

# 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
- 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

- 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*,  
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

- **Faculty Member**, Department of Computer Science and Engineering,  
Ahsanullah University of Science and Technology, Bangladesh. May 2017 – Present
  - Courses: *Computer Graphics, Image Processing, Distributed Database Systems.*

	<ul style="list-style-type: none"> <li>▪ <b>Teaching Assistant</b>, Department of Computer Science, University of Calgary.  <ul style="list-style-type: none"> <li>• Course: <i>CPSC 217 - Introduction to Computer Science for Multidisciplinary Studies-1</i> (Python).</li> </ul> </li> </ul>	Sep 01, 2014 – Dec 31, 2016
RESEARCH EXPERIENCE	<ul style="list-style-type: none"> <li>▪ <b>Undergraduate Research Supervisor</b>  Department of CSE,  Ahsanullah University of Science and Technology, Bangladesh.  (see <u>Ongoing Project</u> section for more).</li> <li>▪ <b>Research Assistant</b>  Visualization &amp; Graphics Group (VISAGG) at Graphics Jungle,  University of Calgary.  <u>Undertaken tasks:</u> <ul style="list-style-type: none"> <li>• Explored different NetCDF-based climate models and <i>Digital Earths</i>.</li> <li>• Investigated their data structures.</li> <li>• Applied Atlas of Connectivity Maps (ACM) on a climate model.</li> <li>• Developed a method called “Icosahedral Maps” to extend ACM.</li> </ul> </li> <li>▪ <b>Research Collaborator</b>  German Climate Computer Center (DKRZ), Hamburg,  and National Center for Atmospheric Research (NCAR), USA.  <u>Undertaken tasks:</u> <ul style="list-style-type: none"> <li>• Applied “Icosahedral Maps” on the ICON (Icosahedral Nonhydrostatic) model.</li> <li>• Made “Icosahedral Maps” applicable for all types of cells of ICON and partial grids.</li> <li>• Applied MRA on <i>Hurricane Gaston</i>, <i>HD(CP)2</i> and <i>Agulhas Current</i> datasets using “Icosahedral Maps”.</li> <li>• Working with domain experts &amp; collecting feedback.</li> </ul> </li> </ul>	Mar 2018 – Present  Sep 2014 – Dec 2016  Nov 2014 – Dec 2016
TRAINING	<ul style="list-style-type: none"> <li>▪ <b>Training on Designing and developing Moodle-enabled Blended learning courses.</b>  offered by <b>Commonwealth of Learning (COL)</b>.</li> <li>▪ <b>Trainee, Teaching for Active Learning Course,</b>  offered by <b>Foundation for Learning, Teaching and Research.</b>  <b>Instructors:</b> <i>Prof. M. G. Samdani Fakir (VC, GUB), Prof. M. R. Kabir (Pro VC, UAP),  Prof. Yousuf M Islam (VC, DIU), Prof. Dr. Abdur Razzaque and Prof. Syed Manzoorul Islam.</i></li> <li>▪ <b>Trainee</b>, Asia Pacific Communication Limited, Bangladesh.</li> </ul>	Jun 25, 2019 – Jun 27, 2019 Aug 30, 2018 – Sep 1, 2018  Oct 18, 2010 – Nov 25, 2010
SKILLS	MATLAB, Python, C, C++, OpenGL Shading Language, WebGL, JAVA, CUDA. <ul style="list-style-type: none"> <li>• <b>Repositories:</b> <a href="https://github.com/imruljubair">github.com/imruljubair</a></li> </ul>	
SELECTED PUBLICATIONS	<ul style="list-style-type: none"> <li>▪ Sultan K. M. A., Rupty L. K., Pranto N. I., Shuvo S. K. &amp; Jubair M. I., “<b>Cartoon-to-real: An Approach to Translate Cartoon to Realistic Images using GAN</b>” (Accepted for poster), <i>International Conference on Innovation in Engineering and Technology (ICIET)</i>, Dhaka, Dec 2018, [arxiv.org/abs/1811.11796].</li> </ul>	

- Hoque O., Jubair M. I., Islam M. S., Akash A. & Paulson A., “**Real Time Bangladeshi Sign Language Detection using Faster R-CNN**” (Accepted), *International Conference on Innovation in Engineering and Technology (ICIET)*, 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 ICC)*, Hungary, 2013.
- Jubair M. I. & Banik P., “**A Simplified Method for Handwritten Character Recognition from Document Image**”, *International Journal of Computer Applications*, vol. 51, no. 14, pp. 50–54, 2012.
- 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](http://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](https://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](https://github.com/imruljubair/Visualization-using-GLSL)]
- **A Game using OpenGL** May 2010  
Course: CIT 4506 – Computer Graphics & Multimedia Systems Lab, IUT.  
Language: OpenGL (legacy) & C [[github.com/imruljubair/A-Game-with-old-OpenGL](https://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](https://github.com/imruljubair/RayVis)]
- **Simple Perceptron Simulator for Kids** Aug 2018  
Language: Python [[github.com/imruljubair/Simple-perceptron-simulator-for-kids](https://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](https://github.com/imruljubair/Environment-Mapping-using-Texture-map)]

	<ul style="list-style-type: none"> <li>▪ <b>B-Spline Curve Simulator</b> Feb 2015 Language: OpenGL (legacy) &amp; C [<a href="https://github.com/imruljubair/B-Spline-Curve-Simulator">github.com/imruljubair/B-Spline-Curve-Simulator</a>]</li> <li>▪ <b>A Very Simple Raytracer</b> Oct 2014 Language: C++ [<a href="https://github.com/imruljubair/a-very-simple-raytracer">github.com/imruljubair/a-very-simple-raytracer</a>]</li> </ul>
ONGOING PROJECTS	<p><b>Artificial Jamdani Artists</b> 2019</p> <ul style="list-style-type: none"> <li>• Developing an AI based tool for designer. User will provide a skeleton of the tentative motif and our system will generate it and suggest.</li> <li>• We have considered the traditional <i>Jamdani</i> and currently the project is in data collection phase.</li> </ul> <p><b>Shapes2toon: Generating Cartoon Characters from Simple 2D Shapes</b> 2019</p> <ul style="list-style-type: none"> <li>• Developing a tool where a very simple geometric approximation will be provided and a cartoon character will be created.</li> <li>• For example: a very simple combination of rectangles and ellipse, a pose of SpongeBob SquarePants will be generated.</li> <li>• The project is currently in data processing phase. We are working on approximating cartoon characters using simple geometric shapes.</li> </ul> <p><b>Toon2real</b> 2018</p> <ul style="list-style-type: none"> <li>• Translating cartoon-styled images into their real-world scenes using GAN.</li> <li>• The project stood the 1st runner-up position in <i>MINDSPARKS'19</i>.</li> </ul> <p><b>Bangladeshi Sign Language Detection App</b> Apr 2018</p> <ul style="list-style-type: none"> <li>• To develop a robotic system to detect Bangladeshi Sign Language (BdSL) from images in real-time.</li> <li>• A Fully working tool developed for desktop using Faster R-CNN.</li> <li>• Next target is to develop an app for smartphones.</li> <li>• A dataset – <b>BdSLImset</b> (<i>Bangladeshi Sign Language Image Dataset</i>) is created. [<a href="https://github.com/imruljubair/bdslimset">github.com/imruljubair/bdslimset</a>].</li> </ul> <p><b>What's in Your Mind is in Your Face!</b> 2018</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul>
TALKS	<ul style="list-style-type: none"> <li>▪ <b>Talk</b> on – “Using Wavelets to Compress ICON and MPAS data sets”. Host: German Climate Computing Center (DKRZ), Germany. Oct 14, 2016</li> <li>▪ <b>Seminar talk</b> on – “Icosahedral Maps for a Multiresolution Representation of Earth Data”. Host: Department of Computer Science, University of Calgary. Dec 02, 2016</li> <li>▪ <b>Presentation</b> on – “Icosahedral Maps for the Climate Models”, at CSEdWeek 2016, University of Calgary. Dec 09, 2016</li> <li>▪ <b>Presentation</b> on – “Icosahedral Maps for a Multiresolution Representation of Earth Data”, at VMV 2016, Bayreuth. Oct 2016</li> <li>▪ <b>Presentation</b> on – “CUDA Programming Basics”, at VISAGG Reading group seminar, University of Calgary. Mar 2016</li> <li>▪ <b>Presentation</b> 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</li> </ul>

- **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
- **Participant**, *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
- **YouTube Channel** (2D animation): [youtube.com/user/jubairization](https://www.youtube.com/user/jubairization)

#### REFERENCES

- **Dr. Usman R. Alim**  
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- **Dr. Niklas Röber**  
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