

## SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING  
COLLEGE OF DESIGN AND ENGINEERING

Website: <https://cde.nus.edu.sg/ece>

**Area: Power and Energy Systems**

**Host: Prof Dipti Srinivasan**

**Joint Organized by:**

**IEEE Computational Intelligence Society,**

**IEEE Power & Energy Society, Singapore Chapter**

**Green Energy Management & Smart Grid Research Center**

<b>TOPIC</b>	:	<b>Intelligent Management of Uncertain Renewable Generation</b>
<b>SPEAKER</b>	:	<b>Mr Pranay Saha PhD Student, Indian Institute of Technology Patna</b>
<b>DATE</b>	:	<b>Friday, 11 February 2022</b>
<b>TIME</b>	:	<b>12.00PM to 1.00PM</b>
<b>WEBINAR</b>	:	<b>Join Zoom Meeting <a href="https://nus-sg.zoom.us/j/83522566238?pwd=eURiNVJMb00ybE05czZiV0xBamt3QT09">https://nus-sg.zoom.us/j/83522566238?pwd=eURiNVJMb00ybE05czZiV0xBamt3QT09</a> Meeting ID: 835 2256 6238 Passcode: 191746</b>

### ABSTRACT

Renewable resources are prime contributors to energy in a microgrid. Fluctuation in the renewable outcome is inevitable because of strong dependency on the atmospheric condition. Energy storage systems (ESS) are often used to mitigate variability issues. Development of efficient methodology to supply necessary electrical energy to the load from a combination of ESS and utility-grid with minimal cost is the need of the hour. The variable pricing scheme adds another dimension to the problem. We propose a Mixed Integer Linear Programming (MILP) formulation to find an optimal operation schedule of charging/discharging of ESS in offline. As MILP formulation fails to scale for large inputs, we propose a heuristic algorithm in offline and online modes. As an extension of this work, we have also looked at consumer-side management considering the fluctuation of renewable energy and have developed efficient algorithms that incorporate such factors.

### BIOGRAPHY

Pranay Kumar Saha received the B.Tech. degree from KIIT University, Bhubaneswar, India, in 2013, and the M.Tech. degree from the Indian Institute of Technology (Indian School of Mines) Dhanbad, Dhanbad, India, in 2016. He is currently working toward a Ph.D. degree with the Department of Computer Science and Engineering, Indian Institute of Technology Patna, Patna, India, all in computer science and engineering. His research interests include the smart grid.

<https://cde.nus.edu.sg/ece/highlights/events/>