

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

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- **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

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- **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

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- **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

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- **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

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- **Prg. Language:** Python, C++, C#, C, Arduino, JavaScript, HTML, PHP, CSS, SQL & L<sup>A</sup>T<sub>E</sub>X.
- **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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| • <b>2<sup>nd</sup> in Asia and 16<sup>th</sup> across the Globe in European Rover Challenge</b><br><i>European Space Foundation (ESF) &amp; European Space Agency (ESA)</i> | Sep 2019<br><i>Kielce, PL</i>                             |
| • <b>Hon. Mention in National Project Show Competition</b><br><i>IEEE SS12 &amp; Maker Fair, UIU</i>   | Jul 2017<br><i>Dhaka, BD</i>                              |
| • <b>1<sup>st</sup> in National Project Show Competition</b><br><i>EEE Day, BUET</i>   | Jun 2017<br><i>Dhaka, BD</i>                              |
| • <b>3<sup>rd</sup> in Inter University Project Show Competition</b><br><i>Mechanical Festival, BUET</i>   | May 2017<br><i>Dhaka, BD</i>                              |
| • <b>1<sup>st</sup> in National Poster Presentation Competition</b><br><i>Robolution, MIST</i>   | Mar 2017<br><i>Dhaka, BD</i>                              |
| • <b>2<sup>nd</sup> in Inter University Project Show Competition</b><br><i>CSE Day, BUET</i>   | Dec 2016<br><i>Dhaka, BD</i>                              |
| • <b>Gold, Bronze &amp; Silver Recipient of Duke of Edinburgh Int. Award</b><br><i>Duke of Edinburgh International Award Association</i>                                     | Dec 2019<br><i>London, UK</i>                             |
| • <b>1<sup>st</sup> in All Classes in Primary, Junior, Secondary &amp; H. Secondary</b><br><i>Elizabeth Primary Sc., Khulna BKS Sc., Khulna Pub. Cl.</i>                     | 2002-2014<br><i>Khulna, BD</i>                            |
| • <b>Govt. Board Scholarship in Primary, Junior, Secondary &amp; H. Secondary</b><br><i>Education Board of Bangladesh Govt., Jessore</i>                                     | 2006-2014<br><i>Khulna, BD</i>                            |
| • <b>Olympiad Achievements:</b>  |   |
| • <b>1<sup>st</sup> in Reg. R. of Science Olympiad'14</b>  | • <b>1<sup>st</sup> in Reg. R. of Zoology Olympiad'14</b> |
| • <b>3<sup>rd</sup> in Reg. &amp; 10<sup>th</sup> in Nat. R. of Astro-Olympiad'13</b>  | • <b>3<sup>rd</sup> in Reg. R. of Math Olympiad'14</b>    |

## CERTIFICATIONS

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- **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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|---|---------------------------------|
| • <b>Head of STEM Education &amp; Development</b> | <i>Youthprenuer Network</i>     |
| • <b>Software Team Lead</b>                       | <i>Team Interplanetar, BUET</i> |
| • <b>Technical Lead of Internship Project</b>     | <i>Microsoft BD</i>             |
| • <b>President (Senior Rover Mate)</b>            | <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

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- **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

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- **National Leadership Conference-2019** arranged by WOC and English Olympiad.
- **Youth Leadership Summit-2016** organized by Bangladesh Youth Leadership Centre.
- 4<sup>th</sup> 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

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