

Dr. J. P. Panda, Ph.D.(IITKGP)

CONTACT INFORMATION	Aerospace and Mechanical Engg. Dept. University of Notre Dame, South Bend Indiana, USA	Phone: +91-9439701768 Email: jppanda.iit@gmail.com Homepage: https://dr-jppanda.github.io
CURRENT POSITION	Postdoctoral Research Fellow Department of Aerospace and Mechanical Engineering University of Notre Dame, USA +1-(551) 260-1943, jpanda@nd.edu	
RESEARCH INTERESTS	Turbulent Flows, Data-driven Turbulence Modeling, Scientific Machine Learning, Exp. Fluid Mechanics, Microfluidics, Hydrodynamics, Computational ThermoFluid Dynamics	
EXPERIENCE	University of Notre Dame, USA Oct 2023 to Present Post-Doctoral Researcher Role: Data driven heat transfer modeling in nano-transistors Supervisor: Prof. T. Luo and Prof. J. Wang Gyeongsang National University, South Korea Aug 2022 to Sep 2023 Post-Doctoral Research Fellow Funding Agency: National Research Foundation, Korea Supervisor: Prof. R. S. Myong Indian Institute of Technology Kharagpur, India Mar 2019 to June 2021 Research Associate Funding Agency: NRB, Defense Research and Development Organisation, India Supervisor: Prof. H. V. Warrior	
EDUCATION	Indian Institute of Technology Kharagpur , Kharagpur, WB, India Ph.D., Computational Fluid Dynamics (Turbulence Modeling), Aug 2019 <ul style="list-style-type: none">• Department: Ocean Engineering and Naval Architecture• Thesis Topic: <i>Pressure Strain Correlation Modeling for Turbulent Flows</i>• Advisors: Prof. H. V. Warrior and Prof. O.P. Sha Indian Institute of Engineering Science and Technology, Shibpur , WB, India M.E., Mechanics of Fluids (Microfluidics), June 2015 <ul style="list-style-type: none">• Department: Aerospace Engineering and Applied Mechanics• Thesis Topic: <i>CFD based Modeling of Electroosmotic Mixing and Joule Heating in Microchannels</i>• Advisor: Prof. Debashis Pal• Percentage 82.5/100 Biju Patnaik University of Technology, Rourkela , ODISHA, India B.Tech., Mechanical Engineering, June 2012 <ul style="list-style-type: none">• CGPA 8/10	
DATA ENGINEERING COURSE	National Institute of Electronics and Information Technology, India Machine Learning and Data Science, 10/2020- 01/2021 <ul style="list-style-type: none">• Python Programming• Data Analysis using NumPy and Pandas• Machine Learning for Engineering and Science Applications	

1. **Panda, J.**, Warrior, H., “A representation theory based model for the rapid pressure strain correlation of turbulence” 2018, *ASME Journal of Fluids Engg.*, Vol. 140 / 081101-1. (Impact Factor: 1.995) (Q2 Mechanical Engineering)
2. **Panda, J.**, Warrior, H., “Modeling pressure strain correlation for turbulent flows using deep neural networks” 2021, *Proceedings of the Institution of mechanical engineers, Part C: Journal of Mechanical Engg. Science.* (Impact Factor: 1.762). (Q2 Mechanical Engineering)
3. **Panda, J.**, Warrior, H., “Data-driven prediction of complex flow field over an axisymmetric body of revolution using Machine Learning” 2022, *ASME Journal of Offshore Mechanics and Arctic Engineering.* (Impact Factor: 1.355) (Q2 Energy)
4. **Panda, J.**, Warrior, H., “Evaluation of machine learning algorithms for predictive Reynolds stress transport modeling” 2021, *Acta Mechanica Sinica* , (Impact Factor: 1.975) (Q2 Computational Mechanics)
5. **Panda, J.**, Kumar, B., Kumar, A., Patil, A., “Influence of twisted tape length on the thermal performance of a heat exchanger tube” 2022, *Numerical Heat Transfer, Part A: Applications*, (Impact Factor: 2.928) (Q2 Condensed matter physics)
6. **Panda, J.**, Kumar, B., Patil A., Kumar M. “Machine learning assisted modelling of thermohydraulic correlations for heat exchangers with twisted tape inserts, 2023, *Acta Mechanica Sinica* (Accepted), (Impact Factor: 1.975) (Q2 Computational Mechanics)
7. **Panda, J.**, Warrior, H., “Numerical studies on drag reduction of an axisymmetric body of revolution with antiturbulence surface” 2021, *ASME Journal of Offshore Mechanics and Arctic Engineering*, 143(6), p.064501. (Impact Factor: 1.355) (Q2 Energy)
8. **Panda, J.**, Warrior, H., Maity, S., Mitra, A., Sasmal, K., “An improved model including length scale anisotropy for the pressure strain correlation of turbulence” 2017, *ASME Journal of Fluids Engineering*, Vol. 139 / 044503-1. (Impact Factor: 1.995) (Q2 Mechanical Engineering)
9. **Panda, J.**, “A review of pressure strain correlation modeling for Reynolds stress models ” 2019, *Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science.* DOI: <https://doi.org/10.1177/0954406219893397>. (Impact Factor: 1.762) (Q2 Mechanical Engineering)
10. **Panda, J.**, Mitra, A., Warrior, H., “A review on the hydrodynamic characteristics of autonomous underwater vehicles” 2020. *Proceedings of the Institution of Mechanical Engineers, Part M: Journal of Engineering for the Maritime Environment*, DOI: <https://doi.org/10.1177/1475090220936896>. (Impact Factor: 1.389) (Q2 Mechanical Engineering)
11. **Panda, J.**, “A reliable pressure strain correlation model for complex turbulent flows” 2020. *Journal of applied fluid mechanics*, Vol. 13, No. 4, pp. 1167-1178. (Impact Factor: 1.783) (Q3 Condensed matter physics)
12. Mitra, A. **Panda, J.**, Warrior, H., “The effects of free stream turbulence on the hydrodynamic characteristics of an AUV hull form” 2019. *Ocean Engineering*, Vol. 174 (2) / 148-158. (Impact Factor: 3.795) (Q1 Environmental engineering)
13. Mitra, A., **Panda, J.**, Warrior, H., “Experimental and numerical investigation of the hydrodynamic characteristics of Autonomous Underwater Vehicles over seabeds with complex topography” 2020. *Ocean Engineering*, Volume 198, 106978 . (Impact Factor: 3.795) (Q1 Environmental engineering)

14. **Panda, J.**, Sasmal, K., Maity, S., Warrior, H., “A Simple Nonlinear Eddy Viscosity Model for Geophysical Turbulent Flows” 2020, *Journal of Applied Fluid Mechanics*, 14(3). (Impact Factor: 1.783) (Q3 Condensed matter physics)
15. Das A., Das, SR., **Panda, J.**, Dey A., Gajrani KK., Somani N., Gupta N. “Machine learning based modelling and optimization in hard turning of AISI D6 steel with advanced AlTiSiN coated carbide inserts, 2022, *Surface Review and Letters*. (Impact Factor: 1.303) (Q3 Materials chemistry)
16. Somani, N., Walia, A., Gupta, N., **Panda, J.**, Das, A., Das S. “Data driven surrogate model-based optimization of the process parameters in electric discharge machining of D2 steel using Cu-SiC composite tool” 2023, *Revista de Metalurgia*. (Impact Factor: 0.8) (Q3 Metals and Alloys)
17. **Panda, J.**, Mitra, A., Joshi, A., Warrior, H., “Experimental and numerical analysis of grid generated turbulence with and without mean strain” 2018, *Experimental Thermal and Fluid Science*, Vol. 98 (11) / 594-603. (Impact Factor: 3.232) (Q1 Aerospace engineering)
18. **Panda, J.**, Handique J., Warrior, H., “Mechanics of drag reduction of an axisymmetric body of revolution with shallow dimples” 2022, *Proceedings of the iMech, Part M: Journal of Engineering for Maritime Environment*. (Impact Factor: 1.389) (Q2 Mechanical Engineering)
19. **Panda, J.** “Machine learning for Naval Architecture Ocean and Marine Engineering” 2023, *Journal of Marine Science and Technology*. (Impact Factor: 2.005) (Q1 Mechanical Engineering)
20. Mitra, A., **Panda, J.**, Warrior, H., “The hydrodynamic characteristics of autonomous underwater vehicles in rotating flow fields” 2023, *Proceedings of the iMech, Part M: Journal of Engineering for Maritime Environment* (Q2 Mechanical Engineering).

INTERNATIONAL
CONFERENCE
PUBLICATIONS

1. **Panda, J.**, Myong, R. S., “Subgrid Modeling for Large Eddy Simulation of Shock Boundary Layer Interaction Using Machine Learning” 2023. *The 14th Asian Computational Fluid Dynamics Conference, CSIR, National Aerospace Laboratories, Bengaluru, India* (Accepted).
2. **Panda, J.**, Sengupta, B., Myong, R. S., “Direct numerical simulation of shock turbulence interaction with bulk viscosity effects” 2023. *The 34th International Symposium on Shock Waves, Daegu, Korea*.
3. **Panda, J.**, Gupta, S., Pal, D., “Computational Analysis of Liquid-Liquid Mixing In a T-Shaped Serially Connected Converging-Diverging microchannel” 2014. *59th Congress of ISTAM, IIT Kharagpur, India*.
4. Mohapatra, P., **Panda, J.**, Pal, D., “Electro-osmotic Flow and Mixing in a Micro-channel: A Numerical Study” 2014. *59th Congress of ISTAM, IIT Kharagpur, India*.
5. **Panda, J.**, Warrior, H., Maity, S., “Pressure Strain Correlation for decaying homogeneous turbulence” 2016. *Fluid Mechanics and Fluid Power Conference held at MNNIT Allahabad, India*.
6. Joshi, A., Warrior, H., **Panda, J.** “An Improved Single Point Closure Model Based on Dissipation Anisotropy for Geophysical Turbulent Flows” 2018. *Int. Conference on Oceanography held at Miami, USA*.
7. Gupta, S., **Panda, J.**, Nandi, N. “A Model Study of Free Vortex Flow” 2014. *ICTACEM Conference held at IIT Kharagpur, India*.

TEACHING EXPERIENCE	DIT University, Dehradun, India 2021 to 2022 Assistant Professor Roles: Teaching subjects of Mechanical Engineering to UG and PG students Biju Patnaik University of Technology, Odisha, India 2012 to 2013 Junior Lecturer Roles: Teaching and laboratory activities of UG students
RESEARCH LAB VISITS	Lab name: Center for Quantum Information Processing , University of Seoul, Korea Purpose: To learn quantum computing for fluid and gas dynamics applications Duration: 2nd-3rd Feb 2023
SCHOLARSHIPS	<ul style="list-style-type: none"> ● MHRD government of India fellowship for doctoral studies , India 2015-2018 ● MHRD government of India fellowship for PG studies , India 2013-2015
PROGRAMMING AND SOFTWARE SKILLS	Programming: Python, C/C++ Software/Codes: Docker and Singularity container ANACONDA (For python environments) JAX-Fluids (DNS and LES) (Parallel CUDA, Python) STREAMS (DNS) (Parallel MPI/CUDA, FORTRAN) OpenFOAM (RANS, LES, DSMC) (Parallel MPI, C++) SU2 (Parallel MPI, C++) ANSYS Fluent (RANS and RSTM) SPARTA and Prof. Bird's code (DSMC) TensorFlow and Keras (Deep learning) TensorFlowFoam (Linking neural network models with OpenFoam) Scikit Learn (Machine Learning) MATLAB
EXPERIMENTAL WORK	Instrument: Acoustic Doppler Velocimeter Principle of operation: Doppler Shift Measured parameters: Three fluctuating turbulent velocity components in grid generated turbulence with and without mean strain Location: Recirculating water tank, Ship Hydrodynamics Lab, IIT Kharagpur
SHORT-TERM COURSES ORGANIZED	Topic: Hands-on Python for Mechanical Engineers Venue: DIT University, Dehradun, India Duration: 9th April 2022
INVITED SPEAKER	Topic: Machine Learning for fluid dynamics Venue: Engineering Staff College of India, Hyderabad An autonomous organ of The Institution of Engineers, India Duration: 23th – 27th August 2021. Topic: An introduction to Computational Fluid Dynamics venue: Engineering Staff College of India, Hyderabad An autonomous organ of The Institution of Engineers, India Duration: 26th – 28th April 2021.

PROFESSIONAL PROFILES	Google Scholar Profile: Citation: 265, h-index: 8, i10-index: 8	
	Researchgate Profile	
	Linkedin Profile	
REVIEWER	Physics of Fluids Proceeding of the IMECH part C: Journal of Mechanical Engineering and Science Thermal Science Ocean Engineering International Journal of Fluid Mechanics Research Industrial Robot	
REFERENCES	Prof. Tengfei Luo	
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PERSONAL PROFILE	AEAM Department	E-mail: debashis@aero.iiests.ac.in
	IEST, Shibpur, India	
	NAME: Jyoti Prakash Panda	
	DOB: 16th April 1991	
	NATIONALITY: Indian	
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