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

- **Grant** for *Teaching for Active Learning Course*,   Aug 2018
  Ahasanullah University of Science & Technology.
  Amount: 10000 BDT

- **Workshop Grant**, German Climate Computing Center (DKRZ).   Oct 2016
  In the form of transportation & accommodation.

- **CPSC Travel Award**, University of Calgary.   Oct 2016
  Amount: 1200 CAD

- **Research Award** (2nd year of MSc), University of Calgary.   Sep 2015
  Amount: 6000 CAD

- **Research Award** (1st year of MSc), University of Calgary.   Sep 2014
  Amount: 6000 CAD

- **International Recruitment Graduate Award**, University of Calgary. Sep 2014
  Amount: 2000 CAD

- **International Student Differential Fee Reimbursement Award**,
  University of Calgary.   Sep 2014
  Amount: 4126.17 CAD

- **OIC Undergraduate Student Scholarship**, Islamic University of Technology.   Jan 2008
  Amount: 12000 USD

TEACHING EXPERIENCE	■ **Faculty Member**, Department of Computer Science and Engineering, May 2017 – Present
	Ahsanullah University of Science and Technology, Bangladesh.
	  • Courses: *Computer Graphics, Image Processing, Distributed Database Systems*.
	
	■ **Teaching Assistant**, Department of Computer Science, Sep 01, 2014 – Dec 31, 2016
	University of Calgary.
	  • Course: *CPSC 217 - Introduction to Computer Science for Multidisciplinary Studies–1* (Python).

RESEARCH EXPERIENCE	■ **Undergraduate Research Supervisor** Mar 2018 – Present
	Department of CSE,
	Ahsanullah University of Science and Technology, Bangladesh.
	(see *Ongoing Project* section for more).
	
	■ **Research Assistant** Sep 2014 – Dec 2016
	Visualization & Graphics Group (VISAGG) at Graphics Jungle,
	University of Calgary.
	Undertaken tasks:
	  • Explored different NetCDF-based climate models and *Digital Earths*.
	  • 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
	German Climate Computer Center (DKRZ), Hamburg.
	and National Center for Atmospheric Research (NCAR), USA.
	Undertaken tasks:
	  • 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 *Hurricane Gaston, HD(CP)2* and *Agulhas Current* datasets using "Icosahedral Maps".
	  • Working with domain experts & collecting feedback.

TRAINING	■ **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++, JAVA, modern OpenGL, WebGL, CUDA, Unity 3D. • **Repositories:** *github.com/imruljubair*
SELECTED PUBLICATIONS	■ Hoque O., <u>Jubair M. I.</u>, Islam M. S., Akash A. & Paulson A., **"Real Time Bangladeshi Sign Language Detection using Faster R-CNN"**, *International Conference on Innovation in Engineering and Technology (ICIET)*, Dhaka, Dec 2018, [arxiv.org/abs/1811.12813].

- <u>Jubair M. I.</u>, 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.

- <u>Jubair M. I.</u>, 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.

- <u>Jubair M. I.</u> & Banik P., **"A Technique to Detect Books from Library Bookshelf Image"**, *IEEE 9th International Conference on Computational Cybernetics (IEEE ICCC)*, Hungary, 2013.

- <u>Jubair M. I.</u>, 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
  Course: CIT 4506 – Computer Graphics & Multimedia Systems Lab, IUT.
  Language: OpengGl (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

HOBBY PROJECTS

- **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

Artifical 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 develope 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

- **Reviewer**, International Conference on Innovation in Engineering and Technology(ICIET) 2019, University of Dhaka. — Nov 2019

- **Judge**, Software Contest, *MINDSPARKS 2019*, Ahsanullah University of Science and Technology. — Jan 2019

- **Convener**, Programming Contest, *CSE WEEK 2018*, Ahsanullah University of Science and Technology. — Jul 2018

- **Project Presenter**, *CSEdWeek 2016*, 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**
  Associate Professor,
  Department of Computer Science, University of Calgary,
  2500 University Drive NW Calgary, AB T2N 1N4 Canada.
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- **Dr. Niklas Röber**
  Visalization Scientist,
  German Climate Computing Center (DKRZ),
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