

International Women's Day Lecture

Conducted by

**IEEE Kolkata Section WIE
Affinity Group, Bhubaneswar**

Event: Webinar to celebrate the “International Women’s Day”

Topic: LEADING THE WAY: AI AND 4IR TECHNOLOGIES

Date: 10th March 2024

Time: 7.00 PM to 8.30 PM (IST)

Venue: Virtual Mode

Speakers: **Dr. CELIA SHAHNAZ**, IEEE WiE Committee Chair 2023-2024 Professor, BUET

Members Present:

1. Dr. Sujata Chakravarty
2. Dr. Umamani Subudhi
3. Dr. Bharati Mishra
4. Dr. Debasmita Pradhan
5. Dr. Ranjita Patel
6. Dr. Tripti Swarnkar
7. Dr. Renu Sharma
8. Prof. Ashok Tripathy
9. Dr. Pushpanjali Mishra
10. Mr. Debashish Nayak
11. Ms. Subhashree mohapatra
12. Around 62 participants including the core WIE members were present in the webinar.

Summary:

- The webinar started with the welcome address by Dr. Sujata Chakravarty, Chair, WIE affinity group, Bhubaneswar,
- Dr. Debasmita Pradhan, secretary WIE, Bhubaneswar, introduced the speaker Dr. CELIA SHAHNAZ, SMIEEE, Fellow IEB, IEEE WiE Committee Chair 2023-2024, Professor, BUET, Bangladesh.
- The webinar was conducted to celebrate the “International Women’s Day” day.
- The presentation aimed to demonstrate the practical application of AI and 4IR

technologies in addressing real-world challenges. The speaker began by discussing her research on utilizing deep learning models to predict the severity of Hypoxemia in hospital in-patients using photoplethysmograph signals. A novel approach, the residual-squeeze-excitation-attention based convolutional neural network (Res-SE-ConvNet), was introduced for predicting patient comfortability using PPG signals.

- Additionally, the speaker presented the utilization of Capsule Network (CapsNet), a model she designed, for detecting abnormalities in Musculoskeletal Radiographs. Furthermore, the application of deep learning methods for skin cancer detection was discussed.
- Throughout the presentation, the speaker illustrated the broad spectrum of AI, machine learning, and deep learning techniques in healthcare, emphasizing their significance in facilitating prompt detection and appropriate medical intervention. Several of the speaker's notable achievements and awards, such as the WIE Professional Volunteer Award from R10 (2013), WIE Inspiring Member Award from Global WIE (2015), WGA Leadership Award (2016), R10 Humanitarian Activities Outstanding Volunteer Award (2019), and IEEE MGA Achievement Award (2021), were highlighted, serving as a source of inspiration.
- The presentation concluded with a motivating statement from the speaker, "IF I can do it, you all can do it as well," encouraging the audience to pursue similar endeavors. Dr. Umamani Subudhi, Vice-Chair of WIE Bhubaneswar, extended a vote of thanks to conclude the event.

Circulated by,

Dr. Debasmita Pradhan

Secretary (WIE, Bhubaneswar)

Event Snapshots:

10th March, 2024. Time: 7:00 PM

International Women's Day Lecture

LEADING THE WAY: AI AND 4IR TECHNOLOGIES

Prof. (Dr.) Celia Shahnaz
SMIEEE, Fellow IEB, IEEE Women in Engineering Committee Chair 2023-24.
Professor, Department of Electrical and Electronic Engineering Bangladesh University of Engineering and Technology (BUET)

Dr. Celia Shahnaz, SMIEEE, Fellow IEB, received Ph.D. degree from Concordia University, Canada and is currently a professor at, Department of EEE, BUET, Bangladesh since 2015. She was the winner of Canadian Common Scholarship for pursuing her Ph.D study in Canada and recipient of Bangladesh Academy of Science Gold Medal for her contributions in science and technology. The World Academy of Science (TWAS) members have elected her as a Fellow of TWAS for the advancement of science in developing countries, effective 1 January 2023. Recently, her nomination has been approved and she has been inducted into IEEE-Eta Kappa Nu as a Professional Member into the Eta Chapter of the Board of Governors. She has been elected as 2022 IEEE WIE Committee Chair-Elect and she is serving as the 2023-2024 IEEE WIE Committee Chair. She has been appointed as 2024 IEEE Computer society Awards Chair, 2022-23 Member, IEEE New Initiative Committee, 2021-24 Member, IEEE History Committee, Liaison between IEEE History Committee and IEEE WIE. She has served as 2021-22 Chair, IEEE SPS Women in Signal Processing, 2021-22 Liaison between IEEE SPS and IEEE WIE, 2021-22 Member, IEEE Educational Activities Board Faculty Resource Committee, 2022 Member, IEEE WIE Strategic planning Committee, 2021 Chair, IEEE WIE History Subcommittee, 2020-21 Member, IEEE WIE Senior Member Elevation Drive and 2019-2022 Member, IEEE WIE WePower Subcommittee. She has served as an Editorial board member, IET Signal Processing From 2018 to date. She is the immediate past Chair, IEEE Bangladesh Section, Co-founder & Chair, IEEE EMBS, IAS, RAS, SSIT Bangladesh Chapters, Co-founder & Vice-Chair, IEEE SPS Bangladesh Chapter, Founder and Advisor, WIE AG, and founder and Chair of SIGHT group FLASH, IEEE Bangladesh Section. She is the recipient of the 2021 IEEE MGA Achievement Award, 2021 Inspiring Women in Academia Award from Bangladesh brand forum, 2019 R10 Humanitarian Activities Outstanding Volunteer Award, 2016 MGA Leadership Award 2015 WIE Inspiring Member Award, 2013 R10 WIE Professional Volunteer Award. She has more than 23 years of experience (23 years as an IEEE volunteer) in leading impactful Technical, Professional, Educational, Industrial, Women Empowerment, Humanitarian Technology, Power and Energy-related Projects at national/international levels.

Organized by IEEE Kolkata section WIE affinity group, Bhubaneswar.

meet.google.com/yek-ucnu-sue

Celia Shahnaz (Presenting)

Variation of accuracy vs. Image size

Table 1 Showing results varying image size (for humerus)

Image Size	Training accuracy	Validation accuracy
64x64	70.54%	34.81%
128x128	70.54%	56.22%
224x224	94.8%	81.2%

Table 2 Showing Brisque and Nips score

Image Size	Brisque score	Nips score
64x64	34.98	9.55
128x128	22.82	4.25
224x224	17.034	6

Blind Image Spatial Quality Evaluator (BRISQUE)
Naturalness Image Quality Evaluator (NICE) score

Lower BRISQUE and NICE score indicate that the resized images conserve more features or we lose less features after resizing.

7:35 PM | LEADING THE WAY: AI AND 4IR TECHN...

28°C Haze

10-03-2024 19:35

Invitation to celebrate "Internal" x Meet - yek-ucnu-sue

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Celia Shahnaz (Presenting)

Sample	Training accuracy	Test accuracy
Finger	44.6%	33.2%
Humerus	64.2%	55.8%
Elbow	74.3%	67.4%
Forearm	76.6%	70.7%
Hand	87.1%	83%
Shoulder	76%	69.7%
Wrist	94%	92.2%

Here accuracy was measured using kappa statistics

"MURA: Large Dataset for Abnormality Detection in Musculoskeletal Radiographs," 1st Conference on Medical Imaging with Deep Learning (MICCAI 2019), arXiv:1712.05957

7:36 PM | LEADING THE WAY: AI AND 4IR TECHN...

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Celia Shahnaz (Presenting)

Congratulations to Prof. Celia Shahnaz for becoming the 2022 IEEE Women in Engineering Committee Chair-Elect.

7:41 PM | LEADING THE WAY: AI AND 4IR TECHN...

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Invitation to celebrate "Internal" x Meet - yek-ucnu-sue

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Celia Shahnaz (Presenting)

Individual Awards...

- 2013: WIE Professional Volunteer Award from R10
- 2015: WIE inspiring member award from global WIE
- 2016: MGA Leadership Award
- 2019: R10 Humanitarian Activities Outstanding Volunteer Award
- 2021: IEEE MGA Achievement Award

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Celia Shahnaz (Presenting)

Group Awards.....

7:42 PM | LEADING THE WAY: AI AND 4IR TECHN...

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Celia Shahnaz (Presenting)

7:42 PM | LEADING THE WAY: AI AND 4IR TECHN...

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Celia Shahnaz (Presenting)

7:42 PM | LEADING THE WAY: AI AND 4IR TECHN...

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19:42 10-03-2024

A screenshot of a Zoom meeting grid showing 16 participants. The participants are arranged in a 4x4 grid. The names of the participants are: Celis Shihraz, Ashok Kumar, Preeti Swamkar, Debasmita Pradhan, Sujata Chakravarty, Anurag Choudhary, Sudharani Kumar, Sarav Kumar Das, Ramesh Ch Mohanty, Pusparajal Mahapatra, Dr. Ritou Sharma, Rojalina Priyadarshi, Satyananda Swain, Rarjeeta Patal, 16 others, and Debajitish Sengupta Kumar Nayak. The meeting controls at the bottom include a red mute button, a video off button, a chat icon, a settings icon, a screen share icon, a help icon, a red end call button, a pause button, a stop button, a timer showing 53:49, and a close button. The meeting ID is 20:12 | yek-uomj-sue.