

PRETTY MITRA

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ACADEMIC CREDENTIALS

PhD student in Mechanical Engineering,

Purdue University, School of Mechanical Engineering,

Energy and Transport Sciences Laboratory (ETSL),

Graduate Research Assistant

[Spring,2023-Present]

Military Institute of Science and Technology (MIST), Dhaka, Bangladesh

Bachelor of Science (B.Sc.) in Petroleum and Mining Engineering

[2018 -2022]

Cumulative GPA: 3.69/4.00

Rank: 4th among 24 students

Higher Secondary Certificate (H.S.C)

Viqarunnisa Noon School and College, Dhaka, Bangladesh.

[2015-2017]

GPA: 5.00 (5.00 scale)

Secondary School Certificate (S.S.C)

Viqarunnisa Noon School and College, Dhaka, Bangladesh.

[2013-2015]

GPA: 5.00 (5.00 scale)

PhD Research

Conducting research in Energy and Transport Sciences Laboratory (ETSL), under Professor Dr. Partha P. Mukherjee's supervision since Spring 2023.

- Degradation Analytics of Lithium-ion Batteries
 - ~ Advanced Data-Driven Models for Prediction of Battery Cycle Life using Early Cycle Data

SCHOLARSHIPS

Dean's list Scholarship: Academic honor from **Military Institute of Science and Technology** [4 semesters]

Govt. Merit Scholarship: Award by Ministry of Education, Bangladesh [In S.S.C. examination 2015]

RESEARCH INTERESTS

My research interests encompass machine learning application in battery prediction, data-driven analytics in energy storage, especially degradation and safety aspects in lithium- ion battery and advanced storage chemistries. As a result, the significant study will have an influence on the growth and development of sustainable energy in any country.

RESEARCH EXPERIENCE

Undergraduate Thesis

[2021-2022]

Title: A Data-Driven Approach to Predict Drill Cutting Particle Size for Hole Widening Drilling Operation

Authors: **Pretty Mitra**, Abir Hasan Bhuiyan, AS Daiyan Ahmed and Jeronimo De Moura

Conference Paper ****Published**

[2022]

Title: "Study of Turning CO₂ into Fuel by Underground Coal Gasification in a Sustainable and Eco-Friendly Way"

Authors: **Pretty Mitra**, Naheen Sultana, Fariha Noshin Khan and Abir Hasan Bhuiyan.

Conference: TENSYP is one of the official annual conferences owned and organized by the IEEE REGION 10. 2022 IEEE Region 10 Symposium (TENSYP Bombay 2022) held at IIT Bombay, Mumbai from July 1 to 3, 2022.

Review Paper ****Published**

[2022]

Title: "An Overview of the Progress of CO₂ Capture Technologies"

Authors: **Pretty Mitra**, S. M. Masum Ahmed, Dewan Mahnaz Mahmud and Mohammad Zeyad.

Conference: 2022 11th International Conference on Power Science and Engineering (ICPSE 2022) and to be held during

September 23-25, 2022 in Eskisehir, Turkey.

Magazine Article

[2022]

Title: " *Alternative transportation system for utilizing the unutilized gas of Shahbazpur Gas Field*"

Authors: **Pretty Mitra**, Naheen Sultana

Magazine Article ****Published**

[2020]

Title: " *Earth's Future: Mitigate, Adapt or Suffer?*", "the EARTH: ISSUE NO-02 | 2020"

Authors: **Pretty Mitra**

Magazine is published by University of Dhaka American Association of Petroleum Geologists (AAPG) Student Chapter.

Poster Presentation

[2021]

Title: " *Future-Proofing of Sustainable Bangladesh with Geothermal Energy*"

Authors: **Pretty Mitra**, Abir Hasan Bhuiyan

TECHNICAL SKILLS

- SPSS (Statistical Package for Social Science)
- Arc GIS
- Rockworks
- MATLAB
- Petrel
- Pipesim
- Programming Language: C,C+
- Microsoft Office
- Schlumberger Eclipse
- Ventsim
- Python

STRENGTHS

- ◆ Time management
- ◆ Leadership
- ◆ Effective communicator
- ◆ Decision making
- ◆ Presentable and articulate
- ◆ Highly motivated

WORK EXPERIENCE

Internship

- ✓ Titas Gas Field [27 Feb., 2021- 16 March, 2021]
- ✓ Bashundhara LP Gas Limited
- ✓ Bangladesh Energy Regulatory Commission (BERC)

AWARDS & ACHIEVEMENTS

- ✓ **Regional Finalist** at HULT Prize Punjab Impact Summit 2021 [2021]
 - The HULT Prize is a year-long, global competition that challenges young people to solve the world's most pressing issues through social entrepreneurship by creating innovative social ventures. In 2021, the HULT Prize challenged students to rethink the broken food systems by transforming food into a cycle for change.
 - Certificate signed by 42nd USA President Bill Clinton for securing position among top 6 as regional finalist.
- ✓ **1st Runner-Up** position in HULT Prize at MIST (On Campus Program) [2021]
 - The On-Campus program serves as the first phase of the HULT Prize competition. The goal of every On-Campus program is to select a winning team, who will represent their university in the Regional Summits.
- ✓ **1st Position** on PME Top Logger-A competitive programming contest, PME Dept, MIST [2020]
- ✓ **Champion** position on Innovative Idea Showcasing (IIS) at Sustainable Energy Contest-2021, PME Dept, MIST [2021]
- ✓ **2nd Runner-Up** position at CV writing competition on "Future of Oil and Gas Industry with CV Writing Composition" organized by SPE Dhaka University Student Chapter. [2020]
- ✓ **Champion** team in Megamind 1.0, Industrial and Production Engineering Department, MIST. [2020]
- ✓ Petro Picasso - a drawing contest on "Migration of Crude" organized by AC. Tech Anna University SPE Student chapter, my drawing has been published as the best one in the 2nd edition of their magazine "BlackGold". [2021]

- ✓ Presented paper titled “Study of turning CO₂ into fuel by underground coal gasification in a sustainable and eco-friendly way” is presented in **the IEEE Region 10 Symposium Tensymp-2022** organized by IEEE Bombay section at VMCC, IIT Bombay, India held during 1st-3rd July 2022.
- ✓ Presented on SPSS software as **Guest Lecturer** [2022]
- ✓ Received **Best Presenter Award** at 11th International Conference on Power Science and Engineering (ICPSE 2022) and to be held during September 23-25, 2022 in Eskisehir, Turkey in my session [2022]
- ✓ My artwork on “Women in Science” got exhibited at Purdue Engineering Student Council’s Engineering × Art event [April 2023]
- ✓ Received “Chapter Lead Faculty Advisor’s Pick” award on “E-Chem Day” on Art and Science Competition [November 2023]
- ✓ **The Electrochemical Society (ECS) Purdue Student Chapter**
 - Working as **Vice-President & Communication Lead** with the Student Chapter Executive Board, consisting of 6 Chapter Officers and 50+ student members, under the supervision of the Chapter Advisory Board comprising Faculty Advisor, professors and industry experts.
 - Work on social media outreach for Purdue ECS Chapter and organized webinars and the "E-Chem Day," with 5 Chapter officers under Faculty Advisor’s guidance. [2023-Present]
- ✓ Attended and served as Student Ambassador at the 245th ECS Meeting in San Francisco, California [26th May, 2024-31st May, 2024]

AFFILIATIONS

Vice-President & Communication Lead , ECS Purdue Student Chapter	[July, 2023-Present]
Vice-President , MIST Society of Petroleum Engineers Student Chapter	[2021-2022]
Class Representative , Dept. of Petroleum and Mining Engineering, MIST	[2018-2019]
Volunteer , Viqarunnisa Noon School and College	[2012-2013]

RELEVANT COURSES

- ✓ Thermodynamics
- ✓ Heat and Mass Transfer
- ✓ Fluid Mechanics
- ✓ Engineering Statistics
- ✓ Differential and Integral Calculus
- ✓ Differential Equation and Vector Analysis
- ✓ Operational Calculus and Numerical Analysis