# Jayedi Aman, PhD

138 Stanley Hall | Columbia, Missouri 65211 | jayediaman@missouri.edu | (573) 814-9446 University of Missouri | College of Arts and Science | Department of Architectural Studies

#### **EDUCATION**

Ph.D. in Architectural Studies

2019-2024 Department of Architectural Studies, University of Missouri (MU), MO, USA

Dissertation: Machine learning-based simulation framework to forecast the environmental impact of urban

morphology

Committee: Dr. Jong Bum Kim, Dr. Bimal Balakrishnan, Dr. Debora Verniz, Dr. Timothy C Matisziw

M.A. **MA in Geography** with Emphasis in Geospatial Intelligence

July, 2022 Department of Geography, MU, MO, USA

Research Project: Modeling urban streetscapes using social media and street view imagery with deep learning

algorithms

Advisor: Dr. Timothy C Matisziw

M.Arch. Master of Architecture with Emphasis in Sustainable Design

July, 2017 Bangladesh University of Engineering and Technology, Dhaka (BUET), Bangladesh.

Dissertation: Impact of Windows for Daylighting on Thermal Comfort in Architecture Design Studios in

Dhaka

Advisor: Dr. Ashikur Rahman Joarder

B.Arch. Bachelor of Architecture

Dec, 2013 Ahsanullah University of Science and Technology, Dhaka (AUST), Dhaka, Bangladesh

### **CERTIFICATION & TRAINING**

2021-2023 USGIF Graduate Certificate in Geospatial Intelligence

University of Missouri, MO, USA

2012-2013 Erasmus Mundus Exchange Semester

University of Évora, Évora, Portugal

# ACADEMIC EMPLOYMENT

2024-Present Assistant Professor

Department of Architectural Studies, University of Missouri, MO, USA

2019-2024 Graduate Research and Teaching Assistant

Department of Architectural Studies, University of Missouri, MO, USA

2021 Visiting Professor

Department of Architectural Studies, BUET, Bangladesh.

2019 Assistant Professor

Department of Architecture, Southeast University, Bangladesh.

2017-18 Assistant Professor

Department of Architecture, AUST, Bangladesh.

2014-17 **Lecturer** 

Department of Architecture, AUST, Bangladesh.

Jayedi Aman I Aug 2024

#### PROFESSIONAL EMPLOYMENT

2015-2019 Partner Architect

PoriLekh, Dhaka, Bangladesh

2013-2014 Junior Architect

Studio Ecotecture Ltd., Dhaka, Bangladesh

2012 Undergraduate Student Intern

Supervisor: Architect Mustapha Khalid Palash, Vistaara, Dhaka, Bangladesh

#### RESEARCH EXPERIENCE

#### 2019-2024 Graduate Research Assistant

Department of Architectural Studies, MU

Involvement in selected research projects:

- Impact of 5G on the Reduction of Greenhouse Gas Emissions (Funded by AT&T Inc., PI: Dr. Jong Bum Kim)
- Envisioning Smart Growth development with immersive modeling and visualization (Richard Wallace Faculty Incentive Grant, PI: Dr. Jong Bum Kim)
- MIMIC Multidisciplinary Initiative on Methods to Integrate and Create Artificial Realistic Data, Funded by Federal Highway (Responsibility: Assisted creating User Interface (UI) for Testbed design) (PI: Dr. Praveen Kumar Edara, CoPI: Dr. Bimal Balakrishnan)
- Building Shape Grammars for Architectural Modeling Using Aerial Imagery (Parent Topic: Video Analytics and Image Processing for Multiview Scene Understanding, Funded by Department of Army, PI: Dr. Kannappan Palaniappan)
- Envisioning an Unbuilt Environment: A pilot study of an urban information modeling for visualization and performance analysis of land development (University of Missouri Research Council Grant, PI: Dr. Jong Bum Kim)
- 21st Century Collaborative Design Studio (Steelcase Active Learning Center Grant, Project Supervisor: Dr. Bimal Balakrishnan)

#### 2014-2017 Graduate Research Assistant

GrAce, Department of Architecture, BUET, Dhaka, Bangladesh

Supervisor: Dr. Ashikur Rahman Joarder

- Impact of daylighting and thermal performance of students in academic buildings in Dhaka

#### 2013 Undergraduate Research Assistant

Department of Architecture, Universidade De Évora, Évora, Portugal

Supervisor: Prof. José Adrião

- Socio-Cultural activities of the corresponded village people of an environmentally degraded mine area- Mina De Sao Domingos, Alentejo, Portugal

#### 2016, 2011 Research Assistant

Department of Architecture, AUST, Dhaka, Bangladesh

Supervisor: Dr. Shehzad Zahir

- Re-mapping in 'Bihari areas' in Dhaka for research on 'Home as a workplace in the context of social Architecture in Dhaka'
- · Living conditions in slums of flood-prone Urban Area, i.e., Dhaka city and recommendation of low-cost sustainable housing in the areas

Jayedi Aman I Aug 2024

#### **GRANT**

2024

Co-Principal Investigator (PI: Dr. Laura Zangori), National Science Foundation (#2201204), NSF Discovery Research PreK-12 (DRK-12), Build it Green!: Energy Education through Energy Efficient Building Design. (Amount: \$2,950,334; Percentage Share: 20%)

# **AWARDS & SCHOLARSHIPS**

John D. Bies International Travel Scholarships for Doctoral Candidates, Graduate	School, MU.
(Amount: \$2,387)	
MIZZOU18 Award by Mizzou Alumni Association Student Board, MU. <a href="https://www.mizzou.com/s/1002/alumni/19/interior.aspx?sid=1002&amp;gid=1001&amp;">https://www.mizzou.com/s/1002/alumni/19/interior.aspx?sid=1002&amp;gid=1001&amp;</a>	zpgid=10201
2023-24 Piper Fellowship by Department of Architectural Studies, MU. (Amount: \$18,400)	
The United States Geospatial Intelligence Foundation (USGIF) Doctoral <a href="https://trajectorymagazine.com/2022-usgif-scholarship-winners/">https://trajectorymagazine.com/2022-usgif-scholarship-winners/</a> (Amount: \$3,000)	
E & E Family Scholarship by Office of the Arts & Science (A&S), MU. (Amount: \$1	,200)
2022 1st Place, Student Poster Presentation, GEOINT 2022 Symposium, Colorado, USA	
Young CAADRIA Award by The Association for Computer-Aided Architectural Design Asia (CAADRIA). <a href="https://caadria2021.org/award-winners">https://caadria2021.org/award-winners</a>	sign Research
GPC Research Development Grant by Graduate Professional Council, MU. (Amoun	nt: \$200)
Marcia Wehrle Healy & Robert N. Healy Graduate Scholarship, MU. (Amount: \$80	00)
2021 ACADIA Workshop Attendance Grant for International Students, sponsored by Au	utodesk
Edward G. and Elizabeth Bower Award by Office of the Human Environmental Sc Graduate Studies and Research, MU. (Amount: \$500)	ciences (HES)
Marcia Wehrle Healy & Robert N. Healy Graduate Scholarship, MU. (Amount: \$80	00)
2019 Richard Helmick Design with Digital Media Award by Department of Architectural (Amount: \$1,200)	Studies, MU.
Shortlisted in Building 4Humanity Design Competition (Category 2) & selected for to at 8th ICBR, Portugal for the project, 'Sustainable Flood-Safe Home: Khupri'	the exhibition
Best Research Paper Award, 12th Global Engineering, Science and Technology Dhaka, Bangladesh	y Conference,
2016 Champion (Graduate section) in 'Speak up your research', Project Chemistry, Dhaka	a
Honorary award, Anjuman Mufidul Islam Headquarters Design Competition, IAB	
2012 Erasmus Mundus Scholarship by European Union, Evora, Portugal	
2009-2012 Student Award for outstanding results in six undergraduate semesters, AUST	

# PEER-REVIEWED PUBLICATIONS

Research and Google Scholar: <a href="https://scholar.google.com/citations?user=ioj1szAAAAAJ&hl=en">https://scholar.google.com/citations?user=ioj1szAAAAAJ&hl=en</a>

Development Github: <a href="https://github.com/amanjayedi">https://github.com/amanjayedi</a>

 $Profiles \qquad \qquad Research Gate: \underline{https://www.researchgate.net/profile/Jayedi-Aman}$ 

Scopus: https://www.scopus.com/authid/detail.uri?authorId=58030218200

ORCiD: https://orcid.org/0000-0002-6128-8293

Jayedi Aman I Aug 2024 3 of 9

#### Manuscript Published:

Journals & Conferences

- Aman, J., Kim, J. B. & Verniz, D. (2023). AI for Building Efficiency: A framework to forecast the morphological impact on daylight availability. (Full paper accepted for 41st Education and Research in Computer Aided Architectural Design in Europe (eCAADe) Conference, Graz, Austria).
- Kim, J. B., Wang, F., Khanna, S., Balakrishnan, B., Uddin, M., **Aman, J.** & Thipparthi, V. V. R. (2023). Digital Twin Framework for Smart Campus to Reduce Greenhouse Gas Emission. Proceeding of the 2023 IEEE International Conference on Digital Twin. https://doi.org/10.1109/SWC57546.2023.10448799
- Kim, J. B., Kim, S. & **Aman, J.** (2023). An Urban Building Energy Simulation Method Integrating Parametric BIM and Machine Learning. Human-Centric, Proceedings of the 28th International Conference of the Association for Computer Aided Architectural Design Research in Asia (CAADRIA) 2023, 1, 665-674.
- Haque, Md. O., Rahman, N. N., Tabassum, N., & **Aman, J.** (2022). Evaluating the Daylighting and Energy Performance of Container Housing Systems in Coastal Regions: An Iterative Modeling Approach. Springer International Publishing. https://doi.org/10.1007/978-3-031-11232-4\_13
- Aman, J., Matisziw, T. C., Kim, J. B., & Dan, L. (2022). Sensing the City: Leveraging geotagged social media posts and street view imagery to model urban streetscapes using deep neural networks. POST-CARBON, Proceedings of the 27th CAADRIA conference 2022, 1, 595–604. https://doi.org/10.52842/conf.caadria.2022.1.595
- Kim, J. B., **Aman, J.**, & Balakrishnan, B. (2021). Forecasting performance of Smart Growth development with parametric BIM-based microclimate simulations. Proceedings of the 26th CAADRIA conference 2021. https://doi.org/10.52842/conf.caadria.2021.1.411
- Haque, O., **Aman, J.**, & Mohammad, F. (2021). Construction sustainability of container-modular-housing in coastal regions towards resilient community. Built Environment Project and Asset Management. Emerald Publications. https://doi.org/10.1108/BEPAM-01-2021-0011
- Aman, J., Tabassum, N., Hopfenblatt, J., Kim, J. B., & Haque, M. O. (2021). Optimizing Container Housing Units for Informal Settlements- A parametric simulation & visualization workflow for architectural resilience. Proceedings of the 26<sup>th</sup> CAADRIA conference. https://doi.org/10.52842/conf.caadria.2021.1.051
- Haque, M. O., Tabassum, N., **Aman, J.**, & Rahman, N. N. (2020). Iterative Simulation Modeling Framework of Container Housing System for Architectural Resilience in the Coastal Areas. Proceedings of Parallelism in Architecture, Engineering & Computing Techniques Third Edition
- Kim, J. B., Balakrishnan, B., & Aman, J. (2020). Environmental Performance-based Community Development— A parametric simulation framework for Smart Growth development in the United States. Proceedings of the 25th CAADRIA Conference, 1, 873-882. https://doi.org/10.52842/conf.caadria.2020.1.873
- **Aman, J.** (2019). Windows for Evaluating the Impact on Human Comfort in Academic Studios in Bangladesh. Creative Space, 6(2), 67–78. https://doi.org/10.15415/cs.2019.62005
- Ahmmad, S. R., & **Aman, J.** (2019). Speech Intelligibility Assessment at Architecture Jury Rooms in Dhaka. International Journal of Civil Engineering (IJCE), 8(4), 21–32

Jayedi Aman I Aug 2024 4 of 9

Aman, J., & Joarder, M. A. R. (2017). Performance Evaluation of Different Window Configurations to Enhance Effective Daylighting in Architecture Design Studios in Dhaka. 1st International Conference on Green Architecture, 9–16

Aman, J., & Joarder, M. A. R. (2017). Thermal Comfort in Architecture Jury Rooms in Presence of Vertical and Horizontal Apertures for Daylighting Display Walls. Global Science and Technology Journal, 5(1), 23–43. Australia

**Aman, J.**, & Rashida, N. (2017). Spatial configuration in relation with traffic noise in Dhaka city. The AUST Journal of Science and Technology, 6(1–2), 61–69

Zahir, S., & **Aman, J.** (2017). Evolution of Home-Based Work. International Journal of Civil Engineering (IJCE), 6(1), 1–8

Aman, J., & Joarder, M. A. R. (2016). Comparison Between Slit Vertical Windows and Horizontal Skylights for Illuminating Display Walls of Architecture Jury Rooms. 12th Global Engineering, Science and Technology Conference, Dhaka, Bangladesh

Aman, J., Rahman, N. N., & Zahir, S. (2016). 'Beltola Lilies' – A Solution of Housing for Lower-Income People and Introduction of a Module for Flooded Areas. Creative Space, 3(2), 119–131. https://doi.org/10.15415/cs.2016.32001

Posters & Presentations Uddin, M., **Aman, J.** & Matisziw, T. C. (2023, May 22). Predictive Mapping of Environmental Performance in Informal Settlements, Poster Presentation in GEOINT2023 Foreword and Symposium, organized by The United States Geospatial Intelligence Foundation (USGIF), St. Louis, Missouri

Aman, J., Matisziw, T. C., & Kim, J. B. (2022, April 24). Measuring the Association Between Human Sentiment and Geospatial Context for Informed Decision-Making, Poster Presentation in GEOINT2022 Foreword and Symposium, organized by The United States Geospatial Intelligence Foundation (USGIF), Denver, Colorado

Hopfenblatt, J., Dastmalchi, M. R., **Aman, J.**, Kim, J. B., & Balakrishnan, B. (1-4 March, 2021). Can Climate-Adaptive Building Facades Inspire Healthier Interiors? Post Covid-19 Computational Design Considerations. Poster at Interior design Educators Council Annual Conference, Virtual

Dastmalchi, M. R., Balakrishnan, B., Oprean, D., Hopfenblatt, J., **Aman, J.**, & Kim, J. B. (2020). Media Affordances and Transactive Memory Systems in Design Teams. Poster at the Ninth International Conference on Design Computing and Cognition 2020 (DCC'20)

# Manuscript under review and in preparation:

Journals and Conferences Aman, J. & Matisziw (2024). Sentiment and the City: Modelling the Effect of the Urban Environment on Civil Sentiment. (Full paper under preparation for Landscape and Urban Planning journal)

Balakrishnan, B., Hopfenblatt, J., **Aman, J.**, Bao, R., Palaniappan, K. (2024). 3D Reconstruction of Urban Environments: An Integrative Approach. (Full paper under preparation for ISPRS Journal of Photogrammetry and Remote Sensing journal)

Kim, J.B., **Aman, J.**, Uddin, M. (2025). A Digital Twin Approach for Building Energy Monitoring and Carbon Emission Feedback. (Abstract Submitted for CAADRIA 2025 Conference)

Jayedi Aman I Aug 2024 5 of 9

#### TEACHING EXPERIENCE

#### Spring'23, 22

#### ARCHST 3182- Studio 2

Department of Architectural Studies, MU, Missouri, USA

This course introduces students to a variety of design problem identification and problem-solving methods, idea generation, and innovation and risk in the design process. My approach to teaching this course is to help students become self-directed learners by encouraging creative design thinking, collaboration with studio colleagues, and one-on-one outcome-based learning.

Instructor: Sole instructorship, Undergraduate TAs: Aidan Kurtz, Marc Villanueva

#### Fall'20- Fall'23

#### ARCHST 2811- Studio 1

Department of Architectural Studies, MU, Missouri, USA

- Through a series of abstract design exercises, this course immerses students in the act of architecture and interior design. My teaching focus for this course was on 'learning by doing,' and my primary role was to guide students in developing an intuitive 'eye' for form and space in architecture. Students were encouraged to think of the design exercises as " 'pulling the weights' before you go play the real game in the design field."
- At the end of the semester, we conducted open houses (similar to a science fair) and exhibitions of student projects at the department, as well as student presentations in front of the external critics to develop their presentation and project management skills.

<u>Instructor</u>: Sole instructorship; collaborated with faculties of other sections.

#### **ARCHST 2220- Introduction to CAD**

Department of Architectural Studies, MU, Missouri, USA

- This course focuses on the fundamental concepts and techniques of computer applications for design while also building on traditional drafting skills. My responsibilities included assisting in the teaching of creative problem-solving techniques to develop innovative design solutions, as well as assisting students in the lab with 2D and 3D modeling and rendering, and 3D experimentation.

Co-Instructors: Dr. Bimal Balakrishnan, Undergraduate TA: Cameron Kendall

#### Spring'21

#### **ARCH 422- Environmental Simulation**

Department of Architecture, BUET, Dhaka, Bangladesh

As an instructor, I introduced iterative daylight and energy simulation and optimization using ClimateStudio, TTToolbox, Wallacei and custom Python scripting

Instructor: Remote Instruction, Co-Instructors: Dr. Ashikur Rahman Joarder, Gourab Kundo

#### Prior MU

# Design Studios, CAD studio, Climate and Architecture

Department of Architecture, AUST, Dhaka, Bangladesh

- Taught at postgraduate level: Luminous Environment
- Taught at undergraduate level: Design Studios, Architectural graphics, Physical Planning III, Climate & Architecture, CAD studio
- Assisted developing curriculum, instructed, and assessed students in developing thesis projects

Jayedi Aman I Aug 2024 6 of 9

#### PRESENTATIONS & INTERVIEWS

#### Presentations

Aman, J. (2024, February 23). Urban Informatics for Energy Efficiency and Decision Support, Research Lightning Talks Hybrid Webinar, organized by Graduate Research and Innovative Design (GRID), Pennsylvania State University, Pennsylvania

Aman, J. (2023, May 22). From Perception to Planning: A journey through Urban Digital Twins, GEOINT2023 Foreword and Symposium, organized by The United States Geospatial Intelligence Foundation (USGIF), St. Louis, Missouri

**Aman, J.** (2023, April 18). Daylight-driven urban design: An Urban Building Energy Simulation Framework for Optimal Urban Planning and Building Design. Show me research week, MU, Columbia, MO.

Aman, J. (2022, April 24). Sensing the City. GEOINT 2022 Symposium, Gaylord Rockies Resort & Convention Center, Aurora, Colorado.

**Aman, J.** (2020, April 5). BIM-SimAR: A Workflow for Integated Generative Design and Immersive Environment. Premier University, Chattagram (Online)

Hopfenblatt, J., **Aman, J.**, & Mofrad, A. M. (2019, November 18). AvanzAR: Evidence-based stroke rehabilitation game platform [Shortlisted Competition]. University of Missouri Columbia. https://www.youtube.com/watch?v=DXKelHxbOUU

Aman, J., Biswas, S., & Rahman, N. N. (2014, December 22). Students' Triad: Sharing Research Experiences Gathered Abroad. AUST seminar hall. Dhaka, Bangladesh

**Aman, J.**, Muktadir, I., & Hasna, M. (2012). Bangladesh: An Island of Hope. Architecture seminar room, Universidade De Évora, Évora, Portugal

Mackey, A., & **Aman, J.** (2011). Living Conditions of Affordable Housing in Urban wetlands. BRAC Auditorium, BRAC university, Dhaka, Bangladesh

# Media Interviews

Aman, J., & Rahman, N. N. (2018, June 7). ATN Young Nite - সাম্রয়ী আবাসন (Affordable Housing). https://www.youtube.com/watch?v=XU1fMDPp14w&t=225s

Aman, J. (2018, February 20). Daylighting in Residential Buildings [ATN Bangla, Char Deyaler Kabbo, Bengali]

#### **SERVICE & ACTIVITIES**

# Reviewer 2018- Present

- Reviewer, CAADRIA conferences, 2022-Present
- Reviewer, CAAD Futures conference, 2024
- Member of editorial board and Reviewer, Southeast Journal of Architecture (SEUJA)
- Reviewer, International Journal of Architectural Computing (IJAC), SAGE Publications
- Reviewer, Journal of Asian Architecture and Building Engineering, Taylor & Francis

# SMRF Judge 2023

Served as critic for evaluating undergraduate research presentations in Show Me Research Forum (SMRF), 2023-Present

# Chair Search 2022

Served on the MU Architectural Departmental Chair search committee as a graduate representative, co-chaired by Dr. Jamie Arndt and Prof. Goldschmidt.

# Coordinator Fall'22

Coordinated Studio 1 faculty members of MU Architectural Studies to update the syllabus and design objectives in accordance with CIDA accreditation requirements.

Jayedi Aman I Aug 2024 7 of 9

Contributor 2021-Present	Editorial Contributor, Researchitect ( <a href="https://researchitect.org/about/">https://researchitect.org/about/</a> ) Researchitect is an online platform for Bangladeshi architects to highlight different aspects of their academic and professional research to broader audiences.
Workshops Conducted 2017-2018	<ul> <li>Three Days Workshop on 'Daylighting and Thermal Simulation by Ecotect and EnergyPlus Simulation Software'. AUST computer Lab. Organized by Ahsanullah University of Science &amp; Technology. Dhaka.</li> <li>Half Day Workshop on 'Dhaka Mahanagar Imarat Nirman Bidhimala – 2008'. Organized by Seminar &amp; Workshop Organizing Committee'. Dhaka.</li> </ul>
iLab Open Houses 2019-Present	We assist in the planning and organization of tours and the preparation of the lab setting and technology to meet visitors' expectations depending on their demographics. As a result, we typically have a varied range of guests, ranging from young children to faculty members and occasionally teenagers to faculty members, as well as high-profile individuals.
On-Site Demos 2019-Present	We have organized numerous events and demos in several local public schools (K-12) as part of the iLab's educational goal, particularly for impoverished children and minority students.
2014-2018	As a team member of Seminar and Workshop organized committee, AUST architecture, I organized sixteen lectures and three workshops related to contemporary architecture practices.
Critic 2014–Present	Critic of undergraduate thesis and design studios at various Universities such as AUST, Southeast University, Sonargaon University, Premier University, BRAC University, and MU.
2015	Producer and Video Editor of a Short-Film, 'IDENTITY' based on Transgender people to provide awareness, premiered at the Dhaka Film Festival 2016.

# **MEMBERSHIPS**

2021-Present	Member, American Association of Geographers (AAG) (Membership number: 97004724)
2020-Present	Intl Associate member, American Institute of Architects (AIA); AIA Missouri; AIA Mid-Missouri (Membership number: 39250994)
2020-Present	Member, The United States Geospatial Intelligence Foundation (USGIF) (Membership number: 5612227)
2017-Present	Member, Green Architecture Cell, BUET (GrACe)
2014-Present	Member, IAB (2018-Present, A-249), Associate Member, IAB (2014-2017, AA-306)
2019-2020	Member, Printing and Publication Committee, Alumni of AUST Architects (AAA)
2017-2018	Member, Printing and Publication Committee, Institute of Architects, Bangladesh (IAB)
2015-2018	Member, Seminar and Workshop Organizing Committee, DoA, AUST

# TECHNICAL SKILLS

Architectural Design & Rendering	AutoCAD, Sketch-Up, 3D Studio Max, Lumion, V-Ray
BIM and Parametric Modeling	Rhinoceros- Grasshopper, Revit- Dynamo
Gaming/VR/AR Platform	Unity, Blender
Geographical Information Science	ArcGIS Pro, QGIS

Jayedi Aman I Aug 2024 8 of 9

Computer Programming Python (Stand-alone, Grasshopper, ArcGIS pro), C# (Unity), SQL

Tools/Plugins Energy simulation and optimization, Parametric modelling &

Immersive visualization related tools, and plugins

Data Integration Platform FME, CloudCompare

Graphics and Editing Adobe Creative Suite (Photoshop, Illustrator, After effects, Premiere),

Corel Draw

API Interaction Trellix, Climate Platforms, Social Media, GSV, REST API

Web Development HTML, WordPress, UI

Cloud Computing AWS

AI Analytics ML & DL algorithm-based analytics

Statistical Analysis R Studio, JMP

# **HANDS-ON SKILLS**

Illustration/Cutting Drawing, sketching in traditional media, 3D Laser Cutting

Motion Capture OptiTrack Motion Capture System

Sensor Installation Familiarity with Cooper Lighting motion and occupancy sensor setup

with controller and central server system

Tools/Plugins VR and AR content and interaction development for Microsoft

Hololens, Oculus Rift- GO- Quest, HTC VIVE

Jayedi Aman I Aug 2024 9 of 9