Rakesh Mahto

Associate Professor

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Education

Summer 2016 **Doctorate of Philosophy in Computer Engineering**, *University of New Mexico*, Albuquerque, *NM*.

Spring 2009 **Master of Science in Electrical Engineering**, *California State University*, Fullerton, *CA*.

Spring 2005 **Bachelor of Engineering in Electrical Engineering**, *Veer Narmad South Gujarat University*, Surat, *India*.

Academic Experience

Aug 2022-Present **Associate Professor**, *Department of Electrical & Computer Engineering, California State University*, Fullerton, *CA*.

Aug - May 2016 - 2022 **Assistant Professor**, *Computer Engineering Program, California State University*, Fullerton, *CA*.

May 2017-May 2020 **Temp Part Time Faculty**, *Department of Electrical & Computer Engineering, University of New Mexico*, Albuquerque, *NM*.

May - July 2016 - 2016 **Instructor**, *Department of Electrical & Computer Engineering, University of New Mexico*, Albuquerque, *NM*.

Aug - May 2009 - 2016 **Teaching/Graduate Assistant**, *Department of Electrical & Computer Engineering, University of New Mexico*, Albuquerque, *NM*.

Aug - May 2007 - 2009 **Graduate Research Assistant/Webmaster**, *Center for Insurance Studies, California State University*, Fullerton, *CA*.

Jan - July 2007 - 2007 **Graduate Assistant**, *University of Tennessee*, Martin, *TN*.

Work Experience

Nov - July 2005 - 2006 **Test Engineer**, *Shroffs Engineering Ltd, Vadodara, Gujarat, India*.

- Administered the Testing Department and managed day-to-day affair of the department in accordance with ISO 9000 requirement.
- Designed the test-bed for 1-Phase and 3-phase submersible Induction motors.
- Actively involved in the designing of 1-phase Induction motors.
- Assessed and provided yield improvement plan to meet product development milestones.
- Participated in field-testing, installation and periodic inspection of our products at our customer's location.
- Analyzed electrical test data obtained from submersible Induction motors and pumps.
- Participated in the selection, training, and motivating of junior staff working in the testing department.

Feb - Oct 2005 - 2005 **Service Engineer**, *Star Instrument Engineers, Ankleshwar, Gujarat, India*.

- Responsible for service and maintenance of process instruments at our client companies such as ONGC Ltd., Essar, and Reliance Petrochemicals.

Teaching

EGCP180: Digital Logic and Computer, *Fall (2018, 2023), Spring (2019)*.

EGEE215: Solving Engineering Problems Using MATLAB, *Spring (2023)*.

ECE238L: Computer Logic Design, *Summer (2011)*.

EGCP281: Designing with VHDL, *Fall (2017, 2018, 2020, 2023), Spring (2017, 2023)*.

ECE303: Electronics II, *Spring (2023)*.

ECE321L: Electronics I, *Summer (2015)*.

ECE338: Advanced Logic Design, *Summer (2016, 2017)*.

ECE340: Probability Methods in Engineering, *Summer (2017).*

ECE344L: Microprocessor, *Spring (2015).*

EGCP401: Engineering Economics and Professionalism, *Spring (2020, 2021, 2022, 2023), Fall (2020, 2021, 2022, 2023).*

EGME401: Engineering Economics and Professionalism, *Fall (2023).*

EGCP441: Advance Electronics for Computer Engineering, *Fall (2019, 2020, 2021, 2022, 2023), Spring (2017, 2018, 2019, 2021, 2022, 2023), Summer (2018).*

EGCP446: Advanced Digital Design Using Verilog HDL, *Fall (2018, 2019), Spring (2021).*

EGCP447: Introduction to Hardware Security, *Fall (2016, 2017, 2018).*

EGEE 448: Digital Systems Design with FPGA, *Fall (2022).*

EGCP461: Low Power IC Design, *Spring (2017, 2018, 2019, 2020, 2022).*

EGCP463: Topics in Computer Engineering, *Spring (2018, 2019).*

EGCP520: Advanced Computer Architecture, *Fall (2016).*

EGCP 599: Independent Graduate Research, *Fall(2017, 2018, 2019), Spring (2017, 2020, 2021).*

EGCP 499: Independent Study, *Fall(2018, 2019, 2021), Spring (2020, 2021).*

EGCP 598: Thesis, *Fall(2019, 2020, 2023), Spring (2020, 2023).*

EGCP 597: Project, *Fall(2019, 2020), Spring (2021, 2023).*

Honors and Awards

- Senior IEEE Member, 2022.
- Co-authored paper received best presentation award at IEEE IEMCON 2022.
- Received the IEEE ComSoc Santa Clara Valley Chapter award for attending and presenting at IEEE Global Humanitarian Technologies Conference (GHTC).
- California State University, Fullerton (CSUF), Recognition of Outstanding Achievements in Teaching, Fall 2019.
- California State University, Fullerton (CSUF), Faculty Advisor of Distinction Award, Spring 2019.
- Doctoral conference presentation award, Graduate studies office at UNM (Spring 2016 and Summer 2016).
- Research work was highlighted by Graduate Studies Office at UNM, `https://grad.unm.edu/current-students/spotlight/student-spotlight-2016.html`.
- Graduate Assistantship; University of New Mexico, Albuquerque, 2009 -2014.
- Graduate Assistantship; University of Tennessee, Martin, 2017.
- $1000- Auto Club Southern California outstanding student award, CSU, Fullerton, Spring 2009.
- $1000- Burnham Benefits Insurance Scholarship CSU, Fullerton, Spring 2008.
- ONGC Ltd Merit Scholarship; ONGC Limited (1st standard till 12th standard).

Professional Membership

Aug 2022-Present - Sigma Xi member.

Feb 2016-Present - SPIE professional member.

Oct 2022-Present - IEEE senior member.

Jan - Aug 2008 - 2009 - Instrumentation, Systems & Automation Society (ISA).

Jan - Aug 2008 - 2009 - Gamma Iota Sigma; Insurance and Risk Management Club.

Research Interest

- Photovoltaic Design and Modeling
- Low Power Digital Circuit Design and Modeling
- Mixed Signal IC
- RF Circuit Design and Modeling
- FPGA Applications

Mentored Student Achievements

- Undergraduate student, Alexander Martinez was selected for the Edison STEM-NET Student Research Fellowship for the 2023–2024 Academic Year.
- Undergraduate student Jonathan Olivares was awarded the Undergraduate Research Opportunity Center (UROC) Fellowship Award for the 2024 Academic Year.
- Undergraduate student Tyler Depe was selected for the STEM-NET Summer Student Research Program 2023 Academic Year.
- Undergraduate student, Jonathan Olivares was selected as Edison STEM-NET Student Research Fellowship for the 2022-2023 Academic Year.
- Undergraduate student, Thuan Truong was selected as an LSAMP Research Scholar for the 2021-2022 Academic Year.
- Undergraduate student, Raksha Raghavan received outstanding student scholarly and creative activities award (Spring 2019).
- Undergraduate student, Raksha Raghavan received best poster award at IEEE SusTech 2018 conference in Long Beach, CA.
- Mentored student, Samarth Revankar got selected for the statewide competition (Spring 2017).

College Related Service and Activities

- Media articles, "Professor-led AI program could aid student success," Daily Titan, September 6, 2023. http://tinyurl.com/4z2dvbkp/
- Media articles, "Summer research prepares transfer students for STEM," https://www.ccdaily.com/2023/08/summer-research-prepares-transfer-students-for-stem/
- Media articles, "Summer Research Prepares Community College Transfer Students for STEM ," CSUF News, August 14, 2023.
- Media articles, "AI Experts Receive CSU CREATE Award to 'Luminate' Student Success," CSUF News, July 13, 2023.
- Media articles, "City officials collaborate on new wildfire mitigation technology to help predict and track the spread of wildfires," Cal Cities Advocate, July 7, 2021.
- Media articles, "Engineering Researchers Test Smart Sensors, Infrared Cameras to Support Early Detection of Wildfires," CSUF News, November 28, 2022.
- ECS commencement volunteer (Spring 2021).
- Media articles, "CSUF faculty innovations out of the lab could solve public challenges," https://www.ocregister.com/2020/12/03/csuf-faculty-innovations-out-of-the-lab-could-solve-public-challenges/
- Faculty Mentor - Project RAISE (Summer 2018, 2019).
- Media articles, "PRINT A SOLAR LEAF IN 3 HOURS", https://www2.calstate.edu/csu-system/news/Pages/Print-A-Solar-Leaf-In-3-Hours.aspx
- Participated in Professor for a day event (February 24, 2021, February 21, 2019, and February 22, 2017).
- Media articles, "Community College Students Dive Into STEM Summer Research in CSUF Labs", http://news.fullerton.edu/2018su/Project-RAISE.aspx
- Media articles, "Titan in Student Research Head to Statewide Competition", http://news.fullerton.edu/2018sp/Titans-Head-to-CSU-Research-Contest.aspx
- Media articles, "CSUF assistant professor Rakesh Mahto advocates reconfigurable photovoltaics as an alternative to solar panels", Daily Titan.
- Media articles, "Alumnus Returns to Campus to Teach Computer Engineering," http://news.fullerton.edu/2016su/rakesh-mahto.aspx

University Related Service and Activities

- Writing Proficiency Committee (Fall 2023 - Spring 2024).
- Student Academic Life Committee (Fall 2022 - Spring 2024).
- Faculty Development Center Board (Fall 2021 - Spring 2024).
- Reviewed the Faculty Enhancement and Instructional Development Award (FEID) proposal (Spring 2020, 2022).
- Internship and Service Learning Committee (Fall 2018 - Present).
- Faculty Mentor Program (Fall 2017 - Summer 2018).

Department Related Service and Activities

- Curriculum Committee (Fall 2023, Spring 2024)
- Department Personnel Committee - Standby (Fall 2023, Spring 2024)
- Department Personnel Committee (Fall 2022, Spring 2023)
- Graduate Students Advising (Fall 2020, Spring 2021).
- ABET related data preparation and course notebook creation.
- Computer Engineering Curriculum Committee.
- Undergraduate and Graduate Scholarship Committee.
- Continuous Improvement Committee.
- Procter comprehensive exam (Fall 2016, Spring 2017, Fall 2017 and Fall 2018).
- Welcome CSUF day (Spring 2018, Spring 2019).
- Participated in High Impact Practices (HIPs), Fall 2018 - Present.

Professional Service/Activities

Editorial Board

- Review Editor on the Editorial Board of Energy Efficiency Applications (specialty section of Frontiers in Energy Efficiency).

Reviewer Board

- Journal of Low Power Electronics and Applications (JLPEA).

- MDPI Signals.

Conference Chair

- Technical Program Chair, IEEE Conference on Technologies for Sustainability (SusTech 2022).

Technical Committee

- IEEE International Symposium on Hardware Oriented Security and Trust (HOST 2024 - 2021) .

- IEEE International Symposium on Quality Electronic Design (ISQED 2024 - 2021).

- IEEE Conference on Technologies for Sustainability (SusTech 2021).

- IEEE International Conference on Computer and Communications (ICCC 2019).

- International Conference on Information Technology (ITNG 2019).

Session Chair/Co-Chair

- moderator, Southern California Conferences for Undergraduate Research (SCCUR 2023).

- Chair, IEEE Conference on Technologies for Sustainability (SusTech 2021).

- Co-Chair, IEEE International Symposium on Quality Electronic Design (ISQED 2021).

Journal Manuscript Reviewer

- IEEE Translations of Electron Devices.

- MDPI Open Access Journal - Electronics.

- Journal of Low Power Electronics and Applications (JLPEA).

- MDPI Open Access Journal - Sustainability.

- MDPI Open Access Journal - Applied Science.

- MDPI Open Access Journal - Energies.

- MDPI Open Access Journal - Computers.

- MDPI Open Access Journal - Sustainability.
- IEEE Access.
- International Journal of Modeling and Simulation.
- MDPI Open Access Journal - Signals.
- MDPI Open Access Journal - Vehicles.
- MDPI Open Access Journal - Sensors.
- MDPI Open Access Journal - Micromachines.
- MDPI Open Access Journal - Applied Sciences.
- MDPI Open Access Journal - Symmetry.

Conference Manuscript Reviewer

- IEEE International Midwest Symposium on Circuits and Systems (MWSCAS) - (2021).
- IEEE Power and Energy Conference - (2020, 2021).
- IEEE World Forum on the Internet of Things (WFIoT) - (2021).
- IEEE Applied Power Electronics Conference and Exposition (APEC) - (2021, 2022).
- IEEE Conference on Technologies for Sustainability (SusTech) - (2021).
- IEEE International Symposium on Quality Electronic Design (ISQED) - (2021).
- International Conference on Information Technology (ITNG) - (2019, 2020, 2021).

Book Proposal Reviewer

- "RISC-V Microprocessor System-On-Chip Design," Elsevier S&T Books, 2021.

Community Service

- Judge, 2024 Riverside County Science and Engineering Fair.

Scholarly and Creative Activities

Extramural Grants (In Preparation)

2024 CPS: Medium: Securing Radiance: A Multifaceted Protection Approach for Solar Technologies (MPA-ST), NSF [PI; $1,193,939], October - 2024.

2024 MRI: Gear Shift - Paving the Way for Advanced EV Research and Training at CSUF through Essential Equipment Acquisition, NSF [PI; $1,500,000], November - 2024.

2024 Ergonomic Integration: Utilizing VR and AI in Concert with Digital Twins to Boost Operator Productivity, Raymond Corporation (a Toyota Industries Company) University Research Program [Co-PI; $500,000], September - 2024.

Extramural Grants (Awarded)

2023 LUMINATE: Leveraging Machine Learning/Artificial Intelligence for Responsive and Equitable Teaching and Engagement, CSU Creating Responsive, Equitable, Active Teaching and Engagement (CREATE) Awards, CSU Office of the Chancellor [PI; $108,242], April - 2023.

2022 Early Wildfire Alert System with Smart Solar-powered, Unmanned Sensor Nodes, KIND*-Research Alliance Seed Grant [Co-PI; $5,000], May 2022 - June 2023.

Extramural Grants (Under Review)

2024 BOLT: Bridging Opportunities through Learning and Technology- Accelerating Student Achievement, MacKenzie Scott-Dan Jewett [Co-PI; $149,371], February - 2024.

2024 Building Opportunities for Leadership and Diversity in AI (BOLD-AI), MacKenzie Scott-Dan Jewett [PI; $149,857], February - 2024.

2024 Financial Literacy through Rigorous Education and Student Competition, MacKenzie Scott-Dan Jewett [Co-PI; $149,975], February - 2024.

Extramural Grant Proposals (Submitted – Not Awarded)

2023 ERI: AI-Integrated Defense for Securing IoT-Linked PV Panels, NSF [PI; $198,769], October - 2023.

2023 ASCENT: On-Board Charging with AI-Driven Photovoltaics Panel Integration in Electric Vechicles: AI-PV-EV, NSF [PI; $1,435,373], April - 2023.

2023 Environmental and Social Justice through Rigorous Education and Student Competition, MacKenzie Scott-Dan Jewett [PI; $75,000], February - 2023.

2022 Improving Engineering Student Success via Wildfire Prediction, Early Detection, and Building Community Resilience projects, MacKenzie Scott-Dan Jewett [Co-PI; $130,000], March - 2022.

2022 Engineering Wildlife Mitigation and Control with Smarter Technology and Building Public Awareness, CALFIRE [Co-PI; $535,746], February - 2022.

2022 Harnessing Solar Energy to Replenish Electric Vehicles (EV) Range and Improve Efficiency, KIND*- Research Alliance Seed Grant [Co-PI; $5,000], April 2022.

2021 CPS: Medium: RUI: Leveraging Machine Learning to Detect Fault Conditions to Improve Power Management in Photovoltaic Systems, NSF [Co-PI; $819,503], September - 2021.

2021 Engineering Wildfire Mitigation and Control with Smarter Technology and Building Public Awareness, California Resilience Challenge [Co-PI; $200,000], September - 2021.

2021 Fault Detection Modeling using Machine Learning Photovoltaics Systems, National Institute of Standards and Technology (NIST) [Co-PI; $733,195], May - 2021.

2020 CAREER: Hybrid and Adaptable Solar Powered mini Unmanned Aerial Vehicle, NSF [PI; $498,890], August - 2020.

2020 CPS: Medium: Improving the Capability of Solar Panels through IoT Devices, NSF [PI; $1,193,939], June - 2020.

2020 E2 Energy to Educate, Constellation Group [PI; $50,000], September -2020.

2019 Guidelines for Applications of RFID and Wireless Technologies in Highway Construction and Asset Management, [Co-PI, $175,000], November – 2019.

2019 CAREER: Hybrid and Adaptable Solar Powered mini Unmanned Aerial Vehicle, NSF [PI; $501,903], August - 2019.

2018 Motorola Solutions Foundation Grant Priorities and Process -2018 [PI; $50,000], November - 2018.

2018 Low-Cost Portable Smart Bio-Mimicking Solar Shrub – [Co-PI; $150,000], 2018 (selected but not funded).

Intramural Grants (Awarded)

2024 "Harnessing the Potential of ML and AI for Student Success", Research, Scholarship, and Creative Activity (RSCA), CSUF [PI; $15,000], June 2024 - December 2025.

2024 "Smart Concrete for Smart Bridge," ECS Research Innovation Challenge 2024, [Co-PI; $500], March 2024 - December 2024.

2024 "Studying Reinforcement Learning-based Automation Systems in Heavy Construction Equipment (HCE) Operations Through Experimental Design and Simulation in a 3D Virtual Environment," ECS Research Innovation Challenge 2024, [Co-PI; $500], March 2024 - December 2024.

2024 "Shielding Solar Assets: Framework for Enhanced Hardware Security in Solar Panels," ECS Research Innovation Challenge 2024, [PI; $500], March 2024 - December 2024.

2024 Grant Writing Academy 101 [PI; $1,000], February 2024 - December 2024.

2024 Instructionally Related Activities (IRA) Award- EGCP441 - “Advanced Integrated Circuit Design” [PI; $22,000], July 2024 - July 2025.

2024 Instructionally Related Activities (IRA) Award- EGCP401 - “Engineering Economics Analysis in Renewable Energy Related Project” [PI; $16,999], July 2024 - July 2025.

2023 ORSP Advanced Grant Writing Academy [PI; $4,000], June 2023 - May 2024.

2023 Summer Undergraduate Research Academy (SUReA) [PI; $3,000], June 2023 - December 2023.

2023 Instructionally Related Activities (IRA) Award- EGCP441 - “Advanced Integrated Circuit Design” [PI; $10,340], January 2023 - May 2024.

2023 Instructionally Related Activities (IRA) Award- EGCP401 - “Engineering Economics Analysis in Renewable Energy Related Project” [PI; $9,350], July 2023 - July 2024.

2022 Research, Scholarship, and Creative Activity (RSCA), CSUF [PI; $15,000], June 2022 - December 2022.

2022 Summer 2022 Grant for Faculty Support on Scholarly or Creative Productivity [PI; $5,000], June 2022 - December 2022.

2022 Instructionally Related Activities (IRA) Award- EGCP441 - "Advanced Integrated Circuit Design" [PI; $9,400], July 2022 - May 2023.

2022 Instructionally Related Activities (IRA) Award- EGCP401 - "Engineering Economics Analysis in Renewable Energy Related Project" [PI; $8,500], July 2022 - May 2023.

2021 Summer 2021 Grant for Faculty Support on Scholarly or Creative Productivity [PI; $5,000], June 2021 - December 2021.

2021 Summer Undergraduate Research Academy (SUReA) [PI; $3,000], June 2021 - December 2021.

2021 Instructionally Related Activities (IRA) Award- EGCP441 - "Advanced Integrated Circuit Design" [PI; $2,000], July 2021 - May 2022.

2021 Faculty Enhancement and Instructional Development Award (FEID) by Faculty Development Center at CSU, Fullerton, [PI; $4,000], May - December 2021.

2021 ECS Incentive Grant, [PI; $4747 - 3 WTUs +43% benefits], May 2021 - November 2022

2021 Federal Research Grant Writing Mentorship Program, Award [PI; $5,000], Jan 2021 - Dec 2021.

2020 Instructionally Related Activities (IRA) Award [PI; $10,600], Aug 2020 - July 2021.

2020 Junior/Senior Intramural Grants Program [PI; $4747 - 3 WTUs +43% benefits] June 2020-May 2021.

2020 Instructionally Related Activities (IRA) Award [PI; $10,600] Aug 2019 - July 2020.

2019 ECS Incentive Grant [PI; $4747 - 3 WTUs +43% benefits] Jan 18, 2019 - Dec 20, 2019.

2019 Faculty Enhancement and Instructional Development Award (FEID) by Faculty Development Center at CSU, Fullerton. [PI; $4,000] May 2019 - Dec 2019.

Intramural Grants (Submitted – Not Awarded)

2023 2023-24 STEM-NET Faculty Interdisciplinary Collaborative Research SEED Grant Program [Co-PI; $25,000], November 2023 - May 2025.

2023 ECS Incentive Grant [PI], May 2023.

2022 ECS Incentive Grant [PI], May 2022.

2020 Instructionally Related Activities (IRA) Award- EGCP401 - "Engineering Economics Analysis in Renewable Energy Related Project" [PI; $27,375], Dec 2020.

2020 ECS Incentive Grant [PI], May 2020.

2019 Research, Scholarship, and Creative Activity (RSCA), CSUF [PI], October 2019.

2018 ECS Incentive Grant [PI], November 2018.

2018 Research, Scholarship, and Creative Activity (RSCA), CSUF [PI], October 2018.

2018 Faculty Enhancement and Instructional Development Award (FEID) by Faculty Development Center at CSU, Fullerton, March 2018.

Gifts In-Kind

- Xilinx donation of five Pynq-Z2 and Vivado system software [PI; $855].

Publications and Presentations

Journal Articles In Preparation

2024 R. Mahto, and P. Chauhan, "Nested Multiplier Design: A New Hierarchical Structure Using 2's Complement and Shifting for Efficient Bit Manipulation". (in Preparation)

2024 K. Sood, R. Mahto, and N. Ruppert, "Neural Network Driven Estimation of Partial Shading Condition of PV Panel". (in Preparation)

2024 R. Mahto, D. Sharma, K. Sood, and N. Ruppert, “Fuzzy Logic Controlled MPPT for Solar Powered Drones”. (in Preparation)

2024 R. Mahto, P. Zarkesh-Ha, O. Lavrova, and D. Xavier, “N-Channel MOSFET based Photovoltaics Module Modelling and Simulation”. (in Preparation)

2024 R. Mahto, DK Sharma, C. Putcha, and R. John, “Techno-economic Analysis of Agrovoltaics for Creating Sustainable Agriculture”. (in Preparation)

Journal Articles

2023 P. K. Mandal and R. Mahto, "Deep Multi-Branch CNN Architecture for Early Alzheimer's Detection from Brain MRIs," Sensors, vol. 23, no. 8192, 2023. [Online]. Available: https://doi.org/10.3390/s23198192. (IF - 3.9, CiteScore - 6.8)

2022 K. Sood, N. Ruppert and R. Mahto , “Solar panels simulation data generated using LT-Spice under different operating conditions,” Data Brief, p. 108581, Sep. 2022, doi: 10.1016/j.dib.2022.108581. (CiteScore - 2.4)

2021 R. Mahto, DK Sharma, R. John and C. Putcha , “Agrivoltaics: A Climate-Smart Agriculture Approach for Indian Farmers,” Land, vol. 10, no. 11, Art. no. 11, Nov. 2021, doi: 10.3390/land10111277. (IF - 3.395)

2020 DK Sharma, RV Mahto, C Harper, and S Alqattan, “Role of RFID technologies in transportation projects: a review”, International Journal of Technology Intelligence and Planning (IJTIP), Vol. 12, No. 4, 2020.

2020 R. Mahto, D. Sharma, D. Xavier and R. Raghavan, “Improving performance of photovoltaic panel by reconfigurability in partial shading condition”, J. Photon. Energy 10(4), 042004v(2020), doi: 10.1117/1.JPE.10.042004. (IF - 2.277)

Conference Proceedings

2024 R. Mahto and K. Sood, “HIV Progression and Outcome Prediction to Enhance Patient Matching for Clinical Trials,” 2024 IEEE 14th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, NV, USA, 2024, pp. 0278-0284, doi: 10.1109/CCWC60891.2024.10427778.

2024 R. Mahto and K. Sood, “Advancing Occupancy Detection through Deep Learning and Sensor Integration,” 2024 IEEE 14th Annual Computing and Communication Workshop and Conference (CCWC), Las Vegas, NV, USA, 2024, pp. 0173-0177, doi: 10.1109/CCWC60891.2024.10427586.

2024 D. Sharma, R. Mahto, Q. Sun, R. Jin, and M. Rastogi, “Artificial Intelligence and Simulated Virtual Models in Teaching Construction Courses,” Construction Research Congress 2024, pp. 356–365, Mar. 2024, doi: 10.1061/9780784485293.036.

2023 R. Mahto, K. Sood, and N. Ruppert, “Random Forest Empowered Shade and Fault Detection in Photovoltaic Panel,” in 2023 IEEE 14th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON), Oct. 2023, pp. 0812–0820. doi: 10.1109/UEMCON59035.2023.10316122.)

2023 C. Putcha, R. Mahto, S. Patel, R. Battu, and A. Iniguez , “Optimal Solution Through Fast Convergence for Transportation of Shipping Wood in Los Angeles,” in 21st Int’l Conf on Software Engineering Research and Practice (SERP), 2023. (accepted)

2023 R. Mahto and K. Sood, "Harnessing the Power of Neural Networks for Predicting Shading," 2023 IEEE Global Humanitarian Technology Conference (GHTC) (GHTC 2023), Radnor, USA, Oct. 2023, pp. 7. (accepted)

2022 K. Sood, N. Ruppert, and R. Mahto, “Data Normalization Technique for Energy Efficient Drones: An Ensemble Learning Approach,” in 2022 IEEE 13th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON), IEEE, 2022, pp. 0411–0416.

2022 C. Putcha, R. Mahto, I. Chitica, A. Kara, and Z. Haddada, “Optimal Shipping Strategy of Materials Using Traditional and Newly Developed Method Initial Basic Feasible Solution of Russell and Vogel Method,” The 19th Int’l Conf on Modeling, Simulation and Visualization Methods (MSV’22), 2022. (accepted)

2021 C. Putcha, A. Banerjee, D. Datta, S. Datta, R. Mahto, and P. Ghosh, "Correlation between Reliability and Risk Priority numbers (RPN) for bridges," The 20th Int'l Conf on Software Engineering Research and Practice (SERP'21), 2021. (accepted)

2021 A. Battisti, and R. Mahto, "FPGA Controlled MPT Algorithm for Reconfigurable Photovoltaic Panel," Southern California Conferences for Undergraduate Research (SCCUR), 2021. (accepted)

2021 W. Kim, and R. Mahto, "CMOS based Adaptable Voltage Regulator for Solar Energy Harvesting Application," Southern California Conferences for Undergraduate Research (SCCUR), 2021. (accepted)

2021 A. Nguyen, N. Ruppert, and R. Mahto, "Quadratic Equation Based Solar Panel Modelling Using MOSFET Transistor," Southern California Conferences for Undergraduate Research (SCCUR), 2021. (accepted)

2021 R. Mahto, N. Ruppert, A. Nguyen, and G. Kalotra, "Fuzzy Logic Based MPT Algorithm for Reconfigurable Photovoltaics," in 2021 IEEE Global Humanitarian Technology Conference (GHTC), Oct. 2021, pp. 356–359. doi: 10.1109/GHTC53159.2021.9612451.

2021 R.S. John and R.V. Mahto, "Agrovoltaics Farming Design and Simulation," 2021 IEEE 48th Photovoltaic Specialists Conference (PVSC), 2021, pp. 2625-2629, doi: 10.1109/PVSC43889.2021.9518902.

2021 K. Singh and R. Mahto, "Memristor Based Readout Circuit for Infrared Spectrum Forest Fire Detection" presented at the IEEE SusTech, Apr. 2021.

2021 G. Kalotra and R. Mahto, "Fuzzy-Logic Based MPT for Photovoltaic Based Power System," presented at the IEEE SusTech, Apr. 2021.

2021 R. John and R. Mahto, "Rural Electrification and Self Employment by integrating Solar farming with Agriculture," presented at the IEEE SusTech, Apr. 2021.

2021 K. Sood, R. Mahto, H. Shah, and A. Murrell, "Power Management of Autonomous Drones using Machine Learning," in 2021 IEEE Conference on Technologies for Sustainability (SusTech), Apr. 2021, pp. 1–8. doi: 10.1109/SusTech51236.2021.9467475.

2019 J. Murillo and R. Mahto, "Copper/CNT Based Hybrid Power Distribution Network", Southern California Conferences for Undergraduate Research (SCCUR), 2019.

2018 D. Xavier, and R. Mahto, "Performance Analysis of Reconfigurable PV Module Under Partial Shading Condition with Different Topologies", IEEE Conference on Technologies for Sustainability (SusTech), Long Beach, CA 2018.

2018 R. Raghavan, and R . Mahto, "Enhanced Power Emittance of Reconfigured Solar Cells Through Predetermined Shading Patterns", IEEE Conference on Technologies for Sustainability (SusTech), Long Beach, CA 2018. (Best Poster Award).

2018 R. Mahto, S. Revankar and K. Velumani, "Improved Modelling Technique for Reconfigurable Photovoltaics with Embedded CMOS," 2018 IEEE 7th World Conference on Photovoltaic Energy Conversion (WCPEC) (A Joint Conference of 45th IEEE PVSC, 28th PVSEC & 34th EU PVSEC) Waikoloa Village, HI, USA, 2018, pp. 1215-1218. doi: 10.1109/PVSC.2018.8547277.

2018 R. Mahto, "Modeling Technique for Reconfigurable PV Module Embedded with CMOS Swithces," in 10th PVPMC Workshop and PV Systems Symposium 2018, Albuquerque, NM, 2018.

2017 S. Rewankar, and R. Mahto, "Memory Based Fault Tolerant Reconfigurable Solar Cells with Embedded CMOS", in 13th International Conference Expo on Emerging Technologies for a Smarter World (CEWIT), 2017.

2016 R. Mahto, P. Zarkesh-Ha, O. Lavrova, "Reconfigurable Photovoltaic Integrated with CMOS for a Fault Tolerant System," in Photovoltaic Specialist Conference (PVSC), 2016 IEEE 43rd, 2016.

2016 R. Mahto, P. Zarkesh-Ha, O. Lavrova,"MOSFET-Based Modeling and Simulation of Photovoltaics Module," in Photovoltaic Specialist Conference (PVSC), 2016 IEEE 43rd, 2016.

2016 R. Mahto, P. Zarkesh-Ha, O. Lavrova,"Reconfigurable Power Management for CMOS-on-PV Cell," in Reliability Physics Symposium, 2016 IEEE International, 2016, pp. 3C.4.1–3C.4.5.6.

2010 R. Mahto, O. Lavrova, P. Zarkesh-Ha, and L. Lester, "Reconfigurable and Programmable Photovoltaic Power for Micro Autonomous Systems," in ReSpace/MAPLD 2010, Albuquerque, NM, 2010.

Book Chapter

2021 RV Mahto and R. John, "Modeling of Photovoltaic Module," in Solar Cells, IntechOpen, 2021.

2019 P.K. Mandal, R. Mahto, "Deep CNN-LSTM with Word Embeddings for News Headline Sarcasm Detection", In: Latifi S. (eds) 16th International Conference on Information Technology-New Generations (ITNG 2019). Advances in Intelligent Systems and Computing, vol 800. Springer, Cham.

2019 S.V. Singh, R. Mahto, "Switchable Single/Dual Edge Registers for Pipeline Architecture". In: Latifi S. (eds) 16th International Conference on Information Technology-New Generations (ITNG 2019). Advances in Intelligent Systems and Computing, vol 800. Springer, Cham

Thesis

2016 RV Mahto, "Fault resilient and reconfigurable power management using photovoltaic integrated with CMOS switches," The University of New Mexico. ProQuest Dissertations Publishing, 2016. 10155649.

Presentation

2024 R. Mahto, "Advancing Occupancy Detection through Deep Learning and Sensor Integration," IEEE CCWC 2024, Las Vegas, USA, 8th Jan. 2024

2024 R. Mahto, "HIV Progression and Outcome Prediction to Enhance Patient Matching for Clinical Trials," IEEE CCWC 2024, Las Vegas, USA, 9th Jan. 2024

2023 R. Mahto, "Random Forest Empowered Shade and Fault Detection in Photovoltaic Pane," IEEE UEMCON 2023, New York, USA, Oct. 2023

2023 R. Mahto, "LUMINATE: Leveraging ML/AI for Responsive and Equitable Teaching and Engagement," Faculty Noon Time Talks, CSUF Library, October 2023.

2023 R. Mahto, "LUMINATE: Leveraging ML/AI for Responsive and Equitable Teaching and Engagement," Tech Day, CSUF, October 2023.

2023 R. Mahto, "LUMINATE: Leveraging ML/AI for Responsive and Equitable Teaching and Engagement," ECS College Fall Retreat, CSUF, August 2023.

2023 R. Mahto, "Smart Solar Panels: The Power of AI and Fuzzy Logic," ECS Research Day, CSUF, 2023.

2021 R. Mahto, "Fuzzy Logic Based MPT Algorithm for Reconfigurable Photovoltaics," 2021 IEEE Global Humanitarian Technology Conference (GHTC). GHTC, October 22, 2021.

2021 R. Mahto, "Adaptable and Smart Solar Cells," Center for Academic Support in Engineering and Computer Science (CASECS) speakers series, CSUF, April 19, 2021.

2021 R. Mahto, "The Challenges (And Opportunities) in Computer Hardware," Osher Lifelong Learning Institute, CSUF, January 2021.

2020 R. Mahto, "The Challenges (And Opportunities) in Computer Hardware," Faculty Noon Time Talks,CSUF Library, September 2020.

2019 RV Mahto, "Reconfigurable Solar Cells and Its Applications," ECS Research Day, CSUF, 2019.

2018 RV Mahto, "Reconfigurable Photovoltaics (PV) Array and Its Applications," Faculty Noon Time Talks, CSUF Library, Feb 2018.

Computer Skills

EDA Tools	- Tanner Tools (L-edit, T-Spice, S-Edit, W-edit, LVS) - Cadence Tools Suite (Virtuoso, ADE- Analog Design Environment, Spectre, SpectreRF, Abstract Generator, Encounter Library Characterizer, RTL Compiler, Encounter, ORCAD, Allegro, Pspice A/D). - Mentor graphics tools (ModelSim, Calibre LVS, DRC, PEX). - Synopsys Tools(Hspice, Design analyzer/compiler). - Eagle Cad, PCB123 Cad.
RF Design Tools	Agilent ADS, Microwave Office, SpectreRF, Sonnet Lite.
Hardware Description	VHDL, Verilog, SystemC.
Packages	Matlab, Xilinx ISE and Vivado, NI Labview, NI Multisim, Altera Quartus II.
Programming/ Scripting language	C, C++, C#, Perl, TCL, Java, HTML, DHTML.
Operating System	Windows 10/8/8.1/7, Mac OS, Linux/Unix.