Mohammad Imrul Jubair

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Education

2022 – Present
PhD Student in Computer Science
University of Colorado Boulder, USA
Advisor: **Prof. Tom Yeh**

2014 – 2016
MSc in Computer Science
University of Calgary, Canada
Thesis: Icosahedral Maps for a Multiresolution Representation of Earth Data
Advisor: Prof. Usman Alim

2008 – 2011
BSc in Computer Science and Information Technology
Islamic University of Technology, Bangladesh

Research Interests

Scientific visualization, explainable artificial intelligence, computer vision, and medical image analysis

Research Experience

2022 – Present
Doctoral Researcher, Imagine AI Lab
University of Colorado Boulder
Current research: Developing interactive visualizations of AI mathematics. This work includes *The Architect*, an Excel-based system for exploring deep learning computations, released as a 2026 technical report.
Previous research: Contributed to 3D cardiac MRI segmentation and the HVSMR-2.0 dataset, resulting in a 2024 publication in *Scientific Data*, a Nature Portfolio journal.

2024
Summer Research Assistant
University of Colorado Anschutz Medical Campus
Studied early detection of Alzheimer's and related dementias using financial activity data.

2021
Independent Research Collaborator
Investigated physics-based camera calibration methods in collaboration with Dr. Helge Rhodin of the University of British Columbia.

2017 – 2021 Independent Researcher
Conducted independent research in sign language recognition and synthesis, generative imaging, and human–computer interaction (HCI), resulting in papers and posters at ACCV Workshops, ICTAI, VISAPP, and UIST Adjunct.

2014 – 2016 Graduate Researcher, Graphics Jungle Lab
University of Calgary
Developed multiresolution methods for visualizing ICON climate data, resulting in publications at IEEE SciVis and VMV.
Collaborating institutions: German Climate Computing Center (DKRZ) and National Center for Atmospheric Research (NCAR)

Teaching Experience

2025 Instructor, AI by Hand Workshop Series
Led sessions on the mathematical foundations of recent AI research papers.

2024 – Present Teaching Assistant, University of Colorado Boulder
Course:
Computer Vision (Fall 2026, Spring 2026, Fall 2025, Spring 2025, Fall 2024)
Average enrollment: 50–80 students

2017 – 2022 Assistant Professor, Ahsanullah University of Science and Technology
Courses:
Computer Graphics (4 terms)
Image Processing (3 terms)
Distributed Database Systems (3 terms)
Software Development (2 terms)
Full-time teaching-focused faculty position; taught undergraduate students, designed course content and assessments, delivered weekly lectures, held office hours, managed the online learning platform, and completed course administration.
Taught two to three sections per term; average enrollment: 80–130 students.
Teaching evaluation: 4.83/5.00.

2014 – 2016 Teaching Assistant, University of Calgary
Course:
Python Programming (4 terms)
Average enrollment: 50–60 students

Skills

Python, MATLAB, OpenGL, WebGL, JavaScript, TypeScript, C, C++

Selected Publications

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

Preprints and Technical Reports

2026 Mohammad Imrul Jubair and Tom Yeh. The Architect: Interactive Visualization of Deep Learning Mathematics Directly in Microsoft Excel. Technical report, arXiv:2608.13572 [cs.HC].

Peer-Reviewed Journal Articles

2024 Danielle F. Pace, Hannah T. M. Contreras, Jennifer Romanowicz, Shruti Ghelani, Imon Rahaman, Yue Zhang, Patricia Gao, Mohammad Imrul Jubair, Tom Yeh, Polina Golland, Tal Geva, Sunil Ghelani, Andrew J. Powell, and Mehdi Hedjazi Moghari. HVSMR-2.0: A 3D cardiovascular MR dataset for whole-heart segmentation in congenital heart disease. *Scientific Data* 11, 721.

Peer-Reviewed Conference Papers

2022 Mohammad Imrul Jubair, Md. Masud Rana, Md. Amir Hamza, Mohsena Ashraf, Fahim Ahsan Khan, and Ahnaf Tahseen Prince. Altering facial expression based on textual emotion. In Proceedings of the 17th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISIGRAPP), Volume 4: **VISAPP**, pp. 917–924.

2020 K. M. Arefeen Sultan, Mohammad Imrul Jubair, Md. Nahidul Islam, and Sayed Hossain Khan. toon2real: Translating cartoon images to realistic images. In 2020 IEEE 32nd International Conference on Tools with Artificial Intelligence (**ICTAI**), pp. 1175–1179.

2016 Mohammad Imrul Jubair, Usman Alim, Niklas Röber, John Clyne, and Ali Mahdavi-Amiri. Icosahedral maps for a multiresolution representation of Earth data. In Vision, Modeling & Visualization (**VMV**), pp. 161–168.

2013 Mohammad Imrul Jubair and Prianka Banik. A technique to detect books from library bookshelf image. In 2013 IEEE 9th International Conference on Computational Cybernetics (**ICCC**), pp. 359–363.

Peer-Reviewed Workshop Papers

2022 Mohammad Imrul Jubair, Arafat Ibne Yousuf, Tashfiq Ahmed, Hasanath Jamy, Foisal Reza, and Mohsena Ashraf. DIY Graphics Tab: A cost-effective alternative to graphics tablet for educators. AAAI 2022 Workshop.

2020 Oishee Bintey Hoque, Mohammad Imrul Jubair, Al-Farabi Akash, and Md. Saiful Islam. BdSL36: A dataset for Bangladeshi sign letters recognition. In Proceedings of the Asian Conference on Computer Vision (**ACCV**) Workshops, pp. 71–86.

Posters and Extended Abstracts

2022 Mohammad Imrul Jubair, Ali Ahnaf, Tashfiq Nahiyan Khan, Ullash Bhattacharjee, and Tanjila Joti. PerSign: Personalized Bangladeshi sign letters synthesis. In the Adjunct Publication of the 35th Annual ACM Symposium on User Interface Software and Technology (**UIST '22 Adjunct**), article 25, pp. 1–3.

2015 Mohammad Imrul Jubair, Usman Alim, Niklas Röber, John Clyne, Ali Mahdavi-Amiri, and Faramarz Samavati. Multiresolution visualization of digital earth data via hexagonal box-spline wavelets. IEEE Scientific Visualization Conference (**SciVis**), poster.

Mentoring Experience

2023 Mentor for STEM Research Experience, University of Colorado Boulder
Mentored high school students through hands-on research projects and research methods.

2019 – 2022 Undergraduate Thesis Advisor, Ahsanullah University of Science and Technology
Supervised student teams conducting experimental research in computer vision and human–computer interaction and advised them on preparing research papers.

Fellowships

University of Colorado Boulder

2026 McLaren Futures Family Fellowship
2023 Endowed Founder's Fellowship
2022 Early Career Professional Development Fellowship

Islamic University of Technology

2008 OIC Undergraduate Student Scholarship

Awards

University of Colorado Boulder

2026 Outstanding TA Award
2023 Departmental Service Award

University of Calgary

2016 Travel Award
2014, 2015 Research Award
2014 International Recruitment Graduate Award
2014 International Student Differential Fee Reimbursement Award

Service

University of Colorado Boulder

2024 Team Lead, Computer Vision Group at Imagine AI Lab
2024 Graduate Peer Mentor

2024	Computer Science Peer Mentor
2023, 2024	Volunteer, Computer Science PhD Open House
2023	Mentor for Prospective PhD Applicants
2023	General Co-Chair, Student Symposium

Ahsanullah University of Science and Technology

2020	Committee Member, International Conference on Computer & Information Technology (ICCIT)

Islamic University of Technology

2011	Vice President, Computer Society (IUTCS)

Invited Talks and Guest Lectures

2025	Invited Talk: Demystifying AI Blackbox Artificial Intelligence in Clinical Practice Workshop, Kettering General Hospital University Hospitals of Northamptonshire NHS Group, UK
2025	Guest Lecture: State-of-the-Art Algorithms for Large Language Models Computer Vision course, University of Colorado Boulder
2016	Invited Talk: Multiresolution Visualization of ICON Data German Climate Computing Center (DKRZ)

Reference

Dr. Tom Yeh
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University of Colorado Boulder
tom.yeh@colorado.edu