ARGHYA CHATTERJEE

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A machine learning researcher expert in applying deep learning & cloud computing in computer vision, data-driven modern astronomy and practical robotics & systems engineering application in order to serve the society & in greater sense the world, and encourage collaborative endeavor to explore outer world for better future of mankind.

EDUCATION

- **Bangladesh University of Engineering and Technology, Dhaka, Bangladesh**
  Degree: BSc. in Mechanical Engineering Feb 2015 - Sept 2019
  CGPA: 3.14/4.00

- **Khulna Public College, Khulna, Bangladesh**
  Degree: HSC in Science Jul 2012 - Aug 2014
  GPA: 5.00/5.00 *Class Position: 1st/60*

- **Khulna Bidyut Kendra Secondary School, Khulna, Bangladesh**
  Degree: SSC in Science Jan 2010 - May 2012
  GPA: 5.00/5.00 *Class Position: 1st/60*

RESEARCH & PROJECT EXPERIENCE

- **Graduate Research Assistant & Software Team Advisor**
  Model & Project Lab, Int. Mars Rover Competition (URC & ERC) Sep 2019 – Present
  Supervisors: Dr. Md. Ashiqur Rahman and Mizanul H. Chowdhury *Dhaka, Bangladesh*
  Topic: Autonomous Navigation Based on GPS, SLAM, AR Tag and Object Detection for Safe Exploration of Rovers on Rough Terrains, Caves and Mineral Ores of Earth and Mars.

- **Researcher & Collaborator**
  Undergraduate Thesis Mar 2018 – Apr 2019
  Supervisors: Dr. Maglub Al Nur and Dr. Muhammad Abir *Dhaka, Bangladesh*
  Topic: Computational Investigation on Pool Boiling IR Images for Segmentation of Dry Spots Automatically and Evaluating Performance of Traditional Image Processing and Deep Neural Networks in Quantifying Dry Area Segments.

- **Researcher & Team Leader**
  Undergraduate Project Mar 2017 - Feb 2018
  Supervisors: Dr. M.A. Rashid Sarkar and Musanna Galib *Dhaka, Bangladesh*
  Topic: Fire and Flood Fighter Octocopter (UAV) for Extinguishing Fire in Fire Affected Buildings and Areas, and Distributing Flood Reliefs to people in Flood Affected Zones.

- **Researcher & Technical Lead**
  Microsoft BD Internship Project Feb 2017 - May 2017
  Supervisors: Sonia B. Kabir and Ashikur Rahman *Dhaka, Bangladesh*
  Topic: Earlier Screening of Particular Disability in Children Through Mobile Application Using Microsoft Products like Azure Cloud Platform and Bing Maps Server.

- **Researcher & Team Leader**
  Undergraduate Project Jul 2016 - Feb 2017
  Supervisors: Dr. M.A. Rashid Sarkar and Dr. A. B. M. Alim Al Islam *Dhaka, Bangladesh*
  Topic: Hand Wearable Solar Powered Obstacle Detection and Safe Navigation Device for Blind People in Low Cost.

TEACHING EXPERIENCE

- **BUET Mars Rover Robotics Team**
Instructor at Model & Project Lab, BUET
Sep 2019 - Present
Dhaka, Bangladesh
- **National Space Carnival & Camp**
Instructor & Academic Coordinator for Workshops & Camps
Jun 2019 - Present
Dhaka, Bangladesh
- **Bangladesh Astronomical Society**
Instructor for Workshops & Seminars
Jan 2016 – May 2019
Dhaka, Bangladesh

PROFESSIONAL EXPERIENCE

- **Youthprenuer Network** (A Social Welfare Organization)
Head of STEM Education & Development
Jun 2019 – Present
Dhaka, Bangladesh
Activities: Instructed, Organized and Lead Projects, Workshops, Olympiads and Camps in Educational Institutions to Promote STEM Education Specially among Children and Women of Bangladesh.
- **American Astronomical Society**
Country Co-Ordinator & Member
Jan 2018 – Present
Dhaka, Bangladesh
Activities: Celebrated International Astronomical Events in Bangladesh in accordance with AAS, and Reported to Proper Authority for Publishing on their Monthly Magazines.
- **Bangladesh Astronomical Society**
Organizer & Member
Jan 2016 - Apr 2019
Dhaka, Bangladesh
Activities: Instructed and Organized Workshops, Quizzes and Seminars on Space and Astronomy to Promote Space Education among Future Generation of Bangladesh.

PUBLICATIONS

- **A. Chatterjee**, M. Galib and M. A. R. Sarkar, "Application of Arduino in designing modern electromechanical laboratory," *2017 IEEE International Conference on Power, Control, Signals and Instrumentation Engineering (ICPCSI)*, Chennai, 2017, pp. 222-225.
- **A. Chatterjee**, S. Dutta, P. Sarkar and A. B. M. A. A. Islam, "Obstacle Detector for Blind People with Low Cost (Poster Presentation)," *Proceedings of 2017 International Conference on Networking, Systems and Security (NSysS)*, Dhaka, 2017.

INTERNSHIPS & TRAININGS

- **Microsoft Bangladesh**
Internship Project: Disabling Disability through Microsoft Products
Feb 2017 - May 2017
Dhaka, Bangladesh
- **Khulna Power Company Limited**
Training: Power Plant Visit & Industrial Attachment (3 weeks)
Oct 2018 – Oct 2018
Khulna, Bangladesh

SKILL SETS

- **Prg. Language:** Python, C++, C#, C, Arduino, JavaScript, HTML, PHP, CSS, SQL & LaTeX.
- **Framework & OS:** ROS, Nvidia Isaac Sdk, Keras, TensorFlow, PyTorch, Kubernetes, .NET, Django, WordPress, Linux, Mac & Windows.
- **Software & Tool:** Git & GitHub, Bash, Docker, MySQL, MIPAR, SOLIDWORKS, AutoCAD, Ansys, Eagle, PLC, Blender3D, Unity & Unreal Engine 4 & Microsoft Office Family.
- **IDE, Compiler & Text Editor:** CodeBlocks, Microsoft Visual Studio, MATLAB, Node.js, Atom, Jupiter Notebook, PyCharm, Spyder, Visual Studio Code, Notepad++ & Sublime Text.

- **Cloud Platform:** AWS Compute, RoboMaker & Storage, Google Cloud Platform & Colab & Microsoft Azure Cloud Platform.
- **Hardware:** GPS, LIDAR, 3D Stereo Camera, Nvidia Jetson ARM Boards, Raspberry PI, Arduino Series & Nvidia AMD Boards with GTX & RTX Graphics.
- **Technology:** Computer Vision, SLAM & Path Planning, PCB Design, 3D Printing, AR & VR, Game Development, Web Development, GPU & Cloud Computing & Data Science.
- **Language:** Bangla, English & Hindi.
- **Others:** Astronomy, Creative Arts, Singing, Harmonium & Guitar Playing, Organizing, Show Hosting, Volunteering, Swimming, Cycling, Playing Cricket, Football & Badminton.

AWARDS, HONORS & SCHOLARSHIPS

- **2nd in Asia and 16th across the Globe in European Rover Challenge** Sep 2019
  European Space Foundation (ESF) & European Space Agency (ESA) *Kielce, PL*
- **Hon. Mention in National Project Show Competition** Jul 2017
  IEEE SS12 & Maker Fair, UIU *Dhaka, BD*
- **1st in National Project Show Competition** Jun 2017
  EEE Day, BUET *Dhaka, BD*
- **3rd in Inter University Project Show Competition** May 2017
  Mechanical Festival, BUET *Dhaka, BD*
- **1st in National Poster Presentation Competition** Mar 2017
  Robolution, MIST *Dhaka, BD*
- **2nd in Inter University Project Show Competition** Dec 2016
  CSE Day, BUET *Dhaka, BD*
- **Gold, Bronze & Silver Recipient of Duke of Edinburgh Int. Award** Dec 2019
  Duke of Edinburgh International Award Association *London, UK*
- **1st in All Classes in Primary, Junior, Secondary & H. Secondary** 2002-2014
  Elizabeth Primary Sc., Khulna BKS Sc., Khulna Pub. Cl. *Khulna, BD*
- **Govt. Board Scholarship in Primary, Junior, Secondary & H. Secondary** 2006-2014
  Education Board of Bangladesh Govt., Jessore *Khulna, BD*
- **Olympiad Achievements:**
  - *1st in Reg. R. of Science Olympiad'14* • *1st in Reg. R. of Zoology Olympiad'14*
  - *3rd in Reg. & 10th in Nat. R. of Astro-Olympiad'13* • *3rd in Reg. R. of Math Olympiad'14*

CERTIFICATIONS

- **Intro to Satellite Communications** by Institut Mines – Télécom on Coursera, Dec 2019.
- **Wireless Communications for Everybody** by Yonsei University on Coursera, Dec 2019.
- **AstroTech:** The Science and Technology behind Astronomical Discovery by The University of Edinburgh on Coursera, Dec 2019.
- **Image and Video Processing:** From Mars to Hollywood with a Stop at the Hospital by Duke University on Coursera, Oct 2019.
- **Deep Learning Specialization** (5 Course) by Deeplearning.ai on Coursera, Sept 2018.
- A Short Course on **Nuclear Power Engineering** by Institute of Nuclear Power Engineering, BUET, Apr 2018.

LEADERSHIPS

- **Head** of STEM Education & Development *Youthprenuer Network*
- Software **Team Lead** *Team Interplanetar, BUET*
- **Technical Lead** of Internship Project *Microsoft BD*
- **President** (Senior Rover Mate) *BUET Rover Scout Group*

- **President** *Satyen Bose Science Club, BUET*
- **Team Lead** for Development & Planning *ESAB, BUET Unit*
- **Founding** Member *Sceptre*
- Country **Co-Ordinator** *American Astronomical Society*
- **Organizing** Secretary *Nuclear Engineering Club, BUET*

VOLUNTEERING

- **Sceptre (Poverty Alleviation Organization)**
  Activities: Org. free medical camps & distribute dress & sewing machines to poor people.
- **BUET Rover Scout Group**
  Activities: Volunteered on annual sports day, alumni day & admission test day at BUET.
- **Khulna Bidyut Kendra Secondary School Scout Group**
  Activities: Volunteered on medical camps, tree plantation events & sports day at KBKSS.

WORKSHOPS & SEMINARS

- **National Leadership Conference-2019** arranged by WOC and English Olympiad.
- **Youth Leadership Summit-2016** organized by Bangladesh Youth Leadership Centre.
- 4th BIRDS International Workshop on **Demystifying Satellites** org. by BRAC University.
- **Seminar on "Zero Robotics"** organized by Dept. of Mechanical Engineering, BUET.
- Introducing Bangladesh Model World Health Organization & **Workshop on WHO Simulation** organized by BMWHO & UNYSAB.
- Authorship Workshop on **How to Publish a Technical Paper with IEEE** org. by IEEE.
- Training on **AI for Beginners** organized by Satyen Bose Science Club, BUET.
- Workshops on **CFD, Ansys Fluent, Solidworks & 3D Printing** org. by Involute Tech BD.
- Workshops on **PCB & Graphic Designing** organized by IEEE, BUET & BD Section.
- Workshop on **Overall Understanding of Scouting** org. by BUET Rover Scout Group.

MEMBERSHIPS

- Institute of Electrical and Electronics Engineers (**IEEE**)
- American Society of Mechanical Engineers (**ASME**)
- American Astronomical Society (**AAS**)
- American Physical Society (**APS**)
- American Nuclear Society (**ANS**)
- Bangladesh Astronomical Society (**BAS**)
- Bangladesh Youth Leadership Centre Graduate Network **(BGN)**
- Engineering Students Association of Bangladesh (**ESAB**)

REFERENCES

- **Dr. M. A. Rashid Sarkar**
  Academic Advisor
  Ex. Professor, Dept. of Mech. Eng., BUET.
  Professor, Dept. of Nuclear Eng., MIST.

- **Dr. Muhammad Abir**
  Thesis Co-Supervisor
  Ex. Post Doc. R. Associate, Dept. of NSE, MIT.
  Imaging Specialist, Phoenix Nuclear Labs.

- **Dr. Maglub Al Nur**
  Thesis Supervisor
  Professor, Dept. of Mech. Eng., BUET.

- **Mizanul H. Chowdhury**
  Project Co-Supervisor
  Arch. & Admin of ZR, Space Sys. Labs, MIT.