

Arpan Kumar Sharma



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📄 <https://scholar.google.com/citations?user=kJt2IK4AAAAJhl=en>

EDUCATION

Program	Institution/College	%/CGPA	Year
<i>B.E. (Hons) Mechanical Engineering</i>	Birla Institute of Technology and Science, Pilani (BITS Pilani) <i>Pilani, Rajasthan</i>	8.82/10	2018-22
<i>Senior Secondary School</i>	Little Scholars	95%	2016-17
<i>High School</i>	St Mary's School <i>Kashipur, Uttarakhand</i>	10/10	2014-15

TEST SCORES

Test Name	Date of Exam	Rank/Score
<i>GATE 2022- Mechanical Engineering</i>	February 13, 2022	All India Rank 568
<i>IELTS- Academic</i>	February 26, 2023	Score- 7.5 (L-9 ;R-8.5; W-6.5; S-6.5)

SKILLS

Operating system: Windows

Programming languages: C, C++, Python, MATLAB

Softwares: AutoCAD, Solidworks, ANSYS Fluent, Tecplot, MS Office

WORK EXPERIENCE/SUMMER INTERNSHIPS

- Assistant Manager and R&D Calibration Engineer, Bajaj Auto Ltd, India*** **Aug 2022 - Present**
 - **Calibration** of parameters like Spark Advance and Air Fuel Ratio to meet all the legislative standards as well as the driver's expectations.
 - Worked on **On Board Diagnostics** and **misfiring** of vehicle using different **sensors** like MAP (Manifold Air Pressure) sensor, Lambda (oxygen) sensor, Engine Temperature sensor, etc.
 - **Automated** calibration data of vehicle, like errors during test run and data analysis using **python** scripts.
- Engine calibration Intern, Sirius MotorSports Pvt Ltd*** **May 2020 - Jun 2020**
 - Worked on an IC engine for **better efficiency, performance and emissions** by varying parameters like Air fuel ratio, Valve timing Spark advance.
 - **Calibrated** the engine to **control emissions** according to the Bharat Stage 6 norms using Ricardo WAVE software.
- Mechanical Designer, AxisY Compact Lifting Solutions*** **Apr 2020 - Jun 2020**
 - Worked as a **CAD designer** and prepared different models in **Solidworks and AutoCAD 3D**
 - Designed automatic hand sanitizer dispenser, boothless projector lift, TV lift, and sanitizer tunnel

PROJECTS

- Computational investigation on flow dynamics and heat transfer of nanofluid in low Reynolds number under magnetic field*** **Jan 2022 - May 2022**
 - **Heat transfer enhancement** using magnetic nanofluid in the presence of external magnetic field.
 - Magnetic field applied at different locations and configurations to generate different turbulent patterns.
 - Heat Transfer Enhancement of **62-135 %** with **10-15%** increase in energy efficiency when magnetic field of 1200 G to 2000G is applied.
 - Analyzed different geometries, like corrugated, rough and inclined to calculate Thermal Enhancement Factor for the heat transfer process.
- Designing a Solar Water Purifier for rural areas in India*** **Jan 2021 - Jun 2021**
 - Designed a solar water purifier which uses traditional method of evaporation and condensation to purify water.

- o Intended to setup in rural places of India with ample solar energy but limited electricity.
- o Designed a prototype which can purify upto 4 liters of water in per hour, which is sufficient cater the demand of an average household.
- 3. **Downsizing the engine and optimizing the forced induction system to achieve the best emission performance** **May 2020 - Jun 2020**
 - o **Reduced** fuel consumption by 103% by downsizing the internal combustion engine.
 - o Tuned the engine parameters like spark advance, air fuel ratio and valve timing to prevent **knocking**.
 - o Calibrated engine's ECU to achieve the best performance and **lower emissions**.
- 4. **Designing chassis of an electric vehicle for Shell Eco Marathon** **Aug 2019 - Dec 2020**
 - o Project was undertaken to compete in Shell Eco Marathon, an event for STEM students to design and build **ultra-energy-efficient cars**.
 - o Designed a space-frame for the vehicle with **better torsional rigidity, low center of gravity and low aerodynamic drag**.
 - o An urban concept car designed with TEAM BITS which is responsible to compete in Shell Eco Marathon from BITS Pilani.

POSITION OF RESPONSIBILITY

1. **National Service Scheme (NSS) Volunteer** **Aug 2018- Dec 2018**
 - o Volunteered in the evening school of NSS BITS Pilani and responsible for teaching three students of grade 5.
2. **Joint Secretary - Mechanical Engineering Association** **Aug 2018- Jun 2022**
 - o Handled Apogee (technical fest) and non-Apogee events, and coordinated with the Secretary and Coordinator to plan the events and organise them smoothly.
3. **Aerodynamics and Chassis Head - Team BITS** **May 2020- Dec 2020**
 - o Responsible for designing a chassis for the electric vehicle with high torsional rigidity, low Center of Gravity and high aerodynamic down-force while ensuring the compatibility with the rule book and manufacturing constraints.

COMPETITIONS

1. **CIRP Life Cycle Engineering Conference 2021** **Mar, 2021**
First Prize at the international student competition for designing **water management system** during the 28th CIRP Life Cycle Engineering Conference.
2. **Social Innovation Challenge** **Jan, 2021**
Third Prize for designing a **solar water purifier** in a competition organized by **IISc Bangalore** and **Keio University, Japan**

PUBLICATIONS

Book Chapter

1. Bhattacharyya, S., Vishwakarma, D. K. ,**Sharma, A.K.**, & Dey K. Chapter Three - Thermohydraulic characteristics of magnetic nanofluid in mini channels under the influence of an external magnetic field. **Advances in Heat Transfer**, Vol 55, 2023, Pages 89-119; <https://doi.org/10.1016/bs.aiht.2023.02.001>

Journal Publications

1. Bhattacharyya, S., **Sharma, A.K.**, Vishwakarma, D. K. , & Paul, A. R. Thermo-Hydraulic Performance of Magnetic Baffles for Removal of Concentrated Heat Fluxes in a Heated Mini Channel. **Applied Thermal Engineering**, vol 216, Nov. 2022, p. 118992; <https://doi.org/10.1016/j.applthermaleng.2022.118992>
2. Bhattacharyya, S., **Sharma, A.K.**, Vishwakarma, D. K. , & Paul, A. R. Thermo-Hydraulic Characteristics Of Magnetic Nanofluid In Opposing And Assisting Mini Channel Under The Influence Of External Magnetic Field, **Physics of Fluids**, vol 34, 103609 (2022); <https://doi.org/10.1063/5.0104710>.
3. Bhattacharyya, S., **Sharma, A.K.**, Vishwakarma, D. K., Goel, V., & Paul, A. R. Influence of Magnetic Baffle and Magnetic Nanofluid on Heat Transfer in a Wavy Mini Channel, **Sustainable Energy Technologies and Assessments**, vol 56, 102954 (2023); <https://doi.org/10.1016/j.seta.2022.102954>.
4. Bhattacharyya, S., **Sharma, A.K.**, Vishwakarma, D. K., Saini, K., Paul, A., & Huan Z R. Thermo-hydraulic performance of magnetic baffles for cooling using magnetic nanofluid in a mini channel, **Sustainable Energy Technologies and Assessments**, vol 57, 103194 (2023); <https://doi.org/10.1016/j.seta.2023.103194>.
5. **Sharma, A.K.**, Jyoti Nath, N., & Shukla, T. (2020). Effect of Religion and Education on Fertility in the EAG States in India: Evidence from NFHS-4. **SOCRATES**, 8(1), 34-39; <https://doi.org/10.5958/2347-6869.2020.00005.9>

Conference Publications

1. **Sharma, A.K.**, Vishwakarma, D. K., Mukherjee, S., Venkatesan, R., Paul, A. R., & Bhattacharyya, S. Computational Investigation on Flow Dynamics and Heat Transfer of Nanofluid in Low Reynolds Number Under Magnetic Field, **Fluid Mechanics and Fluid Power (Vol. 3). FMFP 2021. Lecture Notes in Mechanical Engineering. Springer, Singapore.**, https://doi.org/10.1007/978-981-19-6270-7_105
2. **Sharma, A.K.**, Bhattacharyya, S, Vishwakarma, D. K., Dey, K. Numerical Investigation on heat transfer in CPU heat sink by hybrid shaped pin-fins (Vol. 3). **Fluid Mechanics and Fluid Power (Vol. 3). FMFP 2021. Lecture Notes in Mechanical Engineering. Springer, Singapore.**, https://doi.org/10.1007/978-981-19-6270-7_72