

## **BRIEF RESUME OF DR. ARUNIMA DUTTA**

### **General Information**

<b>Name</b>	Dr. Arunima Dutta
<b>Department</b>	Electrical Engineering
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<b>Phone</b>	+919707015779 / +919485177007



### **Profile Links:**

1. **Google Scholar:** <https://scholar.google.com/citations?user=s34IUboAAAAJ&hl=en&oi=ao>
2. **Orcid ID:** <https://orcid.org/0000-0003-0776-476X>
3. **Web of Science Researcher ID:** HSG-7805-2023

### **Research Interests:**

Power System Stability & Control, Voltage Control, Model Predictive Control, Automatic Generation Control, Energy Management using Electric Vehicle.

### **Education/Qualifications:**

	<b>Qualifications</b>	<b>Institute</b>	<b>Year of Passing</b>	<b>CGPA/Percentage</b>
1	B.E in Electrical Engineering	Jorhat Engineering College, Assam, India	2008 - 2012	79.2
2	M.Tech in Electrical Engineering (Power & Energy System Engineering)	NIT Meghalaya, Meghalaya, India	2014 - 2016	9.3
3	Ph.D. in Electronics and Electrical Engineering	IIT Guwahati, Assam, India	2017 - 2022	9.4

### **Thesis Title:**

**Ph.D:** Model Predictive-based Coordinated Voltage Control of Active Distribution Network (Dr. Sanjib Ganguly and Dr. Chandan Kumar).

**M.Tech:** Coordinated Control of Conventional Units and Electric Vehicles using Fractional Order Controller for AGC under Deregulated Environment (Dr. Sanjoy Debbarma).

**Work Experiences:**

1	Faculty Fellow, Technology Innovation Hub, IIT Guwahati, India (18 December, 2023-Present)
2	Junior Research Fellow, Technology Innovation Hub, IIT Guwahati, India (17 July, 2023 _ 17 December, 2023)
3	Assistant Professor (Adhoc), NIT Meghalaya, India, (10 Oct, 2022 – 15 Dec, 2022)
4	Lecturer (Contractual), Kamrup Polytechnic, India, (1 June, 2017 –1 July, 2017)
5	Assistant Professor (Temporary), NIT Silchar, India (17 Feb, 2017 – 31 May, 2017)
6	Assistant Manager (Regular), APGCL, Assam, India (Jan 2016 – August 2016)
7	Guest Lecturer, Jorhat Engineering College, Assam, India (13 Feb 2013 – 31 May 2013)

**International Journals**

1. **Arunima Dutta**, Sanjib Ganguly, Chandan Kumar, “Coordinated control scheme for EV charging and volt/var devices scheduling to regulate voltages of active distribution networks,” *Sustainable Energy, Grids and Networks (Elsevier)*, Volume 31, September 2022, 100761.
2. **Arunima Dutta**, S. Ganguly and C. Kumar, "MPC-Based Coordinated Voltage Control in Active Distribution Networks Incorporating CVR and DR," *IEEE Transactions on Industry Applications*, vol. 58, no. 4, pp. 4309-4318, July-Aug. 2022, doi: 10.1109/TIA.2022.3163108.
3. **Arunima Dutta**, S. Ganguly and C. Kumar, "Coordinated Volt/Var Control of PV and EV Interfaced Active Distribution Networks Based on Dual-Stage Model Predictive Control," in *IEEE Systems Journal*, vol. 16, no. 3, pp. 4291-4300, Sept. 2022, doi: 10.1109/JSYST.2021.3110509.
4. **Arunima Dutta**, Sanjib Ganguly, Chandan Kumar, “Model predictive control-based optimal voltage regulation of active distribution networks with OLTC and reactive power capability of PV inverters,” *IET Generation Transmission and Distribution*, vol. 14, no. 22, pp. 5183–5192, Nov. 13, 2020.
5. **Arunima Dutta** and Sanjoy Debbarma, "Frequency Regulation in Deregulated Market Using Vehicle-to-Grid Services in Residential Distribution Network," *IEEE Systems Journal*, vol. 12, no. 3, pp. 2812-2820, Sept. 2018, doi: 10.1109/JSYST.2017.2743779.
6. Sanjoy Debbarma and **Arunima Dutta**, “Utilizing Electric Vehicles for LFC in Restructured Power Systems Using Fractional Order Controller,” *IEEE Transactions on Smart Grid*, vol. 8, no. 6, pp. 2554-2564, Nov. 2017, doi: 10.1109/TSG.2016.2527821.

## **International IEEE Conferences**

1. **Arunima Dutta**, Rampelli Manojkumar, Chandan Kumar, “Power Management of a Smart Transformer based Ship Microgrid,” IEEE National Power Electronics Conference, India, 2023.
2. **Arunima Dutta**, Sanjib Ganguly, Chandan Kumar, “Model Predictive based Coordinated Voltage Control of Active Distribution Networks with Distributed Generation and Electric Vehicles,” Proc. 4th IEEE International Conference on Energy and Power Engineering (ICEPE), Shillong, India, 2022.
3. **Arunima Dutta**, Sanjib Ganguly, Chandan Kumar, “Coordinated Voltage Control of Active Distribution Networks in presence of PV and Energy Storage System,” Proc. IEEE 12th Energy Conversion Congress Exposition -Asia (ECCE-Asia), Singapore, pp. 2028-2033, 2021.
4. **Arunima Dutta**, Sanjib Ganguly, Chandan Kumar, “Model Predictive Control based Coordinated Voltage Control in Active Distribution Networks utilizing OLTC and DSTATCOM,” Proc. IEEE International Conference on Power Electronics, Drives and Energy Systems(PEDES), Jaipur, India, pp. 1-6, 2020.
5. **Arunima Dutta**, Sanjib Ganguly, Chandan Kumar, “Voltage Control in Active Distribution Networks and an Approach based on Model Predictive Control,” Proc. 8th IEEE International Conference on Power Systems (ICPS), Jaipur, India, pp. 1-6, 2019.
6. Upasana Sarma, Sanjib Ganguly and **Arunima Dutta**, "Determination of the component sizes and analysis of the operational cost of PEM Fuel Cell-Battery Hybrid Energy System to Retrofit the Diesel Locomotives of Indian Railway," 2019 8th International Conference on Power Systems (ICPS), 2019, pp. 1-6, doi: 10.1109/ICPS48983.2019.9067571.
7. **Arunima Dutta** and Sanjoy Debbarma, "Contribution of electric vehicles for frequency regulation in presence of diverse power sources and transmission links," 2018 IEEE International Conference on Industrial Technology (ICIT), 2018, pp. 1177-1182, doi: 10.1109/ICIT.2018.8352345.

## **Professional and Outreach Activities**

- **Act as a reviewer for:** ICEPE 2022, ICPS 2023, IEEE Access, IEEE Transactions on Sustainable Energy and IEEE Transactions on Smart Grid.

**Reviewer Profile:** <https://www.webofscience.com/wos/op/peer-reviews/summary>

- **Teaching Assistant** for the NPTEL online certification course “Operation and Planning of Power Distribution Systems” under the supervision of Dr. Sanjib Ganguly.

## **Subjects Taught**

- Digital Electronics
- Basic Electrical Engineering
- Signals and Systems

- Data Structure
- Microprocessor

## **Awards & Recognition**

- M.Tech project entitled "*Coordinated Control of Conventional Units and Electric Vehicles using Fractional Order Controller for AGC under Deregulated Environment*" has received Prestigious POSOCO Power System (PPSA) Award 2017 (Listed in top 10 project), awarded by POSOCO & FITT, IIT Delhi.
- M.Tech Project entitled "*Coordinated Control of Conventional Units and Electric Vehicles using Fractional Order Controller for AGC under Deregulated Environment*" Awarded "Most Innovative Project Work" on the 1<sup>st</sup> Institute Day of NIT Meghalaya, 2016.
- Paper entitled "*Model Predictive based Coordinated Voltage Control of Active Distribution Networks with Distributed Generation and Electric Vehicles*", bagged best paper award in IEEE International conference on Energy, Power and Environment (ICEPE), 2022.

## **Skills**

- MATLAB
- PSS@E
- General algebraic modeling system (GAMS)
- PSCAD

## **References:**

### **1. Dr. Sanjib Ganguly (IEEE Senior Member)**

**Designation:** Associate Professor,

**Department:** Department of Electronics and Electrical Engineering

**Affiliation:** IIT Guwahati, Assam, India

### **2. Dr. Chandan Kumar (IEEE Senior Member)**

**Designation:** Associate Professor,

**Department:** Department of Electronics and Electrical Engineering

**Affiliation:** IIT Guwahati, Assam, India