

# **Vijay Sood, PhD**

**Associate Professor and NSERC-OPG Co-Chair in Innovative Design Engineering, Department of Electrical, Computer and Software Engineering, Faculty of Engineering and Applied Science at University of Ontario Institute of Technology**

Oshawa, ON, CA

Industry pioneer and powerhouse drives smart grid energy storage research at UOIT

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## **Description**

Harnessing the power of electricity and storing it for future use is one of the 21st century's greatest energy challenges. A lead developer of the smart grid power system components, Vijay Sood, PhD, is an Associate Professor in the Department of Electrical, Computer and Software Engineering in the Faculty of Engineering and Applied Science, and a Natural Sciences and Engineering Research Council of Canada (NSERC)-Ontario Power Generation (OPG) Co-Chair in Innovative Design Engineering. In this role, he is responsible for elevating the design engineering level of UOIT's Electrical Engineering students in their final year Capstone Projects. While all eyes are on the evolution of smart grid technology, Dr. Sood's research agenda focuses on the integration of renewable energy and automation into an advanced smart grid power system which will have implications for the batteries of electric vehicles and other energy storage devices.

He has been transforming the global electrical power landscape for nearly 40 years. In 1976, he joined IREQ, Hydro QuÃ©bec, where he spearheaded the development of high-voltage direct current (HVDC) transmission systems. The earliest three-terminal, 2000 megawatt (MW) link was capable of sending power from James Bay, QuÃ©bec to Boston, Massachusetts, making it the world's longest and most powerful HVDC transmission line. Since then he has authored two books based on HVDC technology which have served as a pinnacle moment in his esteemed career. During his last 13 years in industry, he concurrently served as a professor of Electrical and Computer Engineering at Concordia University in MontrÃ©al before joining UOIT in 2007. For his key contributions, Dr. Sood has been appointed a Fellow of the Engineering Institute of Canada, the Institute of Electrical and Electronic Engineers and the Canadian Academy of Engineers. He is also a registered professional engineer in Ontario.

Born in India and raised in Kenya, Dr. Sood's keen interest in high power applications stems from his appreciation for the value of electricity in creating jobs and contributing to societal growth. He obtained his Bachelor of Science in Electrical Engineering from Nairobi University in Kenya in 1967, earned his Master of Science in Electrical Engineering from Strathclyde University in Scotland in 1969, and received his Doctorate in Power Electronics from Bradford University in England in 1977.

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## **Industry Expertise**

Education/Learning, Renewables and Environmental, Program Development, Industrial Automation, Electrical/Electronic Manufacturing, Electrical Engineering, Research

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## **Topics**

Power System Control and Protection Using Ai Techniques, Modelling Power Electronics Converters Using Emtp Rv, Hvdc and Facts Controllers for Power Transmission Systems

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## **Affiliations**

Professional Engineers Ontario, The Engineering Institute of Canada, Institute of Electrical and Electronics Engineers, Canadian Academy of Engineers

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## **Past Talks**

**Average Model of Boost Converter, Including Parasitics Operating in Discontinuous Conduction Mode**  
30th Annual IEEE Power Electronics Conference and Exposition

**Small Signal Analysis of Boost Converter, Including Parasitics, Operating in Continuous Conduction Mode**  
6th IEEE Power India International Conference

**A Study on the Control of Hybrid MTDC System Supplying a Passive Network**  
2014 PowerCon - IEEE International Conference on Power System Technology

**Modelling of Voltage Source Converters for HVDC Transmission**  
2014 PowerCon - IEEE International Conference on Power System Technology

**Modelling of Synchronous Generator and Full-Scale Converter for Distribution System Load Flow Analysis**  
International Conference on Smart Energy Grid Engineering (SEGEâ€™14)

**Steady-State and Dynamic Performance of Front-End Diode Rectifier Loads as Predicted by Dynamic Average-Value Models**  
IEEE Power Engineering Society General Meeting

**Unified Multi-Critical Infrastructure Communication Architecture**  
27th Biennial Symposium on Communications

**Overview of Connection Topologies for Grid-Connected PV Systems**  
IEEE Canadian Conference on Electrical and Computer Engineering

**EMTP Model of Grid Connected PV System**  
International Conference on Power Systems Transients (IPST 2013)

**Phase Angle Pattern Classifier for Differential Protection of Power Transformers**  
International Conference on Power Systems Transients (IPST 2013)

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## **Education**

**Bradford University**  
PhD Power Electronics

**Strathclyde University**  
MAsc Electrical Machines

**Nairobi University**  
BSc Electrical Engineering

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## **Accomplishments**

### **Fellow, the Canadian Academy of Engineers (FCAE)**

Dr. Sood has been recognized as a Fellow of the CAE for his significant developments in the modelling and simulation of High Voltage DC Transmission technology in Canada and internationally.

### **Institute of Electrical and Electronic Engineers (IEEE) Fellow**

Dr. Sood received the distinction of IEEE Fellow for his extraordinary accomplishments in IEEE fields of interest including his work in HVDC transmission systems. Throughout his career, Dr. Sood has received numerous IEEE awards including the IEEE Third Millennium Medal in 2000, an IEEE Outstanding Service Award in 1998, and IEEE Regional Activities Board Achievement Awards in 2001 and 2006.

### **Engineering Institute of Canada (EIC) Fellow**

Dr. Sood was awarded EIC's highest honour for his contribution to advancing HVDC transmission systems.

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