ARGHYA CHATTERJEE

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A machine learning researcher experienced 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 at Model & Project Lab, BUET**
  Software Team Advisor (& Ex. Lead) of Interplanetar for 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**   Sep 2019 - Present
  Instructor & Academic Coordinator for Workshops & Camps   *Dhaka, Bangladesh*
- **Bangladesh Astronomical Society**   Jan 2017 – May 2019
  Instructor for Workshops & Seminars   *Dhaka, Bangladesh*

PROFESSIONAL EXPERIENCE

- **Youthprenuer 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 - Dec 2016
  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 & 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

- **Gold Medalist from Duke of Edinburgh International Foundation**   Dec 2019
  Awarded for Outstanding Extra-curricular & Service to the Society   *London, UK*
- **2nd in Asia & 16th Internationally in European Mars Rover Challenge**   Sep 2019
  European Space Foundation (ESF) & European Space Agency (ESA)   *Kielce, PL*
- **Finalist in IEEE SS12 International Project Competition & Maker Fair**   Jul 2017
  SS12: Age of Innovation and Maker Fair 2017   *Hd, IN*
- **1st in National Project Show Competition (Senior Category)**   May 2017
  EEE Day, BUET   *Dhaka, BD*
- **3rd in Inter University Project Show Competition**   Apr 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**   Nov 2016
  CSE Day, BUET   *Dhaka, BD*
- **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

- **Deep Learning Specialization** (5 Course) by Deeplearning.ai on Coursera, Sept 2018.
- **Image and Video Processing:** From Mars to Hollywood with a Stop at the Hospital by Duke University on Coursera, Oct 2019.
- **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.
- 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 alumni day at BUET & org. flood relief distribution camp.
- **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** org. by WOC and English Olympiad.
- **Youth Leadership Summit-2016** org. 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 **4-fold Resolution Increase in Endoscopic Imaging** by J.M. Kahn of Stanford University, org. by Dept. of Biomedical Eng., BUET.
- Workshop on **World Health Organization Simulation** org. 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

- **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

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

- **Dr. Maglub Al Nur**
  Thesis Supervisor
  Professor, Dept. of Mech. Eng., BUET.
  Email: maglub@me.buet.ac.bd

- **Mizanul H. Chowdhury**
  Project Co-Supervisor
  Arch. & Admin of ZR, Space Sys. Labs, MIT.
  Email: mizanul@mit.edu