

RESUME

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CAREER OBJECTIVE:

Excel in Academically as well as Skill Development to satisfy my passion of preparing engineering students for various industrial corporates, and provide academic leadership, contribute my knowledge, experience and skills for the growth of institute. Willing to train the students to be acceptable in current industrial organisation(s) and getting them prepared how to tackle in adverse situation prevailed. Having experience of 20+ years in the industrial R&D as well as business environment, knew what's positive and negative points in those situations. Ably imparting knowledge of emotional quotient which is very necessary in current situation.

EDUCATION

Indian Institute of Technology (IIT), Kharagpur, West Bengal, India

Completed Ph. D. in Electrical Engineering Dept.

2002

Dissertation: Harmonic Load Compensator: Simulation & PC-based Experimental Verification with a Single-Phase Thyristorised Load.

Completed M. Tech. in Electrical Engineering Dept. with Power Systems Specialization

1991

Project: Reactive Power Compensation in Industrial Environment.

Indira Gandhi Institute of Technology (IGIT), Sarang, Odisha, India

Completed B. E. in Electrical Engineering

1989

Project: Retardation Test of DC Motor using microprocessor-based measuring Instrumentation.

PROFESSIONAL EXPERIENCE

Race2Cloud Technologies Pvt. Ltd.

2021-Cont.

Delivery Manager, IT Dept.

- Responsible as Learning Manager in Race2Cloud Technology imparted Training to Interns
- BITS Hyderabad, St. Joseph's College Trichy and K. Ramakrishna College of Engg. students are undergoing as internship
- Training those students to prepare for competent recruitment in various professional institutions

Centurion University of Technology and Management, Bhubaneswar, **2 years**

2019-2021

Professor, in SoET, Dept. of EEE

- Nominated as one of the reviewers for Seed Money Allocation for selecting suitable proposals.
- Organized the FDP on Matlab for Machine Learning in Centurion University.
- Assigned Research Coordinator Role for three Streams, EEE, ECE and CREE.
- Assigned to setup Functional IIOT Lab. in the CUTM campus.

- Taken responsibility of designing automation system of GramTarang Food's Plant.
- Supervising one Full time Scholar and four Part time Scholars from Dept. of EEE & Mechanical.
- Assigned to co-supervise one part time Scholar from Mechanical Engg.
- Conducted after institute hours courses Machine Language, Matlab Fundamentals.

ABB Ability Innovation Centre (Principal Scientist), Bangalore, 11 years

2007-2018

Gained experience in following areas:

- Presented after analysed Technical Gap Comparison of the ABB's protection products with that of its competitors such as SEL, SIEMENS and GE in the area of machine protection.
- Completed the Research Project Gap Analyses one month early of stipulated six months. □ Involved in the migration project of Network Manager from Ranger and Spider.
- Guided team to develop two modules "Load balancing by feeder reconfiguration (LBFR)" and "Integrated Volt/VAR Control (IVVC)" for global product Network Manager.
- Conducting Technical Training of special features of the ABB's Products to the group of line manager and the members of project teams such as RIO 600, NBR, Testing Team etc.
- Imparting training to Technical Specialists and Technical Managers how to write a competent Technical Paper for IEEE/IEE, international reputed Journals which could be accepted.
- Providing critical input of Technically competence of candidate in Recruiting Process.
- Acted as IP Specialist supporting to the four Teams of Distribution Automation (EPDA) of ABB R&D of capacity 80 employees.
- Visited Manheim, Germany for collecting requirements of global customers regarding development of load balancing by feeder reconfiguration (LBFR) and Integrated Volt-VAR control (IVVC).

GE Global Research Centre (John F. Welch Technology Centre) Bengaluru, India 6 years 2001-2006

- Developed transfer functions for prediction of NOx emission in Gas Turbines, applications for optimizing Gas Turbines firing temperature based on weather conditions, diagnostics tools for performance evaluation team to monitor the operational performance of Gas Turbines.
- Successfully led the project with collaboration with Power System Technology Lab, "Remote ModelBased Diagnostics Application", a web-based tool to remotely monitor and diagnose the operational efficiency of Gas Turbines in Power Generation Plants.
- Developed the New Product Initiative (NPI) project "Monitoring & diagnosing abnormal operation of combustion of the 9H Gas Turbine", that time most advanced technology in Power System Generation, sponsored by P&DT (Prediction & Diagnosis Technology) organization, GE's Generator Technology Business in Schenectady, New York in USA.
- As Power Systems Architect, involved in developing the tools in architecting well-established Software Product in GE Energy Business.
- Visited to Melbourne, Florida, USA, was with development teams of the product ENMACplus & XA21 (ver-5) for customizing and enhancing with additional features of the product.

Indian Institute of Technology (IIT), Kharagpur, West Bengal, India 6 years

1995-2001

Junior Project Officer, Electrical Engg. Dept.

Served as Junior Project Officer for Sponsored Research Industrial Consultancy (SRIC) in IIT Kharagpur in the project "Real-Time Digital Simulator for Power Systems (RTDS)", sponsored by Power Grid Corporation of India, New Delhi (PGCIL). From the project following experience has been gained:

- the project sponsored by PGCIL was of 15 million INR, one of maximum cost at that time in IIT.
- managed successfully from the concept development till implementation and handing over to PGCIL, New Delhi.
- developed as an integrated software which was capable of power system simulation, storing in Oracle database, with indigenously developed UI in unix/linux platform using X-Windows and Motif libraries. Used Matlab routines for simulating dynamics of power system in real-time execution.
- In the development of project three M. Tech. students' thesis are being contributed, (i) presenting graphical load and generation using data from Oracle database, (ii) dynamic simulation of AGC using Matlab based models and (iii) Simulation of AGC Control Modes.
- The execution of the development of each and every module was done very professional way time bound manner.

ACHIEVEMENTS

- Invited as an Examiner of Ph. D. Comprehensive Viva-voce to Basaveswara Engineering College (Autonomous), Bagalkote, Karnataka on June 2nd, 2018.
- Participated in the discussion with Working Group members during the process of development of IEEE Standard for Industrial Hard Real-Time Communication (IEEE Std 61158-2017), sponsored by IEEE Industrial Electronics Society Standards Committee of the IEEE Industrial Electronics Society, Chaired by Dietmar Bruckner, vice-Chair Cheng-Jen Chen. The standard has been approved on 18 May 2017 by IEEE-SA Standards Board.
- Invited as Speaker to India Science Lab, Research and Development Centre of General Motors (GM) in Bangalore, delivered talk on “Diagnostic & Prognostic Tools for Increased Operational Profitability in Power Distribution System”.
- Invited as Speaker to International Symposium on Advanced Materials and Processing (ISAMP-2007), on 29-30 October 2007, which was jointly organized by Basaveshwar Engineering College, Bagalkot, Karnataka and PDA College of Engineering, Gulburga, Karnataka, India.
- Invited to IIT Kharagpur as Industrial representative from ABB in the Symposium organised to conduct IndustryAcademy collaboration in the month of August 2007.
- Arranged a Technical Talk on the topic “State Estimation of Discrete Events in the Industrial Environment”, by Prof. Siddhartha Mukhopadhyay, Ex-Dean, Electrical Engineering Department, IIT, Kharagpur, to the employees of Product Development and Integration (PDI), ABB Corporate Research Centre, Bangalore in the year 2007.
- Chaired a special session on “Challenges in Failure Diagnostics & Prognostic in Industrial Applications” in IEEE International Conference on Industrial Technology sponsored by IEEE Industrial Electronics Society, on 15-17 December 2006 held in Renaissance Hotel Mumbai, India.
- Arranged a series of lectures on “State Estimation Theory and Practice”, by Prof. Siddhartha Mukhopadhyay, ExDean, Electrical Engineering Department, IIT Kharagpur in two sessions in the month of July and December 2006 to the members of Remote Prognostics Lab, GE Global Research Centre, Bangalore.
- Invited as speaker to deliver a talk on “Futuristic Power System Research & Development” in Vision for Research & Development in Short Term Course Organized under Technology Quality Improvement Programme (TEQIP) sponsored by World Bank organised by Dayanand Sagar Institute of Technology, Bangalore, India.
- Honoured as Invited speaker to deliver a talk on “Industrial Electrical Network System: Need for Improvement” in National Seminar on Energy Management and Electric Safety, a National Level Seminar conducted in Bhubaneswar, Orissa, India
- Received the “Hats Off Award”, Engineering Analysis & Prognostics Lab (EAPL), 2003, GE-GRC.
- Arranged a Technical Talk on the topic “Power System Concepts”, by Prof. T. N. Saha, Ex-Dean Students Affair, Electrical Engineering Department, IIT Kharagpur to the employees of GE Global Research Centre, Bangalore.
- Received the “Letter of Appreciation” in Power System Technology Lab (PST), 2002, GE-GRC.
- Conducted Short Term Course on “Advances in Energy Management (EE/98-99/Spl)” during Aug 18-19, 1998 for the professional engineers of Govt. of Orissa.

SUPERVISED DOCTORAL/MASTER’S CANDIDATES

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| <p>□ Doctoral Degree (Ph. D.)</p> <p>Co-supervised to Dr. Sachin Srivastav, Principal Engineer, ABB Global Industries and Services Pvt. Ltd., in the Sponsored Research work leading to Ph. D. degree in the year December 2016 from Indian Institute of Science, Bangalore, India, along with main supervisor Prof. U. J. Shenoy.</p> <p>Dissertation: Study on Behaviour of Distance Relay Characteristics in Interconnecting Lines Fed from Wind Farms.</p> | 2016 |
| <p>□ Master’s Degree (M. S.)</p> <p>Supervised Mr. Ashoka Shyamaprasad in getting M. S. (Software Systems) from BITS, Pilani, India.</p> <p>Dissertation: A detailed Study on simulator-based Requirement Engineering Platform for Substation Automation Systems.</p> | 2012 |

PATENTS & DISCLOSURES FILED

1. Method and System for Configuring Devices of a Control System based on Engineering Graphic Objects. Patent Issued date: Oct 9, 2018, United States Patent Office, USPTO, Patent No.-US10095923 B2.
2. System and Method for Real-Time Feeder Reconfiguration for Load Balancing in Distribution System Automation Patent Issued date: May 5, 2015, United States Patent Office, USPTO, Patent No.-US9026256 B2.
3. Method and System for Predicting Gas Turbine Emissions Utilizing Meteorological Data, Application date: Mar 5, 2009, United States Patent Office, USPTO, Application No.-20090056413 A1.

TEACHING SUBJECTS & RESEARCH INTEREST

1. **Power System Analysis:** Load flow methods (Gauss-Seidel and Newton-Raphson iterative solution), transient stability study of power system (equal area criterion), automatic generation control (AGC), load frequency control, economic load dispatch, unit commitment, reactive power compensation, load compensation in industrial scenario.
2. **Intellectual Property Rights:** Types of intellectual property rights, patentable contents, difference between contents that is patentable and trademark, the international patent classification, the time required to obtain patent, code and classification of patent.
3. **Digital Substation:** Digital Substation is a core enabler to increase safety, productivity and reliability for grid operators and to reduce the overall substation cost. Digital Substations remove the last electrical connection between the high voltage equipment and the protection and control panels, creating a safer work environment, whilst 50% reduction of space in the switchyard, reducing 60% of copper cable, 40% shorter installation phase and above all 50% reduction in outage time will be achieved. As a key component towards smarter grids, where utilities continue to integrate increasing amounts of intermittent renewable energy sources, Digital Substations will also help improve safety, thanks to a shorter decision time in case of an emergency. Digital Substation concept has also paved the way for well-known innovative switchgear solutions such as PASS (Plug and Switch System) and most recently the Disconnecting Circuit Breakers with integrated Fiber Optic Current Sensors (DCB with FOCS).
4. **Renewable Energy (Wind):** Nowadays, the amount of integration of Wind Turbines (WTs) and Wind Power Plants (WPPs) into the electrical grid is increasing. Besides the advantages like sustainability, eco-friendly, and controllability, a high penetration of WPPs is challenging the stability, reliability, and power quality of the electrical grid. Among power quality issues, harmonics and electrical oscillations around and above the fundamental frequency are common phenomena in WPPs and gaining more and more attention. In the literature, these electrical oscillations have been called different names such as harmonic stability, small signal stability, dynamic stability, harmonic resonance, dynamic resonance, or electromagnetic transient stability. The oscillatory modes and electrical resonances of the WPP should be identified. The effects of the various phenomena on electrical oscillations, including the number of WTs, grid Short-Circuit Ratio (SCR), cable lengths, and controller bandwidths has to be analysed. In order to reduce the electrical oscillations and resonance probability, an optimum design procedure in the frequency-domain must be presented to put the oscillatory modes of the WPP into the desired locations with acceptable damping.
5. **Fault Analyses by using AI/ML Analytics:** In the complex electric grid monitoring is paramount importance to provide operators with early warnings of anomalies detected on the network, along with a precise classification and diagnosis of the specific fault type. Proposals should have made with a novel multi-stage early warning system for electric grid fault detection, classification, subgroup discovery, and visualization. Initially, a computationally efficient anomaly detection method based on quartiles detects the presence of a fault in real time. Next, the fault has to be classified into one of predefined disaster scenarios. The time series data should have first mapped to highly discriminative features by applying dimensionality reduction based on temporal autocorrelation. The features are then mapped through one of classification techniques. Finally, using intra-class clustering based on artificial intelligence and machine learning, is used to characterize the fault with further granularity.

PUBLICATIONS AND CONFERENCES

PEER REVIEWED JOURNAL PUBLICATIONS

1. Sachin Srivastava, Prof. U. J. Shenoy, Abhinna Chandra Biswal and Sethuraman Ganesan, "Behavior of Quadrature Polarized Mho Characteristic on Lines Fed from DFIG Based Wind Farms", published in Journal of Electrical Power System Research, May 2014.
2. Sachin Srivastava, Prof. U. J. Shenoy, Abhinna Chandra Biswal and Sethuraman Ganesan, "Impedance seen by Distance Relays on Lines Fed from Fixed Speed Wind Turbines", International Journal of Emerging Electric Power Systems 2013; 14(1): 1724.

PEER REVIEWED CONFERENCE PUBLICATIONS

1. Abhilash Gopalakrishnan and Abhinna Chandra Biswal, "Quiver - An Intelligent Decision Support System for Software Architecture and Design", published in SmartTechCon 2017, International Conference on Smart Technologies for Smart Nation, conducted by REVA University, Bangalore on 17-19 August 2017.
2. Abhilash Gopalakrishnan and Abhinna Chandra Biswal, "Applications of Emerging Communication Trends in Automation", Published in IEEE International Conference of Power Systems in New Delhi, March 2016.
3. Sachin Srivastava, Prof. U. J. Shenoy, Abhinna Chandra Biswal and K. S. V. Phanindra, "Behavior of Different Distance Relay Characteristic on Lines Fed from Type-1 and Type-2 WTGU Connected Radially to Grid: A Case Study", published in 2015 IEEE Innovative Smart Grid Technologies - Asia (ISGT ASIA), Bangkok, Thailand, 3-6 Nov. 2015.
4. Sachin Srivastava, Prof. U. J. Shenoy and Abhinna Chandra Biswal, "Behavior of Quadrature Polarized Mho Characteristic on Lines Fed from DFIG based Wind Farms", published in 18th National Power System Conference 2014 conducted by IIT Guwahati on 21st - 22nd November 2014.
5. Arun Parmar, Jonathan G., Mini T. T., Abhilash G. and Abhinna Chandra Biswal, "Multi-agent Approach for Anomaly Detection in Automation Networks", accepted in IEEE sponsored International Conference on Circuits, Control, Communication and Computing-I4C-2014 Under Technical Education Quality Improvement Program TEQIP-II to be held on 20th - 22nd November 2014 in MS Ramiah Institute of Technology, Bangalore, India.
6. Abhilash Gopalakrishnan, Jithin K.P. and Abhinna Chandra Biswal, "Industrial Automation System on Device (IndASoD)-A Device Modelling Industrial Automation Scenarios", accepted as poster presentation in the 11th India Conference INDICON 2014 Emerging Trends and Innovation in Technology to be held on 11th -13th December 2014 in Yashada, Pune.
7. Abhilash G. and Abhinna Chandra Biswal, "Animated Operational Scenarios for Microgrid Systems using Scenario Visualization and Simulation Tools", IEEE Global Humanitarian Technology Conference South Asia Satellite 2014, Trivandrum, Keral, India, 26th - 27th September 2014.
8. Sachin Srivastava, Prof. U. J. Shenoy, Abhinna Chandra Biswal and Sethuraman Ganesan, "Behavior of Self Polarized Mho Characteristic on Lines Fed from DFIG Based Wind Farms", Innovative Smart Grid Technologies Conference (ISGT), November 10th - 13th, 2013, Bangalore, India.
9. Abhilash G. and Abhinna Chandra Biswal, "Software Based Assistive Systems in Engineering Education", IEEE Global Humanitarian Technology Conference (GHTC), South Asian Satellite Conference, Keral, March-2013.
10. Sachin Srivastava, Prof. U. J. Shenoy, Abhinna Chandra Biswal and Sethuraman Ganesan, "Impedance seen by Distance Relays on Lines Fed from Fixed Speed Wind Turbines", 17th National Power Systems Conference 2012, 12th-14th December 2012.
11. Sachin Srivastava, Prof. U. J. Shenoy, Abhinna Chandra Biswal and Sethuraman Ganesan, "Effect of Fault Resistance and Grid Short Circuit MVA on Impedance seen by Distance Relays on Lines fed from Wind Turbine Generating Units (WTGU)", DPSP 2012, Protecting the Smart Grid, 2326 April 2012, The ICC, Birmingham, UK.
12. Ashoka Shyamaprasad, Abhilash G. and Abhinna Chandra Biswal, "Requirements Engineering in Substation Automation using Simulation Platform", Recent Advances in Communication, Control and Computing Technology, IEEE Student Branch, Sarvajani College of Engineering and Technology, Surat, India, March 2012.
13. Abhinna Chandra Biswal, "Optimum harmonic load compensation in industrial power systems with thyristorized loads," in National Seminar on Energy Management and Electrical Safety, Multidisciplinary Centre on Safety, Health & Environment, Bhubaneswar, Orissa, April 2005.
14. Abhinna Chandra Biswal, Jayesh Barve, Joseph Peter, "Weather Based NOx Emission Prediction Model Development," A Class-2 Technical Report for GE GRC, Bangalore, India.

PROFESSIONAL SKILLS

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- Engineering Proficiency: Electrical Technology:

Power system analyses, power system protection, GE's product XA21, ABB's product Network Manager.
Diagnosis & Prognosis Technology:

Digital Signal Processing, AI, Machine Learning, Knowledge Based System, System Identification Techniques, State Estimation Theory & Practice, Fault Modelling & Simulation, Modelling of Industrial power system components, Gas Turbine Performance Optimization, Power Plant GT Emission Model, Blockchain Method, Enterprise-Application Integration (EAI), Advanced Graphical User Interface (GUI), Web-based Technology.

□ IT Proficiency:

Engineering Tools:

Proficient Knowledge on Modelling and Simulation using Matlab (ver. R2019a), Simulink.

Finite Element Method using ANSYS.

Dassault System, Modelica, Dymola Languages:

Python, C, C++ (OOPs), Java, FORTRAN 77/90, Assembly Language (80xxx, Pentium).

Operating Systems:

IRIX-6.2/5.3 for Silicon Graphics (INDY-R5000, R4400) and IRIX-6.0 for Silicon Graphics PowerChallengeM Series, Solaris 2.8 for Sun Sparc Workstation, UNIX for Hewlett Packard (hp-ux 10.20), Linux (RedHat 6.2), MSDOS, Windows 3.x, Windows 7 & Windows 10.

Framework: Java Casper Framework (GE Proprietary).

Project Management:

Microsoft Enterprise Project Management Tool.

Documentation:

LaTeX (MiKTeX (2.9)), Microsoft Word 2016, Microsoft PowerPoint 2016, Microsoft Excel 2016.

CORPORATE & PROFESSIONAL TRAINING

May 2012	Time Management, 1 day, Power Technology Department, India Development Centre, Bangalore, India.
July 2010	Project Management Professional by PMCC, 4 days in Bhoruka Tech. Park, Power Technology Department, India Development Centre, Bangalore, India.
April 2010	Earned Value Management, 1 day in Bhoruka Tech Park, Power Technology Department, India Development Centre, Bangalore, India.
Nov 2009	Leadership Challenges Program, 4 days in ABB Peenya, Bangalore, India.
Oct 2007	Business Etiquette, 1 day in Hotel Chancellor, Bangalore from ABB INCRC, Bangalore, India.
Mar-Apr 2007	Network Manager Product Training, from ABB INCRC 6 weeks in Mannheim, Germany.
Aug 2006	Business Finance Management, 2 days, GE Global Research Centre, Bangalore, India.
Jun 2006	Influential Skills for Leaders, 1 day, GE Global Research Centre, Bangalore, India.
May 2006	Project Management Course for Leaders, (PMC) Program, 3 days, GE Global Research Center, Bangalore, India.
Nov 2005	Finite Element Analysis Course, 40 hours, GE Global Research Centre, Bangalore, India.
Dec 2004	GE Core Leadership Training, Foundation of Leadership (FOL) Program, 4 days, GE IGE, Hyderabad, India.
Sep 2003	Enterprise Project Management Training, 2 days, GE Global Research Centre, Bangalore, India.
Aug 2003	Assertive Communication Skills, 5 days training, GE Global Research Centre, Bangalore, India.
Jul 2002	UML by Rational, 5 days, GE Global Research Centre, Bangalore, India.
May 2002	Six Sigma Quality Training, DMAIC and DFSS, 9 days, GE Global Research Centre, Bangalore, India.
Mar 2002	Intellectual Property Right Training, 1 day, GE Global Research Centre, Bangalore, India.
Nov 2001	ENMAC+ Training (GE DMS Software), 2 days, Melbourne, Florida, USA.
Oct 2001	XA-21 Software Product, 2 days, (GE EMS Software), GE Network Solutions, Melbourne, Florida, USA.

PERSONAL DETAILS

Date of Birth: 7th December 1966

Gender: Male

Marital Status: Married

Hobbies: Reading, Travelling, Listening Music

Permanent Address: Santi Niwas

In front of Mahatab High School

Pallahara-759 119, Dist. Anugul

Odisha (India)

I hereby declare that all details furnished here are true and correct to the best of my knowledge and belief.

Date: 18th April 2023

Place: Bengaluru

(Dr. Abhinna Chandra Biswal)