Srishti Singh (PhD)

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SUMMARY

An experienced researcher with a PhD in Biomedical Engineering, having a strong background in academic research, scientific publishing, and student mentorship. I bring hands-on expertise in biomaterials, sol-gel technology, and sensor design and development. I have successfully led interdisciplinary research integrating biomedical engineering, physics, and biochemistry. I have published in peer-reviewed journals. I have also been involved in securing competitive funding, including the BIRAC Grand Challenge and university seed grants.

EDUCATION

PhD – Biomedical Engineering, Vellore Institute of Technology (VIT), India 2016 - 2024
Thesis: Design and Development of an Optical Sensor for Detection of Bilirubin: A Jaundice Marker
Guide: Dr. Bhaskar Mohan Murari (SETU, Ireland)

M. Tech – Biomedical Engineering, Vellore Institute of Technology | CGPA: 8.4/10 2012-2014
Thesis: Synthesis of Clear Sol-Gel for spectroscopic studies

B. Tech – Biomedical Engineering, DCRUST, Murthal | 68% 2006-2010

STRENGTH

My technical strengths lie in the design and development of optical sensors, with a particular focus on biomedical applications. The nature of my work included the utilization of fluorescence-based sensing techniques for the detection of biomolecules in biosensing applications. I am specialized in synthesizing transparent, porous silica matrices that can be further exploited for the entrapment of fluorophores / desired biomolecules for the purpose of detection. I possess extensive expertise in the field of nanomaterial characterisation, encompassing the utilization of advanced analytical instruments such as AFM, SEM, and FTIR, as well as fluorescence spectroscopy. In addition, I am proficient in in-vitro validation and the preparation of regulatory documentation in accordance with ICMR and IEC guidelines. I am highly motivated to contribute to innovative research initiatives and collaborative laboratory projects that translate scientific ideas into meaningful real-world applications. My academic interests include biomedical instrumentation, spectroscopy, nanomaterials, biosensor development, clinical diagnostics, research methodology, scientific communication, mentorship, and curriculum design. I have published in Springer Nature journals.

PUBLICATIONS

- **Journal Of Fluorescence – Impact Factor: 3.1 (2024)**
  Fluorescence spectroscopic studies to evaluate binding interactions.
  Singh Chauhan, S., & Murari, B. M. (2023)
  https://doi.org/10.1007/s10895-023-03440-8

- **Journal of Sol-Gel Science and Technology – Impact Factor: 3.2 (2024)**
  Spectroscopic and in silico studies of HPTS (Pyranine) with bilirubin.
  Singh Chauhan, S., & Murari, B. M. (2023)
  https://doi.org/10.1007/s10971-023-06094-x

- **Journal of Sol-Gel Science and Technology – Impact Factor: 3.2 (2024)**
  Transdermal delivery of polidocanol from sol–gel patch: Ex vivo study.
  Murari, B. M., Singh, S., & Manoharan, M. (2018).
  https://doi.org/10.1007/s10971-018-4761-4

- **Biomedical Materials and Devices– Impact Factor: Scopus Indexed**

Characterization of TEOS-based sol–gel hydroxyapatite composite coating
Murari, B. M., & Chauhan, S. S. (2024).
https://doi.org/10.1007/s44174-024-00182-4

WORK EXPERIENCE

RESEARCH & ACADEMIC EXPERIENCE

NOV2016 – NOV2024
PhD Research Scholar – Biomedical Engineering
| Sol-Gel Biosensor Lab | Vellore Institute of Technology, Vellore, Tamil Nadu
Project: Design and Development of Sol-Gel Based Optical Sensor for Detection of Bilirubin.

- Over 8 years of rigorous research and experimental practice in a high-paced academic setting.
- Developed TEOS-based fluorescence sensor detecting bilirubin at 0.1–20 mg/dL range, enabling point-of-care jaundice diagnostics via dip-coating and nanomaterial integration.
- Optimized thin-film coatings using AFM/SEM characterization; achieved 95% fluorescence stability post 30-day storage.
- Published 4 peer-reviewed papers in Springer Nature Journals.
- Experience in handling biological samples (blood) for experimental studies.
- Prepared ICMR-IEC regulatory documents and technical reports for in-vitro human sample studies; secured BIRAC grant (~₹15L) and university seed funding.

Teaching Research Assistant – SENS School |TRA| Biomedical Engineering Dept.
| Vellore Institute of Technology, Vellore, Tamil Nadu

- Active involvement as a teaching assistant at the Sol-Gel Fluorescence Lab, Biochemistry Lab, and lab projects
- Hands-on expertise of 7 years in fluorescence spectroscopy, molecular interaction studies, double beam spectrophotometer, and thin-film dip coating techniques.

JAN2026-Present
Assistant Professor – Baba Farid Center of Engineering| Electrical Engineering Dept.
| BFGI, Bathinda, Punjab| drsristi.bfcet@bfgi.edu.in

- Working as Assistant Professor in Dept. Of Electrical Engg. BFGI.
- Also heading the role of RnD Lead for the dept.
- Additional representator of Digital Learning projects of the institute

INDUSTRIAL EXPERIENCE (Pre-PHD)

SEP 2014 – OCT 2016
Software Engineering Analyst| Accenture IDC| Bengaluru, Karnataka

- Programmed SAP-ABAP modules, building foundational skills in technical problem-solving transferable to research software pipelines.

CORE SKILLS

Lab Techniques: Sol-gel chemistry, thin-film coatings, AFM, SEM, FTIR, XRD, UV-Vis, spectrofluorometry, in-vitro validation

Software/Tools: Origin Pro, GraphPad, LaTeX, Mendeley, Zotero, Moldock, Microsoft Office

Other: Grant writing, scientific communication, regulatory docs (ICMR/IEC), literature review

Certifications: Regulatory Requirements for Clinical Trials in India (NPTEL, 2025)