

# Aryan Ritwajeet Jha

*Doctor of Philosophy in Electrical and Computer Engineering*

## PERSONAL DETAILS

---

**Birth** May 30, 1998  
**Address** 1630 NE Valley Rd  
Apt A102 Steptoe Village Apartments  
Pullman, WA, 99163  
**Phone** 509-338-8770  
**E-mail** aryan.r.jha@gmail.com, aryan.jha@wsu.edu

## EDUCATION

---

**Doctor of Philosophy**  
**Electrical and Computing Engineering**  
**Washington State University**  
**Pullman, WA**

2022 Aug -

**Master of Science** (*Thesis Defense Pending*)  
Electrical Engineering  
Indian Institute of Technology Delhi  
*8.20/10.00 CGPA.*

2020-2022

**Bachelor of Engineering.**  
**Electrical and Electronics Engineering**  
**with a Minor in Data Science**  
**Birla Institute of Technology and Science Pilani**  
**Hyderabad Campus**  
*Secured 8.47/10.00 CGPA*

2016-2020

**12th**  
**Bansal Public School**  
**Kota, Rajasthan**  
*Central Board of Secondary Education*  
*Secured 90.00% marks*

2016

**10th**  
**St. Theresa's Convent Sr. Sec. School**  
**Karnal, Haryana**  
*Central Board of Secondary Education*  
*Secured 10.00/10.00 CGPA*

2014

## INTERNSHIPS

---

### Summer Internship

May - July 2018

*Power Grid Corporation of India Limited, Gurgaon, Haryana*

Title : Monitoring Power Systems: SCADA vs WAMS

Supervisor : Dr. R. K. Mittal, Professor, Department of Mechanical Engineering, BITS Pilani, Pilani Campus

## PROJECTS

---

### Master's Thesis

Sep 2020 - Aug 2022

*Data Analysis for Predicting Instabilities in Power Systems*

Supervisor : Dr. Nilanjan Senroy, Professor, Department of Electrical Engineering, IIT Delhi

An accumulation of stochastic disturbances in the power grid causes various steady state instabilities to develop, which can lead to blackout without any early warning indicators. My tasks was to statistically analyze the bus voltage magnitudes of the power grid for symptoms of *Critical Slowing Down*, detected via statistical parameters such as autocorrelation and variance in order to develop a reliable early warning service which may be used to avoid blackouts or at least mitigate its effects. Dynamic simulations were done in Siemens PSS®E 34.3 coupled with Python 2.7 being used for automation. Data Analysis was done in MATLAB.

### Bachelor's Thesis

Jan-May 2020

*Coordination Schemes for Load Frequency Control of Distributed Energy Resources*

Supervisor: Dr. Alivelu Manga Parimi, Associate Professor, Department of Electrical and Electronics Engineering, BITS Pilani, Hyderabad Campus

In order to achieve a more robust control of the grid frequency in a power grid consisting of varied energy resources including photo-voltaics and diesel engine generators, inclusion of storage elements such as large scale batteries and flywheels was proposed. A dynamic state simulation in MATLAB Simulink confirmed the effectiveness of the strategy. Further, an upper limit to the number of such incorporable storage elements, breaching which would otherwise cause the grid to blow up, was also found.

### Project Type Course

Aug - Dec 2019

*Generalized Transfer Function Based Algorithm to Localize Partial Discharge in a Transformer*

Supervisor: Dr. Mithun Mondal, Assistant Professor, Department of Electrical and Electronics Engineering, BITS Pilani, Hyderabad Campus

Due to large amounts of current and voltage transacted via power transformers, locations within the inner dielectrics or oils sometimes tend to ionize and develop a partial discharge, which can cause equipment damage in the long term. Utilizing the RLC ladder network of a transformer to form a MIMO transfer function, an algorithm was designed in MATLAB which, given the current measurements at the live and neutral terminals, would output the location of the single partial discharge affecting the transformer.

### Course Project

Jan - May 2019

*Simulation and Design of Fast Charging Infrastructure for a University-Based e-Carsharing System*

Supervisor: Dr. Sudha Radhika, Assistant Professor, Department of Electrical and Electronics Engineering, BITS Pilani, Hyderabad Campus

Based on the IEEE Transactions on Intelligent Transportation Systems paper of the same name, implemented an intelligent battery charging station in MATLAB Simulink which during the day would check the state of charge of incoming e-vehicles and charge as per the distance to the destination location. During night time, the station batteries would get recharged through the grid power via AC to DC converters.

## TEACHING EXPERIENCE

---

### TA for Power Engineering I course

Jan - May 2022

*IIT Delhi*

*(taken by Undergraduate 3<sup>rd</sup> year students)*

Assigned evaluation of minor (mid-semester) answer scripts.

### TA for Power Systems Laboratory course

Aug - Dec 2021

*IIT Delhi*

*(taken by Undergraduate 4<sup>th</sup> year students)*

Moderated a doubt session. Made one question paper set for the minor (mid-semester) exam and later graded corresponding responses.

### TA for Mathematics III: Differential Equations

Aug - Dec 2018

*BITS Pilani Hyderabad Campus*

*(taken by Undergraduate 2<sup>nd</sup> year students)*

Checked mid-semester answer scripts and made slides for a tutorial session.

## COURSES

---

### Courses in Power Systems



- Power System Analysis
- Power System Protection
- Power System Dynamics
- Power System Operation and Control

### Courses in Data Science



- Applied Statistical Methods
- Machine Learning
- Information Retrieval
- Fundamentals of Data Science
- Optimization
- Neural Networks and Fuzzy Logic

### Other Courses in Electrical Engineering



- Power Electronics
- Electrical Machines
- Electromagnetic Theory
- Control Systems
- Signals and Systems
- Digital Signal Processing
- Digital Electronics
- Microprocessors and Interfacing

Analog Electronics  
Digital Image Processing

## CERTIFIED ONLINE COURSES

---

### Wind Energy

Denmark Technological University on Coursera [↗](#)



### Battery State of Charge Estimation

UC Colorado System on Coursera [↗](#)



### Introduction to Battery Management Systems

UC Colorado System on Coursera [↗](#)



### Plasma Physics: Introduction

EPFL on edX [↗](#)



### Introduction to Power Electronics

University of Colorado Boulder on Coursera [↗](#)



## SKILLS

---

#### Languages

Maithili (mother tongue)  
English  
Hindi

#### Program- ming

C/C++, PYTHON, MATLAB, JULIA

#### Languages

#### Typeset- ting and Drawing

L<sup>A</sup>T<sub>E</sub>X, INKSCAPE

#### Software

MATLAB SIMULINK, SIEMENS PSS®E, MAPLE

## STANDARDIZED TESTS

---

GRE General Test: 333/340 AWA: 4.5/6.0

TOEFL iBT: 113/120 (including 26/30 in speaking section)

GATE EE 2020 rank 588 out of 90k+ candidates.

## OTHER INTERESTS

---

1. Listening to podcasts related to Energy including The Energy Transition Show with Chris Nelder and MIT Energy Initiative by MITeI
2. Competitive Programming (in C++)