

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

PROFESSIONAL EXPERIENCE

- **Youthpreneur Network** (A Social Welfare Organization) Jun 2019 – Present
Head of STEM Education & Development 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** Jan 2018 – Present
Country Co-Ordinator & Member 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** Jan 2016 - Apr 2019
Organizer & Member 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** Feb 2017 - May 2017
Internship Project: Disabling Disability through Microsoft Products Dhaka, Bangladesh
- **Khulna Power Company Limited** Oct 2018 – Oct 2018
Training: Power Plant Visit & Industrial Attachment (3 weeks) Khulna, Bangladesh

SKILL SETS

- **Prg. Language:** Python, C++, C#, C, Arduino, JavaScript, HTML, PHP, CSS, SQL & L^AT_EX.
- **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

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

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| • Head of STEM Education & Development | <i>Youthpreneur Network</i> |
| • Software Team Lead | <i>Team Interplanetary, BUET</i> |
| • Technical Lead of Internship Project | <i>Microsoft BD</i> |
| • President (Senior Rover Mate) | <i>BUET Rover Scout Group</i> |

- **President**
- **Team Lead** for Development & Planning
- **Founding** Member
- **Country Co-Ordinator**
- **Organizing** Secretary

Satyen Bose Science Club, BUET
ESAB, BUET Unit
Sceptre
American Astronomical Society
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** by M.H. Chowdhury of MIT org. by Dept. of Mech. Eng., BUET.
- Seminar on **4x Resolution Increase in Endoscopic Imaging** by J.M. Kahn of Stanford University, org. by Biomedical Eng., BUET.
- Workshop on **World Health Organization Simulation** organized by BMWHO & UNYSAB.
- Workshop on **PCB, Graphic Designing & Technical Paper Writing** org. by IEEE BDS.
- Training on **AI for Beginners** org. by Satyen Bose Science Club, BUET
- Workshops on **CFD, Ansys Fluent, Solidworks & 3D Printing** org. by Involute Tech BD
- 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

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| <ul style="list-style-type: none"> • Dr. M. A. Rashid Sarkar Academic Advisor Ex. Professor, Dept. of Mech. Eng., BUET. Professor, Dept. of Nuclear Eng., MIST. Email: rashid@me.buet.ac.bd | <ul style="list-style-type: none"> • Dr. Muhammad Abir Thesis Co-Supervisor Ex. Post Doc. R. Associate, Dept. of NSE, MIT. Imaging Specialist, Phoenix Nuclear Labs. Email: miabir@mit.edu |
| <ul style="list-style-type: none"> • Dr. Maglub Al Nur Thesis Supervisor Professor, Dept. of Mech. Eng., BUET. Email: maglub@me.buet.ac.bd | <ul style="list-style-type: none"> • Mizanul H. Chowdhury Project Co-Supervisor Arch. & Admin of ZR, Space Sys. Labs, MIT. Email: mizanul@mit.edu |