

Dr. Sumeet Chaudhary
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Objective:

Looking to work as an instructor at the University of Colorado at Boulder's joint program with Colorado Mesa University.

Education:

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| • PhD in Electrical Engineering, University of Cincinnati | March 2019 |
| • MS in Electrical Engineering, Western Michigan University | May 2013 |
| • BS Electronics and Instrumentation, JNTU, Hyderabad, India | May 2011 |

Relevant Experience:

Instructor, CMU-CU Boulder Engineering Joint Partnership Program (January, 2021- Present)

- Served as instructor for the following courses: (1) Real Time Operating Systems (2) Computer Architecture (3) Programming of Digital Systems, (4) Industrial Controls
- Also supervised the laboratory sessions for the above mentioned courses
- Served as a member of the scholarship review committee
- Served as an academic advisor for students of Electrical and Computer Engineering program

Adjunct Professor, Department of Electrical Electronic Technology, Benjamin Franklin Institute of Technology (August, 2020-December 2020)

- Served as an instructor for the following courses: Basic Electrical Circuits & Digital Design with FPGA
- Duties include course content preparation and management

Online Adjunct Professor, Department of Civil, Architectural Engineering and Construction Management, University of Cincinnati (August, 2020- December, 2020)

- Served as an instructor for the following course: Power and Electrical Systems
- Duties include course content preparation and management

Visiting Assistant Professor, Department of Electrical and Computer Engineering, Purdue University Northwest (August, 2019-May 2020)

- Served as an instructor for the following courses: Electric and Magnetic Fields, Linear Control Systems, Linear Circuit Analysis
- Advised undergraduate students in senior design projects.

Lecturer, Department of Electrical and Cyber systems Engineering, United States Coast Guard Academy (August 2018- August, 2019)

- Taught a course on Electric Circuit and Machines in Fall 2018, a course which focuses on the principle and operation of electromagnetic machines such as motors, generators and transformers.
- Taught a course on the Principles of Electronic Communication in Spring 2019, an introductory course focusing on the principles of analog and digital communication.
- Also, supervised the Laboratory session, associated with the courses.
- Co-designer for "Introduction to Computing" course in Summer, 2019. This course focuses on introducing Freshman year STEM students to MATLAB, EXCEL, Python, C++.
- Actively involved in the NET21 program, an initiative started by the Coast Guard Academy to teach coding to Middle School students.

Research Assistant, Department of Electrical Engineering and Computer Science, University of Cincinnati (Jan 2018-August 2018)

- Critical management of projects supervised by Dr. Mark Schulz, Dr. Marc Cahay & Dr. Rabiee
- Mentoring undergraduate student for senior design implementation
- Ensuring proper calibration and compliance of laboratory equipment
- Identification of potential safety hazards and ensuring injury free environment

Cincinnati Enhanced Engineering Math and Science (CEEMS) mentor, Cincinnati Area (Jan 2017-Jan 2018)

- Supervision of nine teachers in the Cincinnati area.
- Helped these tutors develop ideas that reflect real world applications of engineering in their curriculum
- Assisted tutors by working with student groups and developed new innovative techniques to monitor the progress

**Teaching Assistant, Department of Electrical and Computer Engineering, University of Cincinnati
(Jan 2015-Jan 2017)**

- Tutor for courses: Introduction to Engineering, Mechatronics, Digital electronics, Industrial Electronics, Introduction to Programmable Logic Controllers (PLC).
- Duties included grading assignments and assisting the Faculty-in-charge in preparing the teaching material.

Projects:

Seamless transition of three phase microgrid (Co-Advisor for Master's Thesis Project)

Aug 2019-May, 2020

- This project is currently in the literature review phase
- The goal is to employ a Neural Network algorithms for the smooth transitioning of a Renewable energy source based Microgrid from grid connected mode to island connected mode and vice versa.
- Expected to obtain a more efficient controller with fast response time and low overshoot when compared to the contemporary controllers

Robotic Arm Manipulator (Advisor for Senior Design Project)

Aug 2019- May, 2020

- Attempting to develop a Robotic Arm to assist patients with motor function deficiency.
- This project involves the acquisition of bio-signals using electroencephalographic (EEG), electrooculographic (EOG), and electromyographic (EMG) signals.
- The acquired signals are subsequently processed to control the movement of the robotic arm.
- The results of this work shall be used in carrying out research for developing prosthetic devices.

Rotating Machine Fault Detection (Advisor for Senior Design Project)

Aug 2019-May, 2020

- Attempting to incorporate wireless sensors in a rotating machine for data acquisition.
- The data obtained is subsequently analyzed using signal processing techniques.
- Machine learning algorithms are then applied on the processed data to classify the status of the rotating machine.
- Attempting to develop a fully automated procedure of feature extraction, fault detection and identification

Lightweight Electromagnetic Machines (PhD. Dissertation project)

Jan 2015-Mar 2019

- Made a Low loss, Lightweight squirrel cage rotor using Soft magnetic composite (SMC) material
- Easier manufacturing process for fabricating the rotor of a 3 phase induction motor.

Novel Miniaturized Biomedical devices:

Oct 2014-Jan 2015

- Developed a miniaturized polymer-based device for traversing human arteries
- Developed a targeted drug delivery device

Micro Silicon based pressure sensor:

Jan 2014-April 2014

- This project involved the fabrication of a piezoresistive pressure sensor.
- The sensor was incorporated in a 1.67 mm diameter Catheters to measure the blood pressure of patients while carrying out minimally invasive surgery.

Flexible paper-based humidity sensor:

Jan 2014-April 2014

- Designed a humidity sensor on a paper which could detect the presence of moisture in the atmosphere.
- The device used interdigitated electrode, coated with a moisture sensitive polymer, PMMA, to bring about a change in the electrical properties of the device whenever the PMMA absorbed the water molecules from the atmosphere.

Investigation of Microfluidic Structures Using Print Technology

Jan 2013-April 2013

- Designed a microfluidic chip to separate biological pathogen from water.
- Designed a microfluidic chip which helped detect the presence of heavy metals such as potassium, lead and mercury in water.

Active Geriatric Fall Detection

Jan 2012- April 2012

- MEMS device to detect a person collapsing and notify the nearest health center
- Extremely cost effective and can be easily incorporated in commercial and personal devices such as cellphones and watches

Technical Skills:

Software Proficiencies: Microsoft Office, C, Embedded C, Matlab, PLC ladder diagram, Coventorware, COMSOL, Mentor Graphics, LTspice, Machine Learning, Python

Process Tools: Wet etching, Chemical vapor deposition (CVD), Photolithography, Sputtering, Spin-coating, electrodeposition, Reactive ion etching, Focused ion Beam, Scanning Electron Microscopy (SEM), Transmission electron microscopy (TEM)

Publications:

- Hassebo, A., **Chaudhary, S.**, Saleh, M. A., & Ali, M. A. (2020, February). Dynamic Provisioning of Emerging Multifunction/Multi-Bearer Smart IoT Devices. In *2020 International Conference on Innovative Trends in Communication and Computer Engineering (ITCE)* (pp. 103-108). IEEE.
- A. Hasebu, **S. Chaudhary** “Commercial 4G LTE Networks for Supporting Evolving Smart Grid Applications”, *International Journal of Networking and Computing Technology*, 2020 (submitted)
- Yin, Z., Dong, Z., Cahay, M., Pixley, S., Haworth, K.J., Rahimi, M., Goh, S.K., Starnes, S., Patwardhan, M., **Chaudhary, S.** and Schulz, M.J., 2019. “Carbon Nanotube Wire for Use in Precision Medical Devices.” in *Nanotube Superfiber Materials* (pp. 825-849). William Andrew Publishing.
- Megha Chitranshi, Devika Chauhan, Ashley Kubley, Anuptha Pujari, Chenhao Xu, Daniel Chen, **Sumeet Chaudhary**, Guangfeng Hou, Gregory Bell, Brooke Brandewie, Rutvik Kaneria, Ronald Hudepohl, Mark J Schulz, Pioneering carbon nanotube textile engineering & fashion technology. *J Textile Eng Fashion Technol.* 2019;5(2):89–92
- Devika Chauhan, Chenhao Xu, Daniel Chen, Ashley Kubley, Brooke Brandewie, Guangfeng Hou, Weifeng Li, Vianessa Ng, Massoud Rabiee, Marc Cahay, Woo Kyun Kim, **Sumeet Chaudhary**, Khwaja Moinuddin, Michael Paine, Richard Kleismit, David Mast, Surendra Devarakonda, Sang Young Son, Vesselin N Shanov and Mark J Schulz “Introduction to Carbon Nanotube Hybrid Textiles”, *Journal of Textile Science and Fashion Technology*, Volume 1 issue 5, 2019.
- Poster presented at NMD workshop, May 21st-22nd ,2018; “Lightweight Induction Motor”**Sumeet Chaudhary**, Francois T Nyamsi Daniel R Chen , Guangfeng Hou, Max Rabiee, Marc Cahay, and Mark Schulz
- **Sumeet Chaudhary**, Shwetha Nair, Francois Nyamsi, Massoud Rabiee, Marc Cahay, Mark Schulz “Applications of Carbon Nanotube (CNT) Wires in Electromagnetic Machines”, *North Atlantic Union (NAUN)*, Volume 12, pp. 26-32,2018.
- Devika Chauhan, Guangfeng Hou, Vianessa Ng, **Sumeet Chaudhary**, Michael Paine, Khwaja Moinuddin, Massoud Rabiee, Marc Cahay, Nicholas Lalley, Vesselin Shanov, David Mast, Yijun Liu, Zhangzhang Yin, Yi Song, Mark Schulz “Multifunctional Smart Composites with Integrated Carbon Nanotube Yarn and Sheet”, *SPIE smart structure/ NDE 2017*, Portland, Oregon, March 25th-29th.
- Mark J. Schulz, Guangfeng Hou, Vianessa Ng, Massoud Rabiee, Marc Cahay, **Sumeet Chaudhary**, Dustin Lindley, Devika Chauhan, Michael Paine, Dineshwaran Vijayakumar, Chenhao Xu, Zhangzhang Yin, Kevin Haworth, Yijun Liu, Murali Sundaram, Weifeng Li, David Mast, Vesselin N. Shanov; Science to Commercialization of Carbon Nanotube Sheet and Yarn; *World Scientific and Engineering Academy and Society*, 8th International Conference on Nanotechnology, Cambridge, UK, February 24-26, 2017.
- Poster presented at NMD workshop, May 23rd-24th,2016; “Carbon Nano Induction Motor” **Sumeet Chaudhary**, Nicholas Lalley, Guangfeng Hou, Max Rabiee, Marc Cahay, John Yin, Vesselin Shanov, Sergey Yarmolenko, Svitlana Fialkova, Kevin Haworth, Sarah Pixley, Tim Harned, and Mark Schulz.
- In preparation:
 - (i) Sumeet Chaudhary, Shwetha Nair, Francois Nyamsi, Massoud Rabiee, Marc Cahay, Mark Schulz “Soft Magnetic Composite (SMC) Based Squirrel Cage Induction Motor”, To be submitted, August,2020.
 - (ii) Sumeet Chaudhary, Shwetha Nair, Francua Nyamsi, Massoud Rabiee, Marc Cahay, Mark Schulz “Hybrid CNT/SMC Based Squirrel Cage Induction Motor”, To be submitted, August, 2020.

Academic and Research Achievements:

- University Graduate Scholarship (UGS), University of Cincinnati (2013-2019).
- *UC Invention Disclosure*: Precision Internal Medical Devices; December, 2015; Mark J. Schulz, Weifeng Li, Vesselin Shanov, John Yin, Prabir Roy-chaudhury, Begona Campos-Naciff, Diego Celdran, Sumeet Chaudhary