

# Chaman Gupta

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## SKILLS

**Technical Softwares:** COMSOL, Quantum Espresso, Gaussian, Solidworks, Abaqus, LabView, Microsoft Office

**Technical Tools:** XRD, SEM, EBSD, TEM, 3D-Micro CT scan, EDS, Raman Spectroscopy and PL, 3D printing

**Programming Skills:** C, C++, Python, MATLAB, FORTRAN, HTML, CSS, Wordpress

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## EDUCATION

University of Washington - Seattle

Seattle, WA

MS in Mechanical Engineering | GPA: 3.74/4.00

(September '19 - Exp. June '21)

Indian Institute of Technology (IIT) Kharagpur

India

B.Tech (Hons.) Metallurgical and Materials Engineering

(July '15 - April '19)

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## PUBLICATIONS

- Mahto R.P., **Gupta C.**, Kinjawadekar M., Meena A., and Pal S.K. "Weldability of AA6061-T6 and AISI 304 by underwater friction stir welding" *Journal of Manufacturing Processes* 38 (2019): 370-386
  - Mahto R.P., Kinjawadekar M., **Gupta C.**, Pal S.K. "Effect of Pin Diameter in Underwater Friction Stir Lap Welding of Dissimilar Materials: AA6061-T6 and AISI304" *Advances in Additive Manufacturing and Joining* (2020): 487-496
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## RESEARCH EXPERIENCE AND PROJECTS

Graduate Research Assistant | [Pauzauskie Research Group](#) | University of Washington Seattle, WA

**Synthetic Nanodiamond formation under High Pressure-High Temperature**

(December '19 - Present)

- Developed a **Diamond Anvil Cell** with a Ruby, Carbon Aerogel and Argon inside, to study formation of nanodiamond
- Studied the **Photoluminescence** for ruby under various pressures ranging upto 24 GPa
- Heated the sample using **1070nm laser** light under high pressures to convert the **carbon aerogel to diamond**
- Characterized the **NV<sup>-</sup> defects** in the diamond using **Photoluminescence** and **Raman Spectroscopy**
- Studied phase transition in diamond with application of pressure using **Quantum Espresso** and **Gaussian**

Graduate Research Assistant | [Novoselov Research Group](#) | University of Washington Seattle, WA

**Supercritical Antisolvent Micronization of Block Copolymers using scCO<sub>2</sub>**

(October '19 - Present)

- Developed a reactor setup for **Supercritical Antisolvent Precipitation** for copolymers using scCO<sub>2</sub> as the antisolvent
- Tested solubilities of PEG in various solvents and characterized the interaction parameters between solute and solvent
- Used various **EOS** to study the PEG-CO<sub>2</sub>-EtOH and PEG-CO<sub>2</sub>-DMF system and prepare the **VLE diagrams**

Research Visiting Student | [Warwick Manufacturing Group](#) | Warwick University, UK

**Mathematical Modelling and Characterization of Corrosion in Friction Stir Welding**

(May '18 - July '18)

- Performed corrosion analysis on a dissimilar FSW joint using **Potentiodynamic Polarization technique**
  - Studied **Tafel plots** and measured the corrosion rate, limiting current, and slope of the curves
  - Created a mathematical model using **MATLAB** to analyze the effects of welding parameters and predict corrosion rate
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## POSITIONS OF RESPONSIBILITY

Associate Manager | Events, Finance, Logistics | Entrepreneurship Cell | IIT Kharagpur

(Feb '16 - Feb '18)

- Appointed as Publicity Head of the Global Entrepreneurship Summit (GES) 2017 which included leading and mentoring a team of 37 associates to carry out extensive targeted publicity for the Summit
- Managed Event Promotion, Guest Lectures, Workshops and Logistics while individually garnering 2 city sponsors and 3 media associations worth USD 5K along with 5 guest speakers and 1 workshop