

## Dr. Jyoti Prakash Panda, Ph.D.(IITKGP)

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CONTACT INFORMATION	Aerospace and Software Engg. Dept. Gyeongsang National University, Jinju, South Korea	Phone: 91-9439701768 Email: <a href="mailto:jppanda.iit@gmail.com">jppanda.iit@gmail.com</a> Homepage: <a href="https://dr-jppanda.github.io">https://dr-jppanda.github.io</a>
CURRENT POSITION	Postdoctoral Research Fellow Department of Aerospace and Software Engineering Gyeongsang National University, South Korea +82-1037780416, <a href="mailto:jppanda@gnu.ac.kr">jppanda@gnu.ac.kr</a>	
RESEARCH INTERESTS	Turbulent Flows, Data-driven Turbulence Modeling, Direct Numerical Simulation, Large Eddy Simulation, Shock-Turbulence Interaction, Machine Learning, Experimental Fluid Mechanics, Microfluidics, OpenFoam and Python-based Solver Development, CFD	
EXPERIENCE	<b>Gyeongsang National University, South Korea</b> Aug 2022 to present Post-Doctoral Research Fellow Roles: a) Development of efficient gas and fluid flow solvers with deep learning b) Direct numerical simulation of compressible turbulent flows (Decaying isotropic turbulence and shock turbulence interaction) Supervisor: Prof. R. S. Myong	
	<b>Indian Institute of Technology Kharagpur, India</b> Mar 2019 to June 2021 Post-Doctoral Research Associate Funding Agency: <a href="#">Naval Research Board, DRDO</a> Roles: CFD based studies on turbulent drag reduction of axisymmetric bodies Supervisor: Prof. H. V. Warrior	
EDUCATION	<b>Indian Institute of Technology Kharagpur</b> , Kharagpur, WB, India Ph.D., Computational Fluid Dynamics (Turbulence Modeling), Feb 2019 <ul style="list-style-type: none"><li>• Department: Ocean Engineering and Naval Architecture</li><li>• Thesis Topic: <i>Pressure Strain Correlation Modeling for Turbulent Flows</i></li><li>• Advisors: Prof. H. V. Warrior and Prof. O.P. Sha</li></ul> <b>Indian Institute of Engineering Science and Technology, Shibpur</b> , WB, India M.E., Mechanics of Fluids (Microfluidics), June 2015 <ul style="list-style-type: none"><li>• Department: Aerospace Engineering and Applied Mechanics</li><li>• Thesis Topic: <i>CFD based modeling of electroosmotic mixing and Joule heating in microchannels</i></li><li>• Advisor: Prof. Debashis Pal</li><li>• Percentage 82.5/100</li></ul> <b>Biju Patnaik University of Technology, Rourkela</b> , ODISHA, India B.Tech., Mechanical Engineering, June 2012 <ul style="list-style-type: none"><li>• CGPA 8/10</li></ul>	
CERTIFICATE COURSE	<b>National Institute of Electronics and Information Technology, India</b> Machine Learning and Data Science, 10/2020- 01/2021 <ul style="list-style-type: none"><li>• Python Programming</li><li>• Data Analysis using NumPy and Pandas</li><li>• Machine Learning for Engineering and Science Applications</li></ul>	

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* (Accepted), (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” 2021, *Numerical Heat Transfer, Part A: Applications* (Accepted), (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, 2022, *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. **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)
17. **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)
18. **Panda, J.** “Machine learning for Naval Architecture Ocean and Marine Engineering” 2022, *Journal of Marine Science and Technology*. (Impact Factor: 2.005) (Q1 Mechanical Engineering)

SUBMITTED  
JOURNAL  
PUBLICATIONS

1. Mitra, A., **Panda, J.**, Warrior, H., “The hydrodynamic characteristics of autonomous underwater vehicles in rotating flow fields” 2021, *China Ocean Engineering*.
2. Somani, N., Walia, S., Gupta N., **Panda, J.**, Das, A., “Data driven surrogate model based optimization of the process parameters in electric discharge machining of D2 steel using Cu-SiC composite tool” 2022.

INTERNATIONAL  
CONFERENCE  
PUBLICATIONS

1. **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* (Submitted).
2. **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*.
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. 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*.
6. Gupta, S., **Panda, J.**, Nandi, N. “A Model Study of Free Vortex Flow” 2014. *ICTACEM Conference held at IIT Kharagpur, India*.
7. Usmani, A., Gupta, S., **Panda, J.** “Numerical Simulation of Pulsatile Flow in Stenosed Artery” 2014. *IDMC Conference held at NIT, Rourkela, India*.

TEACHING EXPERIENCE	<b>DIT University, Dehradun, India</b> 2021 to 2022 Assistant Professor Roles: Teaching subjects of Mechanical Engineering to UG and PG students <b>Biju Patnaik University of Technology, Odisha, India</b> 2012 to 2013 Junior Lecturer Roles: Teaching and laboratory activities of UG students
RESEARCH LAB VISITS	Lab name: <a href="#">Center for Quantum Information Processing</a> , 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"> <li>• MHRD government of India fellowship for doctoral studies , India 2015-2018</li> <li>• MHRD government of India fellowship for PG studies , India 2013-2015</li> </ul>
PROGRAMMING AND SOFTWARE SKILLS	Programming: Python, C/C++  Software: JAX-Fluids (DNS and LES) OpenFOAM (RANS and LES) ANSYS Fluent (RANS and RSTM) ANACONDA Tensor flow and Keras (Deep learning) Scikit Learn (Machine Learning) Qiskit (IBM) (Quantum Computing) TensorFlow Quantum (hybrid quantum-classical machine learning) MATLAB
EXPERIMENTAL WORK	Instrument: Acoustic Doppler Velocimeter Principle of operation: Doppler Shift Measured parameters: Three components of velocity of water 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: 10 am to 4 pm, <i>9th</i> 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: <i>23th – 27th</i> 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: <i>26th – 28th</i> April 2021.
PROFESSIONAL PROFILES	<a href="#">Google Scholar Profile</a> : Citation: 251, h-index: 7, i10-index: 7  <a href="#">Researchgate Profile</a>

[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

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PERSONAL  
PROFILE

NAME: Jyoti Prakash Panda

DOB: 16th April 1991

NATIONALITY: Indian

PERMANENT ADDRESS: Hiratikiri, Sergarh, Balasore, Odisha, 756060

MARITAL STATUS: Married (Wife: Yoga Professional)

LANGUAGES KNOWN: Odia, Hindi, English