



ASM Shihavuddin

Computer Vision, Machine Learning, Data Science

Experience

- Feb 2020 – **Chairman, EEE Department, Associate professor, GREEN UNIVERSITY OF BANGLADESH, (GUB).**
Till date
- o AIJ grant 5000 Euros for Dhaka AI challenge 2020
 - o New lab developments and fostering research activities.
 - o Director of CETL, GUB
 - o Technical Co-chair of **STI 2020**, trach co chair of **ICAICT 2020**
 - o **OBE based curriculam** implementation
 - o Editorial Board Member, GUB journal of Science and Engineering (GUBJSE)
 - o Teaching '**Digital Signal Processing, Electric Circuits**'.
 - o Initiatives – Meet the department, Battle of Brains, EEE Day – like never before, Social media activation, Lab Video Making, Thesis Checklist, DhakaAI 2020, etc.
- August 2020 – **Director, CETL, Green University of Bangladesh.**
Till date
- o Arraigning **data analytic** CTL, GIFT, Master facilitator programs.
 - o **Concept development** for innovative solutions and system in Educational transformation.
 - o **Theoretical research** for educational development and policy consultancy.
- Sept 2019 – **Associate professor, UNIVERSITY OF LIBERAL ARTS BANGLADESH, (ULAB).**
Feb 2020
- o Teaching '**Operating Systems, Database Management systems, AI, Introduction to Computer Studies**'.
 - o Preparing new curriculum along data science and machine learning major, booklet and brochure of CSE Department
 - o Advisor - '**ULAB Computer Society**'.
 - o Organizing committee - IJCCI 2019.
 - o Speaker - SotM Asia 2019.
 - o Speaker - Advances in Computer Vision: Recent Trends and Applications, IUT, short course 2019
 - o Passed certification on 'SDG001: How to Achieve the Sustainable Development Goals'.
- July 2018 – **Assistant professor, DTU COMPUTE, (DTU), Copenhagen, Denmark.**
Sept 2019
- o DARWIN project
 - o Teaching '**Introduction to Mathematics and Technology**', '**Advanced Image Analysis**', '**Computer Vision**', '**Project work in image analysis**'.
 - o 5 M.Sc, 4 B.Sc student, 1 PhD external student supervision
 - o Organized paper writing workshop 2018
 - o Organized 2019 Summer school on Generative models together with DTU and DIKU image section
 - o Finished 'Education in University Teaching' course at DTU, UDTU - Module 1, 2 and 3)
- Oct 2017 – **Senior Postdoc, DTU COMPUTE, DTU, Copenhagen, Denmark.**
July 2018
- Automated wind turbine external damage detection using deep learning framework, **Industrial machine vision** course, organizer VISION DAY 2018, CVPR 2018, Scandem 2018
- Sept 2014 – **Postdoc, IBENS, Ecole Normale Superieure (ENS), Paris, France.**
Sept 2017
- Automated image processing and analysis method development for Ependymal cell study
- April 2014 – **Assistant Professor, EEE, Islamic University of technology (IUT), Bangladesh.**
October 2014
- Computer vision and machine learning, Digital electronics; B.Sc, M.Sc thesis supervision

- June 2011 - **PhD Research Fellow (Assistant Professor, IUT - on leave)**, VICOROB, **Universitat De Girona (UDG)**, Girona, Spain.
- March 2014 Computer vision research projects, M.Sc thesis supervision, conference/seminar organization
- Jan 2011 - **Assistant Professor, EEE, Islamic University of technology (IUT)**, Bangladesh.
- June 2011 Computer vision and machine learning, Digital electronics; B.Sc, M.Sc thesis supervision
- June 2010 - **Lecturer, EEE, Islamic University of technology (IUT)**, Gazipur, Bangladesh.
- Dec 2010 Pattern recognition, Electromagnetic Fields and waves, Signal processing; B.Sc thesis supervision
- June 2009 - **Research Assistant, VICOROB, Universitat De Girona (UDG)**, Girona, Spain.
- Sept 2009 Method development for Online underwater sunflicker effect removal
- Sept 2006 - **Lecturer on leave, EEE, Islamic University of technology (IUT)**, Gazipur, Bangladesh.
- June 2008 Digital electronics, Electromagnetic Fields and waves, Signal processing; B.Sc thesis supervision
- Dec 2006 - **Lecturer, EEE, Islamic University of technology (IUT)**, Gazipur, Bangladesh.
- Sept 2008 Digital electronics, Electromagnetic Fields and waves, Signal processing; B.Sc thesis supervision
- Sept 2006 - **Lecturer, EEE, Stamford University Bangladesh (SUB)**, Dhaka, Bangladesh.
- Dec 2006 Digital electronics, Electromagnetic Fields and waves

Education

- 2011 – 2014 **Doctor of Philosophy (PhD)**, UNIVERSITAT DE GIRONA (UDG), Girona, Spain.
Cum Laude / With Honours
- 2008 – 2010 **European Masters of Computer Vision and Robotics**, UNIVERSITE DE BOURGOGNE (FRANCE), UNIVERSITAT DE GIRONA (SPAIN) AND HERIOT-WATT UNIVERSITY (SCOTLAND), VIBOT, *GPA – 17.032 out of 20, ranked 4th.*
- 2007 – 2014 **Masters of Business Administration (MBA) major in marketing**, UNIVERSITY OF DHAKA (DU), Dhaka, Bangladesh, *GPA 3.60 out of 4.00.*
- 2002 – 2006 **Bachelor of Science (B.Sc) in Electrical and Electronic Engineering**, IUT, GAZIPUR, Bangladesh, *Placed 2nd, CGPA 4.96 out of 5.00.*
- 2000 – 2002 **Higher Secondary School Certificate (HSC)**, NOTRE DAME COLLEGE, DHAKA, Bangladesh, *885 mark out of 1000, with 4 star marks.*
- 1998 – 2000 **Secondary School Certificate (SSC)**, IDEAL SCHOOL AND COLLEGE, DHAKA, Bangladesh, *880 mark out of 1000, with 5 star marks.*

Awards and Grants

- 2021 **Drone based Inspection** MOST research grant by Ministry of Science and Technology by Government of Bangladesh amounting 2 Lac BDT.
- 2020 **DhakaAI 2020** Elsevier AIJ Grant of 5000 Euro.
- 2018 **Best Paper Award** runner up at CVPR 2018 for CVMI workshop.
- 2018 **Best Paper Award** runner up at CVPR 2018 for CVMI workshop.
- 2010-2013 **FI Grant** by the Catalan Govt. for PhD studentship at Universitat De Girona (UDG) and ranked top among the list
- 2008-2010 **Erasmus Mundus Grant**, Europeans commission for 2 years MSc programme VIBOT
- 2006 **Most Creative Brain** award among 02 batch by IUT students
- 2003-2006 **OIC Full free scholarship** for 4 years at IUT
- 2002-2003 **Dhaka Board scholarship** for securing above 80% marks in H.S.C

Publications (Citation 527, H index - 13, i10 index - 15)

Selected journals

- 2021 *Siemon, M.S.N., Shihavuddin, A.S.M., Ravn-Haren, G. Sequential transfer learning based on hierarchical clustering for improved performance in deep learning-based food segmentation. Nature Scientific Report 11, 813 (2021). (IF - 4.120)*

- 2021 Chen, X.; Eder, M.A.; **Shihavuddin, A.**; Zheng, D. A Human-Cyber-Physical System toward Intelligent Wind Turbine Operation and Maintenance. **Sustainability** 2021, 13, 561. (IF - 2.576)
- 2020 Haque, W.A., Arefin, S., **Shihavuddin, A.S.M.** and Hasan, M.A., 2020. DeepThin: A novel lightweight CNN architecture for traffic sign recognition without GPU requirements. **Expert Systems with Applications**, p.114481. (IF - 5.89)
- 2020 Chen, X., **Shihavuddin, A.S.M.**, Madsen, S.H., Thomsen, K., Rasmussen, S. and Branner, K., 2020. AQUADA: Automated quantification of damages in composite wind turbine blades for LCOE reduction. **Wind Energy**. (IF - 2.647)
- 2020 Md Hasan Maruf, Mohammad Asif ul Haq, Suman Kumar Dey, Ahmed Al Mansur, **A.S.M. Shihavuddin**, Adaptation for sustainable implementation of Smart Grid in developing countries like Bangladesh, **Energy Reports**, Volume 6, 2020, Pages 2520-2530. (IF - 4.36)
- 2020 Tausen Marni, Clausen Marc, Moeskjær Sara, **Shihavuddin ASM**, Dahl Anders Bjorholm, Janss Luc, Andersen Stig Uggerhøj, Greenotyper: Image-Based Plant Phenotyping Using Distributed Computing and Deep Learning, **Frontiers in Plant Science**, volume=11, pages=1181, 10.3389/fpls.2020.01181. (IF - 4.3)
- 2020 Tausen Marni, Clausen Marc, Moeskjær Sara, **Shihavuddin ASM**, Dahl Anders Bjorholm, Janss Luc, Andersen Stig Uggerhøj, Greenotyper: Image-Based Plant Phenotyping Using Distributed Computing and Deep Learning, **Frontiers in Plant Science**, volume=11, pages=1181, 10.3389/fpls.2020.01181. (IF - 4.3)
- 2020 Haq, M.A.; Islam, **A.**; **Shihavuddin, A.**; Maruf, M.H.; Al Mansur, A.; Hassan, M.Y. Enhanced Energy Savings in Indoor Environments with Effective Daylight Utilization and Area Segregation. **Symmetry** 2020, 12, 1313.. (IF - 2.51)
- 2019 Anabel Gomez-Ríos, Siham Tabik, Julian Luengo, **ASM Shihavuddin**, Francisco Herrera, Coral species identification with texture or structure images using a two-level classifier based on Convolutional Neural Networks, **Knowledge-Based Systems**, 2019 (July). (IF - 5.101)
- 2019 **ASM Shihavuddin**, Xiao Chen, Vladimir Fedorov, Nicolai Andre Brogaard Riis, Anders Nymark Christensen, Kim Branner, Anders Bjorholm Dahl, Rasmus Reinhold Paulsen, Wind turbine maintenance cost reduction by deep learning aided drone inspection analysis, **Energies, Maintenance Management of Wind Turbines**, 12 (4). (IF - 2.676)
- 2019 Gonzalo Ortiz-Alvarez, Marie Daclin, **Asm Shihavuddin**, Pauline Lansade, Aurelien Fortoul, Marion Faucourt, Solene Clavreul, Maria-Eleni Lalioti, Stavros Taraviras, Simon Hippenmeyer, Jean Livet, Alice Meunier, Auguste Genovesio, Nathalie Spassky, Adult Neural Stem Cells and Multiciliated Ependymal Cells Share a Common Lineage Regulated by the Geminin Family Members, **Neuron**, 2019 (IF - 14.318)
- 2019 Gomez-Rios, A., Tabik, S., Luengo, J., **ASM Shihavuddin**, Krawczyk, B. and Herrera, F. Towards highly accurate coral texture images classification using deep convolutional neural networks and data augmentation. **Expert Systems with Applications**, 2019, 118, pp.315-328. (IF - 3.768)
- 2018 Alexia Mahuzier, **ASM Shihavuddin**, Clemence Fournier, Pauline Lansade, Marion Faucourt, Nikita Menezes, Alice Meunier, Meriem Garfa-Traore, Marie-France Carlier, Raphael Voituriez, Auguste Genovesio, Nathalie Spassky, Nathalie Delgehyr. Ependymal cilia beating induces an actin network to protect centrioles against shear stress, **Nature Communications**, 2018, volume 9, Article 2279. (IF - 12.353)
- 2017 Adel Al Jord, **ASM Shihavuddin**, Raphael Servignat d'Aout, Marion Faucourt, Anthi Karaiskou, Joelle Sobczak-Thepot, Nathalie Spassky, Alice Meunier, Calibrated mitotic oscillator drives motile ciliogenesis, **Science**, doi:10.1126/science.aan8311. (IF - 37.205)
- 2017 **ASM Shihavuddin**, Sreetama Basu, Elton Rexhepaj, Felipe Delestro, Nikita Menezes, Severine Sigoillot, Elaine del Nery, Fekrije Selimi, Nathalie Spassky, Auguste Genovesio, Smooth 2D manifold extraction from 3D image stack, **Nature Communications**, doi:10.1038/ncomms15554. (IF - 12.353)
- 2016 Philippe Foerster, Marie Daclin, **ASM Shihavuddin**, Marion Faucourt, Alessandra Boletta, Auguste Genovesio, Nathalie Spassky, mTORC1 signaling and primary cilia are required for mammalian brain ventricle morphogenesis, **Development**, dev. 138271. (IF - 5.843)

- 2014 **ASM Shihavuddin**, N. Gracias, R. Garcia, A. Gleason, and B. Gintert. Automated Detection of Underwater Military Munitions using Fusion of 2D and 2.5 D Features From Optical Imagery. **Marine Technology Society (MTS) Journal** 48.4 (2014): 61-71. (IF - 0.676)
- 2013 **ASM Shihavuddin**, N. Gracias, R. Garcia, A. Gleason, and B. Gintert. Image based coral reef classification and thematic mapping. **Remote Sensing**, 5(4) : 1809 - 1841, 2013. (IF - 3.244)

Selected conferences

- 2018 Sreetama Basu, Elton Rexhepaj, Nathalie Spassky, Auguste Genovesio, Rasmus Reinhold Paulsen, **ASM Shihavuddin**, FastSME: faster and smoother manifold extraction from 3D stack **CVPR** June 18-22, 2018 CVMI, Salt Lake City, Utah.
- 2015 A.C.R. Gleason, **ASM Shihavuddin**, N. Gracias, G. Schultz and B. E. Gintert, Improved supervised classification of underwater military munitions using height features derived from optical imagery, **OCEANS MTS/IEEE** Washington, DC, 2015, pp. 1-5.
- 2015 Felipe Codevilla, Silvia SC Botelho, Nelson Duarte, Samuel Purkis, **ASM Shihavuddin**, Rafael Garcia, Nuno Gracias, Geostatistics for context-aware image classification, International Conference on Computer Vision Systems, **ICVS**, pages 228–239, 2015.
- 2013 **ASM Shihavuddin**, N. Gracias, R. Garcia, J. Escartin and R. B. Pedersen. Automated classification and thematic mapping of bacterial mats in the North Sea, **OCEANS**, Bergen, 2013 MTS/IEEE.
- 2012 **ASM Shihavuddin**, N. Gracias, and R. Garcia. Online sunflicker removal using dynamic texture prediction. In International Joint Conference on Computer Vision, Imaging and Computer Graphics **VISAPP (1)** 2012: 161-167.
- 2011 Ahmed Faisal, Hossain Emam, ASM Bari, **ASM Shihavuddin**, Compound local binary pattern (CLBP) for robust facial expression recognition, IEEE 12th International Symposium on Computational Intelligence and Informatics, **CINTI**, pages 391–395, 2011.
- 2011 Ahmed Faisal, ASM Bari, **ASM Shihavuddin**, Hawlader Abdullah Al-Mamun, Paul Kwan, A study on local binary pattern for automated weed classification using template matching and support vector machine, IEEE 12th International Symposium on Computational Intelligence and Informatics, **CINTI**, pages 329–334, 2011.

Selected book chapters

- 2019 Othmani, A.A., Basu, S., Shrivastava, A.N., Aslan, S., De Carli, F., Afua, A.D., **ASM Shihavuddin**, and Nait-Ali, A., 2019. Biometrics from Cellular Imaging. In *Biometrics under Biomedical Considerations* (pp. 229-252). Springer, Singapore.
- 2017 Nuno Gracias, Rafael Garcia, Ricard Campos, Natalia Hurtos, Ricard Prados, **ASM Shihavuddin**, Tudor Nicosevici, Armagan Elibol, Laszlo Neumann, Javier Escartin, *Computer Vision in Vehicle Technology: Land, Sea and Air* (Ed. A.M. Lopez, A. Imiya, T. Pajdla, J.M. Alvarez), **Wiley**, ISBN: 978-1-118-86807-2, pp. 127-157, 2017.

Patents

- 2020 Ahmed Al Mansur, Md. Imamul Islam, Md. Imamul Islam, Mohammad Asif Ul Haq, Hasan Maruf, **ASM Shihavuddin**, Md Ruhul Amin, Artificial Sun Simulator - Patent No. 244 of 2020, **Department of Patent, Design and Trademarks, Dhaka, Bangladesh**, filed

PhD Thesis

- Title *Automated underwater object classification using optical imagery*
- Description Development of a novel image classification scheme for benthic coral reef images. The developed scheme can be configured to the characteristics (e.g., the size of the data, number of classes, resolution of the samples, color information availability, class types, etc.) of individual case. The developed tool is capable of generating thematic map of large-scale ocean floor image mosaic.

MSc Thesis

- Title *Online Sunflicker Removal using Dynamic Texture Prediction*
- Supervisors Dr. Rafael Garcia & Dr. Nuno Gracias

Description Development of an online sunflicker detection and removal method. The illumination field of the sunflicker effect is considered as a dynamic texture; with that assumption, the dynamic model of the sunflicker is learned from the registered illumination fields of the previous frames and is used for predicting that of the next coming frame.

Academic activities

Supervision

8 M.Sc projects, 18 B.Sc final-year projects

Reviewed articles

NIPS, SILICON, IJCA, ICECE, Entropy, Remote Sensing, Applied Sciences, IEEE Access, IJCCI, Sensors, Springer Nature, Marine Ecology

Consultancy

Danish road and safety association, Danish digitization project 2019, Eutech Systems Limited, MOMODa Foundation

Event organization

Academic writing workshop (DTU) 2018, Vision day 2018 (DTU), Essonance 2014 (IUT), ROBOleague 2012 (UDG)

Pedagogical training

UDTD module 1, 2, 3 - teachers training, Technical University of Denmark (DTU), 2018 - 2019
Teachers Training Course for 1 week at Islamic University of Technology (IUT), 2007, 3 weeks at Stamford University of Bangladesh, 2006

Grant application writing

Danish Innovation Fund - App based automated feedback and education for skin cancer diagnostics, 2019

Danish Innovation Fund - EPS study, 2019

Novo Nordisk Fund - Neuromatrix, 2019

Danish Innovation Fund - App based Danish Hospital Dietary Intake registration tool, 2019

European grant - Monitoring unexploded military, 2018

D/S Orient Fund - Collaborative Autonomous Monitoring of Marine Assets, 2018

Participation

ICREST 2018 (keynote speaker), Wind energy Denmark 2018 (invited speaker), Optimization summer school, SCANDEM 2018 (poster), CVPR 2018 (paper), Vision day - DTU 2018 (organizer), YRLS 2017, YRLS 2016 (reviewer), Oceans conference 2013 (paper), VISAPP 2012 (paper), Summer school on machine learning 2012 by INRIA, CINTI 2011 (paper), CIM 2008 (paper)

Computer skill

Expert	MATLAB, FIJI/IMAGEJ, CELL PROFILER, WEKA, WINDOWS, OFFICE, L ^A T _E X
Intermediate	PYTHON, OPENCV, SKLEARN, HTML, LINUX, DEEP LEARNING LIBRARIES, NLP LIBRARIES, INKSCAPE, VIDEO EDITING
Basic	JAVA, C++, PANDAS, GITHUB, CONDA, KERAS, TENSORFLOW

Referees

Dr. Anders BJORHOLM DAHL, section leader, DTU Compute, Technical University of Denmark (DTU), Lyngby, Denmark, abda@dtu.dk

Dr. Nathalie SPASSKY, Ecole Normale Supérieure (ENS), Paris, France, spassky@biologie.ens.fr

Dr. Nuno GRACIAS, Universitat De Girona (UDG), Catalonia, Spain, ngracias@silver.udg.edu

Personal Information

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Nationality: BANGLADESHI

Place of Birth: DHAKA

Gender: Male

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