Mohammad Imrul Jubair

Faculty member, Computer Science and Engineering,
Ahsanullah University of Science and Technology, Bangladesh.
Former Researcher, The Graphics Jungle 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
- 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

• Computer Vision • Computer Graphics • Visualization

AWARDS, SCHOLARSHIPS AND GRANTS

- **Grant** for *VISAPP 2022*, Nov 2022
  International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications
  In the form of registration fee.
- **Grant** for *Workshop on MOODLE*, Jun 2021
  Ahasanullah University of Science & Technology,
  Engelbert Strauss and Deutsche Gesellschaft für Internationale Zusammenarbeit
  Amount: 15000 BDT
- **Grant** for implementing *Technology-enabled Learning*, Dec 2019
  COL-TEL Project at Ahasanullah University of Science & Technology.
  Amount: 20000 BDT
- **Workshop Grant**, German Climate Computing Center (DKRZ). Oct 2016
  In the form of transportation and 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

RESEARCH EXPERIENCE

- **Research Collaborator** Nov 2020 – Present
  with Dr. Helge Rhodin, University of British Columbia.
- **Member, AI Team** Aug 2020 – Present
  Sewer Cleaning Robot Project for Dhaka city,
  with CRID-DAM Robotic Innovation Lab (CDRiL)
  and Dhaka North City Corporation.
- **Undergraduate Research Supervisor** Mar 2018 – Present
  Department of CSE,
  Ahsanullah University of Science and Technology, Bangladesh.
- **Research Assistant** Sep 2014 – Dec 2016
  Visualization & Graphics Group (VISAGG) at Graphics Jungle,
  University of Calgary.
- **Research Collaborator** Nov 2014 – Dec 2016
  with German Climate Computer Center (DKRZ), Hamburg.
  and National Center for Atmospheric Research (NCAR), USA.

TEACHING EXPERIENCE

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

TEACHING PAGE: *imruljubair.github.io/#teaching*

TRAINING

- **edX Certificate Course:** *CSE167x – Computer Graphics*.
  offered by **UCSanDiegoX**, an online learning initiative of UC San Diego. May 1, 2020
- **Trainee,** *Designing and developing Moodle-enabled Blended learning*.
  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 Python (PyTorch), MATLAB, C, C++, modern OpenGL, WebGL, CUDA, Unity3D.

REPOSITORIES: *github.com/imruljubair*

SELECTED PUBLICATIONS

- Jubair M. I.,Yousuf A. I., Ahmed T., Jamy H., Reza F. & Ashraf M., *"DIY Graphics Tab: A Cost-Effective Alternative to Graphics Tablet for Educators"* (Workshop paper), *accepted at* **AAAI 2022** *[CORE rank A*]*.
- Jubair M. I., Rana M. M., Hamza. M. A., Ashraf M., Khan F. A. & Prince A. T., *"Altering Facial Expression Based on Textual Emotion"* (short paper), *accepted at* **VISAPP 2022** *[CORE rank B]*.
- Hoque O., Jubair M. I., Akash A. & Islam M. S., *"BdSL36: A Dataset for Bangladeshi Sign Letters Recognition"* (Workshop paper), **ACCV 2020** *[CORE rank B]*.
- Sultan K. M. A., Jubair M. I., Pranto N. I. & Shuvo S. K., *"toon2real: Translating Cartoon Images to Realistic Images"* (short paper), **ICTAI 2020** *[CORE rank B]*.
- 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)**, 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 VIS 2015** *[CORE rank A]*.
- Jubair M. I. & Banik P., *"A Technique to Detect Books from Library Bookshelf Image"*, **IEEE ICCC 2013** *[CORE rank C]*.
- 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), 2011.

GOOGLE SCHOLAR: scholar.google.com/citations?hl=en&user=H4-yZ3wAAAAJ

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*]
- **A Very Simple Raytracer** Oct 2014
  Course: CPSC 601 – Visualization of Scientific Data, Fall 2014, UofC.
  Language: C++ [*github.com/imruljubair/a-very-simple-raytracer*]
- **B-Spline Curve Simulator** Jan 2015
  Course: CPSC 689 – Modelling for Computer Graphics, Winter 2015, UofC.
  Language: OpenGl (legacy) & C [*github.com/imruljubair/B-Spline-Curve-Simulator*]

- **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*]
- **Environment Mapping using Texture Map** Feb 2015
  Course: CPSC 691 – Rendering, Winter 2015, UofC.
  Language: OpenGl (legacy) & C [*github.com/imruljubair/Environment-Mapping-using-Texture-map*]
- **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

RESEARCH PROJECTS

Editing Bengali Text in the Wild [*ongoing*] 2021

- A method that will allow editing Bengali text in natural images so that the edited image is visually the same as the source image in terms of the background and text styles.

Generating Covers from the Book Summary [*ongoing*] 2021

- A method where the summary of a book will be inputted and a cover will be synthesized using GAN. A dataset is currently being developed from book cataloging sites, i.e. goodreads.

DIY Graphic Tablet [*ongoing*] 2021

- A method that will allow users to get the facilities of a graphic tablet but without having a real one. Users can simply tilt the laptop's lid to record a paper in front of it and the tool captures the users' stroke on the paper and store them digitally on a digital canvas with perspective warp.

Cartoon from Geometric Shapes [*ongoing*] 2020

- A tool where the user provides simple geometric approximations, i.e. circles, quads, ellipse, etc. and a cartoon character will be created based on that.

Jamdani Motif Generation using GAN [*1 paper published*] [*short-listed for **UNIBATOR***] 2020

- An AI based tool for designer where users can input the skeleton of a desired pattern in terms of rough strokes and our system finalizes the input by generating the complete motif which follows the geometric structure of real Jamdani ones.

Toon2real [*1 paper published*] 2018

- Translating cartoon-styled images into their real-world scenes using GAN.

Bangladeshi Sign Language Detection [*2 papers published*] 2018

- We introduce a dataset named *BdSL36* contains over four million images belonging to 36 categories and employ different state-of-the-art models to justify the possibilities of real-world application with this dataset.

WhYMYFace: What's in Your Mind is in Your Face! [*1 paper published*] 2018

- An application that aims to transfer the emotions from a social media/ blog post of a user to his or her facial expression in the profile picture.

FOR MORE: https://imruljubair.github.io/#projects

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, Nov 2020
  23^{rd} International Conference on Computer and Information Technology 2020.
- **Convener**, Programming Contest, *CSE WEEK 2018*, Jul 2018
  Ahsanullah University of Science and Technology.
- **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
- **Participant**, Intra IUT Programming Contest. 2008
- **Participant**, Intra IUT Debate Competition. 2008
- **YouTube Channel** (animation & teaching): *youtube.com/user/jubairization*

REFERENCES

- **Dr. Usman R. Alim**
  pages.cpsc.ucalgary.ca/ ualim/
  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. Helge Rhodin**

  www.cs.ubc.ca/ rhodin/web/

  Assistant Professor,

  Department of Computer Science, University of British Columbia,

  201-2366 Main Mall Vancouver, V6T 1Z4, Canada.

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  rhodin@cs.ubc.ca

[*CV updated on 2021-12-03*]