Sameer N. Soni

sameernsoni17@gmail.com | +91 79871 14992 | linkedin.com/in/sameer-n-soni/
0122, Carnegiegatan 6, Göteborg 41452 | Indian

SUMMARY STATEMENT

Curious materials engineer, passionate about contributing to nuclear adoption to promote a sustainable energy future. A meticulous researcher working on steels for Gen IV SMRs and Fast Breeder Reactors.

SKILLS AND RELEVANT COURSEWORK

- Materials Characterization
- The Nuclear Energy Option
- Environmental Degradation of Materials
- Deformation and Failure of Materials
- Research management
- Teamwork and interpersonal skills
- XRF, OES, EDS, XRD, SEM, EBSD, and TEM
- ThermoCALC, MATLAB, LAMMPS, and VASP

EDUCATION

PhD: Physics — 2025 to Present
Chalmers University of Technology, Göteborg

B.Tech: Metallurgical and Materials Engineering & **M.Tech**: Energy Systems — 2018 to 2023
Indian Institute of Technology Madras (IITM), Chennai
8.82/10

RESEARCH EXPERIENCE

Combinatorial alloy design - Role of B and N on high-temperature stability and mechanical behavior of P91 steel — Aug 2023 – Mar 2025
Prof. Pradeep K. G., IIT Madras, Chennai

- Casted 16 variants of boron-alloyed grade 91 steels to find one with optimum properties for use in the Fast Breeder Reactor, IGCAR Kalpakkam.
- Characterized the steels via OM, SEM, EDS, EBSD, **TEM, APT**, XRD, XRF, and OES.
- Tested the mechanical behavior of the steels via **hardness and tensile testing**.

Metallophobic ceramic coatings for nuclear applications — Jul 2022 - Jun 2023
Prof. Ravi Kumar N. V., IIT Madras, Chennai

- Applied hydrothermal synthesis to make lanthanum phosphate **nanorod powder**.
- Spin-coated the powder onto an SS substrate to get a film with a contact angle of 120° with a solder droplet.
- Employed **SEM, TEM, and XRD** to characterize the powder and film.

Review of nuclear accidents, economics, waste disposal, and future viability — May 2023
Prof. Sreenivas Jayanti, IIT Madras, Chennai

- Analyzed Chernobyl and Fukushima accidents, their global impact, and nuclear power plant economics.
- Evaluated high-level waste disposal techniques and nuclear-renewable energy integration for optimized energy production.

Developing AI and MD simulation workflow for accelerating materials discovery — Sep 2020 - Sep 2021
Prof. Tarak Patra, IIT Madras, Chennai

- Deployed **Active Learning** to determine the phase diagram of a probable **battery electrolyte**.

- Deployed computational tools like molecular dynamics simulations, ML, AI, and **high-performance computing** to develop more efficient methods.

TEACHING EXPERIENCE

Teaching Assistant Aug 2022 - Nov 2022
Materials Thermodynamics, IIT Madras, Chennai
- Prepared questions for the examinations of 70 UG students.
- Aided in reviewing classroom presentations used by students for exam preparation.

WORK EXPERIENCE

Engineering Intern Jun 2021 - Aug 2021
Clean Tech Projects, Remote
- Analyzed the current supply chain of batteries in India, from cell to vehicle applications.
- Identified and ideated solutions to eliminate the significant bottlenecks in the supply chain.

VOLUNTEER EXPERIENCE

Volunteer Sep 2018 - Apr 2019
Teach Your Neighbor, National Service Scheme (NSS)-IITM, Chennai
- Taught science, math, and English to **15+ high school students**.
- Appreciated with the title of **best teacher** by the school's principal.

POSITIONS OF RESPONSIBILITIES

MME Placement Core Apr 2021 - Mar 2022
UG Placement Team, IIT Madras, Chennai
- Spearheaded a **team of 9** to conduct the placement process for **50+ students** directly.
- Analyzed our placement policy, found **20+ improvements**, and got 15+ approvals.

Mentor Oct 2020 - Jun 2021
Student Mentorship Cell, IIT Madras, Chennai
- Mentored **11 freshers** and made them feel a part of IITM despite being at home.
- Voted "**Star Mentor**."

Project Administration Manager May 2019 - Apr 2021
NSS-IITM, Chennai
- Guided **300+ students** to ensure their volunteering went smoothly despite COVID-19 wreaking havoc.
- Facilitated **12+ projects,** including **8+ new remote projects,** to ensure smooth operation throughout the year.

ACHIEVEMENTS

- Secured **3rd place** in the **Materials Science Quiz** in AMALGAM, organized by the Dept. of MME, IITM, competing with 40+ participants. (2023)
- **One out of the 27** selected for the IITM Young Research Fellows program out of 190+ applicants. (2020)
- Achieved a **percentile rank 93.69 in JEE Advanced** and an **All India Rank of 2711 in JEE Main**. (2018)

EXTRACURRICULARS AND HOBBIES

- Secured **2nd place** in the Inter-Hostel Hockey Schroeter while playing hockey for the first time. (2020)
- Swimming and frisbee.
- Learning about different cultures and new languages.
- Reading non-fiction books.

LANGUAGES

English

Native or Bilingual

Hindi

Native or Bilingual

Japanese

Elementary

Telugu

Elementary