

Aditya Kumar Nag (PhD)

adityakumarnag2013@gmail.com | +91-7725092651 |

linkedin.com/in/aditya-nag-bb3853154 | Orchid ID: 0000-0002-5417-7923

EDUCATION

IIT (ISM) DHANBAD

Doctorate in Mechanical Engineering

Nov 2022 | Dhanbad, Jharkhand

IIT (ISM) DHANBAD

M. Tech. in Machine Design

July 2017 | Dhanbad, Jharkhand |

OGPA: 8.3

CSVTU, BHILAI

B.E. in Mechanical

Engineering

May 2014 | Bhilai, Chhattisgarh |

Percentage: 71.27%

SKILLS

SOFTWARE

Design tools:

• Solidworks • Spaceclaim

• AutoCAD • ProE

Analysis tools:

• ANSYS • Workbench • Meshing

• Fluent • CFX • Static Structural

Familiar tools:

• MATLAB • MS-office • HOMER

INTEREST

TECHNICAL

• Machine design • Fluid machinery

• Fluid mechanics • Turbomachinery

• CFD • Multibody simulation

• FEA analysis • Structural analysis

CERTIFICATES

Additive manufacturing: Dassault systems | Certificate no. C-MXR4T738GH

AutoCAD: CAD centre | Certificate no. 1VVVJKAK61

ProE: CAD centre | Certificate no. PTC108-0201

AUTHOR

Patent: 1 | **Journal paper:** 4 |

Conference: 1 | **Book:** 1 (Chapter)

EXPERIENCE

INDUSTRY

PROPEL Industries pvt. Ltd. | Trainee Engineer, R&D Mechanical | Currently working

Sept 2022 - Present | Coimbatore, Tamil Nadu

- Multiple projects conducted for value addition and value engineering analysis of heavy machinery used in the mining sector by using FEA.
- New product development (NPD), idea generation, and execution of ideas by utilizing design failure mode and effect analysis (DFMEA).
- Lead multiple projects for failure analysis, cost reduction, and NPD of machinery used in the mining sector.
- Thermal and fluid analysis of hydro cyclone in ANSYS Fluent including Workbench meshing, analysis, and post-processing.

RESEARCH

SENIOR RESEACHER | Mechanical Engineering IIT (ISM) | 5 year experience

Aug 2017 – Nov 2022 | Dhanbad, Jharkhand

- Designed and developed hydro turbine matrices in SOLIDWORKS software for improvement in performance corresponding to fluid flow.
- Analysis of multi-body dynamic simulations is conducted in the ANSYS-CFX.
- Conceptualising, designing, meshing, setup in CFX and post-processing of multiple turbines in CFX are analysed as research work.
- Designed and developed a new turbine for better performance.
- Cost optimization and renewable energy maximization analysis of the hydro turbine network is carried out for the rural community.
- Plays a major role in various projects of the Department of Science and Technology, Government of India.

FLUID MECHANICS and CAD LAB | Postgraduate Researcher | Mechanical Engineering, IIT (ISM)

May 2016 – June 2017 | Dhanbad, Jharkhand

- Researcher in renewable energy projects funded by SERB, Government of India.
- Cost and energy analysis of various renewable energies by performing optimization techniques in specialized HOMER software.

ACHIVEMENTS

2022 **Lead patentee** **Indian Patent grant**

Titled: A self-adjustable flap blade hydrokinetic turbine, IP no. 202231031891, Journal no. 27/2022.

2021 **Guest Speaker**

Oriental College of Technology, Bhopal (MP)

Short-term course of advanced materials technology.

2020 **Head Coordinator**

IIT (ISM) Dhanbad

Institute tour for school students under the project of SERB of India

2017 **MHRD Fellowship**

MHRD, Government of India

Full fellowship for pursuing a Ph.D. in IIT (ISM) Dhanbad.

2015 **Qualified**

GATE

2014 **Head organiser**

Robotics Club

Organized various robotics event in graduation during 2012-2014.

PUBLICATIONS

Patent

- Filed a patent in Indian patent through IIT (ISM) Dhanbad in Design modification in Savonius hydrokinetic turbine titled “A self-adjustable flap blade hydrokinetic turbine”. Indian Patent Application No. 202231031891, Journal no. 27/2022, date of publication: 08/07/2022.

Publications in peer-reviewed SCI Journals

- Aditya K. Nag, S. Sarkar (2021). “Performance analysis of Helical Savonius Hydrokinetic turbines arranged in array. Ocean Engineering, ELSEVIER, DOI:10.1016/j.oceaneng.2021.110020.
- Aditya K. Nag, S. Sarkar (2021). “Techno-economic analysis of a micro-hydropower plant consists of Helical Savonius hydrokinetic turbines arranged in different array formations for rural areas”, Renewable Energy, ELSEVIER, DOI:10.1016/j.renene.2021.07.067.
- Aditya K. Nag, S. Sarkar (2020). “Experimental and numerical study on the performance and flow pattern of different Savonius hydrokinetic turbines with varying duct angle”, Journal of Ocean Engineering and Marine Energy, Springer, DOI: 10.1007/s40722-019-00155-6.
- Aditya K. Nag, S. Sarkar (2018). “Modeling of hybrid energy system for futuristic energy demand of an Indian rural area and their optimal and sensitivity analysis”, Renewable Energy, ELSEVIER, DOI:10.1016/j.renene.2017.11.047.

Publications in conference

- Aditya K. Nag, S. Sarkar (2022). “Investigation of the performance of Savonius hydrokinetic turbines arranged in array” 20th ISME Conference on Advances in Mechanical Engineering- May 2022, IIT Ropar.

Publications in book chapter

- S. Sarkar, Aditya K. Nag, Rakesh Kumar (2022). “An overview of small-scale hydropower and its recent development”, Renewable Energy Production and Distribution: Solutions and Opportunities, ELSEVIER, France.