

**Dr. Shivendra Yadav**  
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### Career Objective

Bridge the gap between students and knowledge as a teaching professional; and continues involvement of myself in the research activity with full courage and joy for the development of individual and society.

### Educational Qualification

- **Ph.D. with specialization in Micro and Nano Electronics under the Electronics and Communication Engineering department from Indian Institute of Information Technology, Design and Manufacturing (IIITDM), Jabalpur (M.P.), with 8.5 CGPA, from January 2016 to January 2019**
  - ✓ Thesis Title: Electrically Doped Tunnel Field Effect Transistor with New Design Approaches: Proposal and Investigation
  - ✓ Published total **28** SCI papers; **9** papers as a first author and **19** as a co-author in various reputed international journals such as IEEE, Springer, Elsevier and IOP Sciences
  - ✓ Published **2** papers in renowned international conferences and **4** book chapters with eminent publishers
- **M.Tech. with specialization in Digital Communication under the Electronics and Communication Engineering department from Oriental Institute of Science and Technology (Rajiv Gandhi Proudyogiki Vishwavidyalaya), Bhopal (M.P.), with 8.04 CGPA, from July 2012 to June 2015**
  - ✓ Thesis Title: Advanced Motion Detection Algorithm with Video Quality Analysis for Video Surveillance Systems
- **B.E. with 76.5 % in Electronics and Communication Engineering from Truba Institute of Engineering and Information Technology (Rajiv Gandhi Proudyogiki Vishwavidyalaya), Bhopal (M.P.), from July 2006 to June 2010**
  - ✓ Completed 28 days training at B.H.E.L Bhopal in final year
  - ✓ Completed project on water level indicator

### Technical Expertise

**Tools:** Silvaco, Sentaurus, SPICE and MATLAB

**Subject Taught:** Fundamental of Electronic Devices, Analog IC Applications (Op-Amp- 741 )

**Research Interest:**

- ✓ Modeling and Simulation of Micro Nano Semiconductor Devices
- ✓ Design of Nano Device Sensors for Biomedical Applications
- ✓ Linearity and High Frequency Analysis of Hetero-Material Devices
- ✓ Modeling and Simulation of Negative Capacitance in Ferroelectric Thin Films

### Work Experience

1. **Currently working as an Assistant Professor at Sardar Vallabhbhai National Institute of Technology, Surat, Gujarat, from 16<sup>th</sup> April 2021 - till date**
2. **Worked as an Assistant Professor at RGM College of Engineering and Technology, Nandyal, Kurnool, A.P., from 17<sup>th</sup> June 2019 – 10<sup>th</sup> April 2021**
3. **Worked as teaching assistant (research scholar) at IIITDM Jabalpur M.P., from January 2016 - April 2019**
  - ✓ Worked on micro nano device simulation and learned TCAD Silvaco/Sentaurus software

- ✓ Circuit level implementation of new device structures in Verilog-A environment in Cadence
  - ✓ Conducted labs of Electronic Devices and Circuits of UG students
- 4. Worked as a lecturer at Sagar Institute of Science and Technology Research, Bhopal, M.P. from July 2010 - May 2012**
- ✓ Taught technical subjects like Semiconductor Physics, Electronic Devices, Analog Circuits

#### Scholarships & Awards

- ✓ MHRD, GOI, sponsored scholarship for Ph.D. program
- ✓ Scored third position in the state level essay competition
- ✓ Received a school academic award for securing 1<sup>st</sup> Rank in the 10<sup>th</sup> class
- ✓ Received “MEDHAVI CHATRA” award from M.P. government

#### Achievements

- ✓ Active reviewer of various reputed SCI journals and conferences like IEEE, Elsevier, Springer, Taylor & Francis and Scopus
- ✓ Attended a NCC combined annual training camp in JD group from 16 to 25 Jun 2000
- ✓ Presented research papers and participated in international conferences such as IEEE ICEE, IEEE-INDICON
- ✓ Participated in “INUP workshop on nanofabrication technologies” at IIT Bombay from 27 to 30 December 2016
- ✓ GATE qualified
- ✓ Participated in IEP program on “Design issues related to deep submicron technologies” at VNIT Nagpur from 5 to 9 December 2016

#### Interpersonal skills

- ✓ Good writing and verbal communication skills
- ✓ Quick learner and a good team player
- ✓ Hard worker and amenable in nature

#### Personal Details

Date of birth	July 13, 1987
Current Address	Green City, Pal, Surat, Gujarat

#### List of Publications:

1. **Shivendra Yadav**, Anju, and Sukeshni Tirkey, “A Dielectric Modulated Biosensor for SARS-CoV-2”, IEEE Sensor Journal, Accepted. doi: 10.1109/JSEN.2020.3019036, Aug. 2020.
2. **Shivendra Yadav**, Anuj, Anju Gedam, Guru Prasad Mishra and Mohd. Aslam, “Linearity/Intermodulation Distortion Analysis of Tunneling and Thermionic Emission Mechanisms; Design Proposal and High Frequency Investigation”, Semiconductor Science and Technology, vol. 35, no. 10, doi:, 10.1088/1361-6641/abaec, Sep. 2020.
3. **Shivendra Yadav**, Dheeraj Sharma, Deepak Soni, and Mohd. Aslam, “Controlling of Ambipolarity with Improved RF Performance by Drain/Gate Workfunction Engineering and Using High-k Dielectric Material in Electrically Doped TFET: Proposal and Optimization”, Journal of Computational Electronics, vol. 16, no. 3, pp. 721-731, Jun. 2017. DOI: <https://doi.org/10.1007/s10825-017-1019-2>.
4. **Shivendra Yadav**, Mohd. Aslam, Deepak Soni, and Dheeraj Sharma, “A Novel Hetero-Material Gate-Underlap Electrically Doped TFET for Improving DC/RF and Ambipolar Behavior”, Superlattices and Microstructures vol. 117, pp. 9-17, Feb. 2018, DOI: <https://doi.org/10.1016/j.spmi.2018.02.005>.
5. **Shivendra Yadav**, Rahul Madhukar, Dheeraj Sharma, Mohd. Aslam, Deepak Soni, and Neeraj Sharma, “A New Structure of Electrically Doped TFET for Improving Electronic Characteristics”, Applied Physics A, vol. 124, no. 7, pp. 517-526, Jul. 2018, DOI: <https://doi.org/10.1007/s00339-018-1930-9>.
6. **Shivendra Yadav**, Alemienla Lemtur, Dheeraj Sharma, Mohd. Aslam, and Deepak Soni, “Effective Approach to Enhance DC and High Frequency Performance of Electrically Doped TFET”, Micro & Nano Letters, vol. 13, no. 10, pp. 1469-1474, Oct. 2018, DOI: 10.1049/mnl.2018.5072.
7. **Shivendra Yadav**, Jyoti Patel, and Dheeraj Sharma, “A Novel Proposal for Enhancing TFET Performance and Its Reliability Issues”, Journal of Nanoelectronics and Optoelectronics, vol. 14, no. 2, pp. 238-246, Feb. 2019, DOI: <https://doi.org/10.1166/jno.2019.2483>.

8. **Shivendra Yadav**, Madhuri Vemulapaty, Dheeraj Sharma, Anju Gedam, and Neeraj Sharma, "Design structure of Tunnel FET by Combining thermionic Emission with Tunneling Phenomenon", *Micro & Nano Letters*, vol. 14, no. 4, pp. 450-454, Apr. 2019, DOI: 10.1049/mnl.2018.5548.
9. **Shivendra Yadav**, Alish Pamnani, Dheeraj Sharma, and Atul Kumar, "A Novel Design Approach of Charge Plasma Tunnel FET for Radio Frequency Applications", *Journal of Semiconductors*, vol. 40, no. 5, pp. 052901, May 2019, DOI: 10.1088/1674-4926/40/5/052901.
10. Dheeraj Sharma, Deepika Singh, Sunil Pandey, **Shivendra Yadav**, and P. N. Kondekar, "Comparative Analysis of Full-Gate and Short-Gate Dielectric Modulated Electrically Doped Tunnel-FET Based Biosensors", *Superlattices and Microstructures*, vol. 111, pp. 767-775, Jul. 2017, DOI: <http://dx.doi.org/10.1016/j.spmi.2017.07.035>.
11. Madhulika Verma, Sukeshni Turkey, **Shivendra Yadav**, Dheeraj Sharma, and Dharmendra Singh Yadav, "Performance Assessment of A Novel Vertical Dielectrically Modulated TFET-Based Biosensor", *Transaction on Electron Devices*, vol. 64, no. 9, pp. 3841-3848, Sep. 2017, DOI: 10.1109/TED.2017.2732820.
12. Sukeshni Turkey, Dheeraj Sharma, Dharmendra Singh Yadav, and **Shivendra Yadav**, "Analysis of a Novel Metal Implant Junctionless Tunnel Field-Effect Transistor for Better DC and Analog/RF Electrostatic Parameters", *IEEE Transaction on Electron Devices*, vol. 63, no. 9, pp. 3943-3950, Sep. 2017, DOI: 10.1109/TED.2017.2730922.
13. Mohd. Aslam, **Shivendra Yadav**, Deepak Soni, and Dheeraj Sharma, "A New Design Approach for Enhancement of DC/RF Performance with Improved Ambipolar Conduction of Dopingless TFET", *Superlattices and Microstructures*, vol. 112, pp. 86-96, Sep. 2017, DOI: <http://dx.doi.org/10.1016/j.spmi.2017.09.017>.
14. Deepak Soni, Dheeraj Sharma, **Shivendra Yadav**, Mohd. Aslam, and Neeraj Sharma, "Performance Improvement of Doped TFET by Using Plasma Formation Concept", *Superlattices and Microstructures*, vol. 113, pp. 97-109, Oct. 2017, DOI: <https://doi.org/10.1016/j.spmi.2017.10.012>.
15. Deepak Soni, Dheeraj Sharma, Mohd. Aslam, **Shivendra Yadav**, "A Novel Approach for the Improvement of Electrostatic Behavior of Physically Doped TFET by Using Plasma Formation and Shortening of Gate Electrode with Hetero Gate Dielectric", *Applied Physics A*, vol. 124, pp. 306, Feb. 2018, DOI: <https://doi.org/10.1007/s00339-018-1670-x>.
16. Anju, **Shivendra Yadav**, and Dheeraj Sharma, "Assessment of Read and Write Stability for 6T SRAM Cell Based on Charge Plasma DLTFET", *Superlattices and Microstructure*, vol. 115, pp. 67-77, Dec. 2017, DOI: <https://doi.org/10.1016/j.spmi.2017.12.061>.
17. Bandi Venkata Chandan, Sushmitha Dasari, **Shivendra Yadav**, and Dheeraj Sharma, "Approach to Suppress Ambipolarity and Improve RF and Linearity Performances on Electrically Doped Tunnel FET", *Micro & Nano Letters*, vol. 13, pp. 684-689, Feb. 2018, DOI: 10.1049/mnl.2017.0814.
18. Deepak Soni, Dheeraj Sharma, Mohd. Aslam, and **Shivendra Yadav**, "Improvement in Electrostatic Characteristic of Doped TFET by Hole Layer Formation", *Journal of Computational Electronics*, vol. 17, no. 2, pp. 736-744, Jun. 2018, DOI: <https://doi.org/10.1007/s10825-018-1139-3>.
19. Sarthak Gupta, Dheeraj Sharma, Deepak Soni, **Shivendra Yadav**, Mohd. Aslam, Dharmendra Singh Yadav, Kaushal Nigam, and Neeraj sharma, "Examination of the Impingement of Interface Trap Charges on Heterogenous Gate Dielectric Dual Material Control Gate Tunnel FET for the Refinement of Device Reliability", *Micro & Nano Letters*, vol. 13, no. 8, pp. 1192-1196, Aug. 2018, DOI: 10.1049/mnl.2017.0869.
20. Mohd. Aslam, Dheeraj Sharma, Deepak Soni, **Shivendra Yadav**, Bhagwan Ram Raad, Dharmendra Singh Yadav, and Neeraj Sharma, "An Effective Design Technique for Improvement of Electrostatics Behavior of Dopingless Tunnel FET: Proposal, Investigation and Optimization", *Micro & Nano Letters*, vol. 13, no. 10, pp. 1480-1485, Aug. 2018, DOI: 10.1049/mnl.2018.5129.
21. Dharmendra Singh Yadav, Dheeraj Sharma, Sukeshni Turkey, Deepak Ganesh Sharma, Shriya bajpai, Deepak Soni, **Shivendra Yadav**, Mohd. Aslam, and Neeraj Sharma, "A Novel Hetero-Material Charge Plasma Tunnel FET with High-Frequency and Linearity Analysis for Ultra-Low Power Applications", *Micro & Nano Letters*, vol. 13, no. 11, pp. 1609-1614, Aug. 2018, DOI: 10.1049/mnl.2018.5075.
22. Bandi Chandan, Sushmitha Dasari, Kaushal Nigam, **Shivendra Yadav**, Sunil Pandey, and Dheeraj Sharma, "Impact of Gate Material Engineering on ED-Tunnel FET for Improving DC/Analog-RF/Linearity Performances", *Micro & Nano Letters*, vol. 13, no. 12, pp. 1653-1656, Dec. 2018, DOI: 10.1049/mnl.2018.5131.
23. Deepak Soni, Dheeraj Sharma, Mohd. Aslam, and **Shivendra Yadav**, "Approach for the Improvement of Sensitivity and Sensing Speed of TFET-based Biosensor by Using Plasma Formation Concept", *Micro & Nano Letters*, vol. 13, no. 12, pp. 1728-1733, Dec. 2018, DOI: 10.1049/mnl.2018.5252.

24. Mohd. Aslam, Dheeraj Sharma, **Shivendra Yadav**, Deepak Soni, and Varun Bajaj, "A New Design Approach for Enhancement of DC/RF characteristics with Improved Ambipolar Conduction of Charge Plasma TFET: Proposal, and optimization", Applied Physics A, vol. 124, no. 4, pp. 342, Mar. 2018, DOI: 2018.10.1007/s00339-018-1753-8.
25. Mohd. Aslam, Dheeraj Sharma, **Shivendra Yadav**, Deepak Soni, Neeraj Sharma, and Anju Gedam, "A Comparative Investigation of Low Workfunction Metal Implantation in the Oxide Region for Improving Electrostatic Characteristics of Charge Plasma TFET", Micro & Nano Letters, vol. 14, no. 2, pp. 123-128, Feb. 2019, DOI: 10.1049/mnl.2018.5390.
26. Bandi Venkata Chandan, Maitreyee Gautami, Kaushal Nigam, Dheeraj Sharma, Vinay Anand Tikkiwal, **Shivendra Yadav**, and Satyendra Kumar, "Impact of a Metal-Strip on a Polarity-Based Electrically Doped TFET for Improvement of DC and analog/RF Performance", Journal of computational electronics, vol. 18, no. 1, pp. 76-82, Mar. 2019, DOI: 10.1007/s10825-018-1280.
27. Jyoti Patel, Dheeraj Sharma, **Shivendra Yadav**, Alemienla Lemtur, and Priyanka Suman, "Performance Improvement of Nano Wire TFET by Hetero-dielectric and Hetero-material: At Device and Circuit Level", Microelectronics Journal, vol. 85, pp. 72-82, Mar. 2019, DOI: 10.1016/j.mejo.2019.02.004.
28. Mohd. Aslam, Girjesh Korram, Dheeraj Sharma, **Shivendra Yadav**, and Neeraj Sharma, "Enhancement of DC Performance Enhancement of PNP Hetero Dielectric Box Tunnel Field Effect Transistor for Low Power Applications", Journal of Computational Electronics, vol. 19, no. 1, pp. 1-6, Dec. 2019, DOI: <https://doi.org/10.1007/s10825-019-01427-y>

#### International conferences:

1. **Shivendra Yadav**, Dheeraj Sharma, Mohd. Aslam, and Deepak Soni, "A Novel Analysis to Reduce Leakage Current in Charge Plasma Based TFET", INDICON, pp. 1-3, ISSN: (2325-9418), IIT Roorkee, Uttarakhand India, Dec. 2017, DOI: 10.1109/INDICON.2017.8487606.
2. Deepak Soni, Dheeraj Sharma, **Shivendra Yadav**, Mohd. Aslam, and Dharmendra Singh Yadav, "Gate Metal Workfunction Engineering for the Improvement of Electrostatic Behaviour of Doped Tunnel Field Effect Transistor", IEEE International Symposium on Nano Electronics and Information Systems (IEEE INIS 2017), pp. 190-194, OIST Bhopal, Dec. 2017, India, DOI: 10.1109/iNIS.2017.47.

#### Book Chapter:

1. **Shivendra Yadav**, Chithraja Rajan, Dheeraj Sharma, and Sanjay Balotiya, "GaAs-SiGe based novel device structure of doping less Tunnel FET", book title: "VLSI Design and Test", Springer Singapore, IIT Indore, pp. 694-701, Aug. 2019, ISBN: 978-981-32-9767-8, DOI: [https://doi.org/10.1007/978-981-32-9767-8\\_57](https://doi.org/10.1007/978-981-32-9767-8_57).
2. Anju, Sunil Pandey, **Shivendra Yadav**, Kaushal Nigam, Dheeraj Sharma, and P.N. Kondekar, "Realization of Junctionless TFET based Power Efficient 6T SRAM Memory Cell for Internet-of-Things Applications", book title: "Proceedings of First International Conference on Smart System, Innovations and Computing", (SSIC-2017), Manipal University, Jaipur, India, vol. 79, pp. 515-523, Apr. 2017, ISBN: 978-981-10-5828-8 DOI: [https://doi.org/10.1007/978-981-10-5828-8\\_49](https://doi.org/10.1007/978-981-10-5828-8_49).
3. Mohd. Aslam, Dheeraj Sharma, Deepak Soni, and **Shivendra Yadav**, "Effect of Metallic Strip Deposition Within the Source Dielectric with Applied Double Metallic Drain for Enhanced DC/RF Behavior of Charge Plasma TFET for Low Power IOT Applications", book title: "Second International Conference on Smart IOT Systems: Innovations in Computing", (SSIC-2019), Manipal University, Jaipur, India, vol. 141, pp. 179-186, Oct. 2019, ISBN: 978-981-13-8406-6, DOI: [https://doi.org/10.1007/978-981-13-8406-6\\_18](https://doi.org/10.1007/978-981-13-8406-6_18).
4. Deepak Soni, Mohd. Aslam, **Shivendra Yadav**, and Dheeraj Sharma, "A Dielectric Modulated Polarity Controlled Electrically Doped Junctionless TFET biosensor for IOT Applications", book title: "Second International Conference on Smart IOT Systems: Innovations in Computing", (SSIC-2019), Manipal University, Jaipur, India, vol. 141, pp. 159-168, Oct. 2019, ISBN: 978-981-13-8406-6, DOI: [https://doi.org/10.1007/978-981-13-8406-6\\_16](https://doi.org/10.1007/978-981-13-8406-6_16).

I hereby declare that all the above mentioned information given by me is true and correct to the best of my knowledge and belief.



**Dr. Shivendra Yadav**