital Images”, at ICCIT 2011, Dhaka. Dec 2011

MISCELLANEOUS	▪ Member , Technical Sub-committee, ICCIT 2020 Ahsanullah University of Science and Technology.	Nov 2020
	▪ Sub-reviewer , ICIET 2019, ICCIT 2020	
	▪ Judge , Software Contest, <i>MINDSPARKS 2019</i> , Ahsanullah University of Science and Technology.	Jan 2019
	▪ Convener , Programming Contest, <i>CSE WEEK 2018</i> , Ahsanullah University of Science and Technology.	Jul 2018
	▪ Project Presenter , <i>CSEdWeek 2016</i> , University of Calgary.	Dec 2016
	▪ Member , Bangladeshi Student Association, University of Calgary.	Sep 2014 – Dec 2016
	▪ Vice President , Islamic University of Technology Computer Society.	Nov 2010 – Oct 2011
	▪ Microsoft Student Partner , Islamic University of Technology.	Jan 2011 – Oct 2011
	▪ Organizing Member , IUT 3rd National ICT Fest, Bangladesh.	Apr 2011
	▪ Volunteer , IUT 1st & 2nd National ICT Fest, Bangladesh.	Apr 2008 & May 2010
	▪ Participant , Intra IUT Programming Contest.	2008
	▪ Participant , Intra IUT Debate Competition.	2008
	▪ YouTube Channel (2D animation): youtube.com/user/jubairization	

REFERENCES

- **Dr. Usman R. Alim**
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- **Dr. Niklas Röber**
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German Climate Computing Center (DKRZ),
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