Mohammad Imrul Jubair

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

imrul.jubair@gmail.com • +88 01722 68 27 83 • **imruljubair.github.io**

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

• Computer Vision • Visualization • Computer Graphics

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, University of Calgary. Sep 01, 2014 – Dec 31, 2016
  - 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**.
  Instructors: *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.*
- **Trainee**, Asia Pacific Communication Limited, Bangladesh. Oct 18, 2010 – Nov 25, 2010

SKILLS

MATLAB, Python, C, C++, OpenGL Shading Language, WebGL, JAVA, CUDA.

- **Repositories:** *github.com/imruljubair*

SELECTED PUBLICATIONS

- Sultan K. M. A., Rupty L. K., Pranto N. I., Shuvo S. K. & Jubair M. I., **"Cartoon-to-real: An Approach to Translate Cartoon to Realistic Images using GAN"** (Accepted for poster), *International Conference on Innovation in Engineering and Technology (ICIET)*, Dhaka, Dec 2018, [arxiv.org/abs/1811.11796].

- 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 ICCC)*, 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*

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

Skeleton-based Jamdani Motif Generator using GAN 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.

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.
- The project is currently in data processing phase. We are working on approximating cartoon characters using simple geometric shapes.

Toon2real 2018

- Translating cartoon-styled images into their real-world scenes using GAN.
- The project stood the 1st runner-up position in *MINDSPARKS'19*.

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

- **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*

REFERENCES

- **Dr. Usman R. Alim**
  Associate Professor,
  Department of Computer Science, University of Calgary,
  2500 University Drive NW Calgary, AB T2N 1N4 Canada.
  ualim@ucalgary.ca • +1 (403) 220-4362

- **Dr. Niklas Röber**
  Visalization Scientist,
  German Climate Computing Center (DKRZ),
  www.dkrz.de
  Bundesstraße 45 a, D-20146 Hamburg, Germany
  roeber@dkrz.de • +49 (0) 40 460094 283

[*CV updated on 2019-09-29*]