

# Mohammad Imrul Jubair

Faculty member, Computer Science and Engineering,  
Ahsanullah University of Science and Technology, Bangladesh.  
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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
- Thesis: “**Icosahedral Maps for a Multiresolution Representation of Earth Data**”.  
*Url:* [hdl.handle.net/11023/3527](http://hdl.handle.net/11023/3527) and *Slides:* [bit.ly/jubair-msc-slides](http://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

- Computer Vision • Visualization • Computer Graphics

## AWARDS, SCHOLARSHIPS AND GRANTS

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

TEACHING EXPERIENCE	<ul style="list-style-type: none"> <li>▪ <b>Faculty member</b>, Department of Computer Science and Engineering, Ahsanullah University of Science and Technology, Bangladesh. May 2017 – Present <ul style="list-style-type: none"> <li>• Courses: <i>Image Processing, Distributed Database Systems, Computer Graphics.</i></li> </ul> </li> <li>▪ <b>Teaching Assistant</b>, Department of Computer Science, University of Calgary. Sep 01, 2014 – Dec 31, 2016 <ul style="list-style-type: none"> <li>• Course: <i>CPSC 217 - Introduction to Computer Science for Multidisciplinary Studies–1 (Python).</i></li> </ul> </li> </ul>	
RESEARCH EXPERIENCE	<ul style="list-style-type: none"> <li>▪ <b>Undergraduate Research Supervisor</b> Mar 2018 – Present <ul style="list-style-type: none"> <li>Department of CSE, Ahsanullah University of Science and Technology, Bangladesh.</li> <li><u>Projects</u>: Real-time BdSL Detection, Toon2real (see <u>Ongoing Project</u> section for more).</li> </ul> </li> <li>▪ <b>Research Assistant</b> Sep 2014 – Dec 2016 <ul style="list-style-type: none"> <li>Visualization &amp; Graphics Group (VISAGG) at Graphics Jungle, University of Calgary.</li> <li><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> </ul> </li> <li>▪ <b>Research Collaborator</b> Nov 2014 – Dec 2016 <ul style="list-style-type: none"> <li>German Climate Computer Center (DKRZ), Hamburg. and National Center for Atmospheric Research (NCAR), USA.</li> <li><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> </li> </ul>	
TRAINING	<ul style="list-style-type: none"> <li>▪ <b>Trainee</b>, <i>Teaching for Active Learning Course</i>, offered by <b>Foundation for Learning, Teaching and Research</b>. Aug 30, 2018 – Sep 1, 2018 <ul style="list-style-type: none"> <li><b>Instructors</b>: 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.</li> </ul> </li> <li>▪ <b>Trainee</b>, Asia Pacific Communication Limited, Bangladesh. Oct 18, 2010 – Nov 25, 2010</li> </ul>	
SKILLS	MATLAB, Python, C, C++, OpenGL Shading Language, WebGL, JAVA, CUDA. <ul style="list-style-type: none"> <li>• <b>See my codes</b>: <a href="https://github.com/imruljubair">github.com/imruljubair</a></li> </ul>	
SELECTED COURSE PROJECTS	<ul style="list-style-type: none"> <li>▪ <b>Implementing Atlas of Connectivity Maps for ICON Grid</b> Sep 2014 <ul style="list-style-type: none"> <li>Course: CPSC 601 – Visualization of Scientific Data, Fall 2014, UofC.</li> <li>Language: MATLAB [<a href="https://github.com/imruljubair/SciVis-Course-Project-Fall-2014">github.com/imruljubair/SciVis-Course-Project-Fall-2014</a>]</li> </ul> </li> <li>▪ <b>GPU based Multiresolution Visualization of ICON Data</b> Jan 2015 <ul style="list-style-type: none"> <li>Course: CPSC 691 – Rendering, Winter 2015, UofC.</li> <li>Language: GLSL &amp; C [<a href="https://github.com/imruljubair/Visualization-using-GLSL">github.com/imruljubair/Visualization-using-GLSL</a>]</li> </ul> </li> </ul>	

	<ul style="list-style-type: none"> <li>▪ <b>A Game using OpenGL</b> May 2010 Course: CIT 4506 – Computer Graphics &amp; Multimedia Systems Lab, IUT. Language: OpenGL (legacy) &amp; C [<a href="https://github.com/imruljubair/A-Game-with-old-OpenGL">github.com/imruljubair/A-Game-with-old-OpenGL</a>]</li> <li>▪ <b>A Bank Account Management System</b> Oct 2009 Course: CIT 4502 – Visual Programming Lab, IUT. Language: Java &amp; MySQL</li> </ul>
HOBBY	<ul style="list-style-type: none"> <li>▪ <b>RayVis</b> Jan 2019 Language: MATLAB [<a href="https://github.com/imruljubair/RayVis">github.com/imruljubair/RayVis</a>]</li> </ul>
PROJECTS	<ul style="list-style-type: none"> <li>▪ <b>Simple Perceptron Simulator for Kids</b> Aug 2018 Language: Python [<a href="https://github.com/imruljubair/Simple-perceptron-simulator-for-kids">github.com/imruljubair/Simple-perceptron-simulator-for-kids</a>]</li> <li>▪ <b>Environment Mapping using Texture Map</b> Feb 2015 Language: OpenGL (legacy) &amp; C [<a href="https://github.com/imruljubair/Environment-Mapping-using-Texture-map">github.com/imruljubair/Environment-Mapping-using-Texture-map</a>]</li> <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>
SELECTED PUBLICATIONS	<ul style="list-style-type: none"> <li>▪ Sultan K. M. A., Rupty L. K., <u>Jubair M. I.</u>, Khan S. H. &amp; Islam M. N., <b>“Toon2real: A Technique for Cartoon to Photorealistic Image Synthesis”</b> (Submitted), <i>2nd International Conference on Information and Computer Technologies (IEEE ICICT 2019)</i>, USA, 2019.</li> <li>▪ Sultan K. M. A., Rupty L. K., Pranto N. I., Shuvo S. K. &amp; <u>Jubair M. I.</u>, <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, [<a href="https://arxiv.org/abs/1811.11796">arxiv.org/abs/1811.11796</a>].</li> <li>▪ Hoque O., <u>Jubair M. I.</u>, Islam M. S., Akash A. &amp; Paulson A., <b>“Real Time Bangladeshi Sign Language Detection using Faster R-CNN”</b> (Accepted), <i>International Conference on Innovation in Engineering and Technology (ICIET)</i>, Dhaka, Dec 2018, [<a href="https://arxiv.org/abs/1811.12813">arxiv.org/abs/1811.12813</a>].</li> <li>▪ <u>Jubair M. I.</u>, Alim U., Röber N., Clyne J. &amp; Mahdavi-Amiri A., <b>“Icosahedral Maps for a Multiresolution Representation of Earth Data”</b>, <i>21st International Symposium on Vision, Modeling and Visualization (VMV)</i>, Bayreuth, pp. 161-168, Oct 2016.</li> <li>▪ <u>Jubair M. I.</u>, Alim U., Röber N., Clyne J., Mahdavi-Amiri A. &amp; Samavati. F., <b>“Multiresolution Visualization of Digital Earth Data via Hexagonal Box Spline Wavelets”</b>, (Poster), <i>IEEE Visualization Conference (IEEE VIS)</i>, Chicago, Oct 2015.</li> <li>▪ <u>Jubair M. I.</u> &amp; Banik P., <b>“A Technique to Detect Books from Library Bookshelf Image”</b>, <i>IEEE 9th International Conference on Computational Cybernetics (IEEE ICC3)</i>, Hungary, 2013.</li> <li>▪ <u>Jubair M. I.</u> &amp; Banik P., <b>“A Simplified Method for Handwritten Character Recognition from Document Image”</b>, <i>International Journal of Computer Applications</i>, vol. 51, no. 14, pp. 50–54, 2012.</li> </ul>

- 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)

## ONGOING PROJECT

### **Bangladeshi Sign Language Detection App for Smartphones** Apr 2018 – Present

- To develop an application to detect Bangladeshi Sign Language (BdSL) from images in real-time.
- A Fully working tool is 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.

### **Toon2real** Jul 2018 – Present

- To translate cartoon-styled images into their real-world scenes using Generative adversarial network (GAN).
- The project stood the 1st runner-up position in *MINDSPARKS'19*.

### **What's in Your Mind is in Your Face!** Sep 2018 – Present

- A GAN-based application to transfer the emotions from a Facebook 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

- **Judge**, Software Showcasing 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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Department of Computer Science, University of Calgary,  
2500 University Drive NW Calgary, AB T2N 1N4 Canada.  
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- **Dr. Niklas Röber**  
Visualization Scientist,  
German Climate Computing Center (DKRZ),  
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