

# Hari Warrior

Professor

## PROFILE

I am a Professor at the department of Ocean Engineering and Naval Architecture, Indian Institute of Technology Kharagpur. I believe in excellence in functioning through hardwork and intelligence.

## CONTACT

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Dept. of OE & NA  
Indian Institute of Technology  
Kharagpur 721302

## EDUCATION

### PhD

University of South Florida, USA  
1999-2004

### MS

North Carolina State Univ., USA  
1997-1999

### BTech

Indian Institute of Technology, Madras  
1993-1997

## EXPERTISE

- Computational Fluid Dynamics
- Turbulence Modelling
- Ocean Engineering
- Oceanography
- Artificial Neural Networks
- Ocean Energy

## PROFESSIONAL EXPERIENCE

### Dept. of OE & NA, IIT Kharagpur

#### Head of department

2019-present

- Governance of the functioning of the department
- Managing financial details of the department

### Dept. of OE & NA, IIT Kharagpur

#### Professor

2018-present

- Teaching BTech, MTech and PhD students.
- Mentoring the research of PhD students
- UGPEC Chariman of the department

### Dept. of OE & NA, IIT Kharagpur

#### Assoc. Professor

2013-2018

### Dept. of OE & NA, IIT Kharagpur

#### Asst. Professor

2013-2018

### College of Marine Science USF

#### Research Associate

1999-2004

# Achievements

- Research Advisor to Naval Physical Oceanography Lab, DRDO, Kochi
- Hydrodynamics Panel Member, Naval Research Board, DRDO.
- Head of department, OE & NA, IIT Kharagpur
- Completed more than 25 projects both nationally and internationally.
- Published more than 35 papers in international journals
- Best paper award from American Society of Civil Engineers
- Guided 6 PhD students, 35 MTech students and more than 100 BTech students.
- Awarded fellowship for PhD at USF, USA.
- Ranked in the top 1% of country in IIT-JEE.

## Some projects completed

- Wide Area Surveillance of ships and submarines from their wakes, Naval Research Board, DRDO.
- Detection of submarines from wakes, Naval Physical Oceanographic laboratory, DRDO.
- Dynamics of surface wakes generated by surface vessels - using computational Fluid Dynamics: Naval Physical Oceanographic laboratory, DRDO.
- Model testing of a 25 m crew boat, Sea Delta Marine
- Hydrodynamic modelling of a catamaran, L& T SB.
- Mooring Analysis of a research vessel, L& T SB
- Use of Ansys AQWA to study ship drift, Ashkam Technologies.
- Study of carbon-dioxide pathways in Indian Ocean- DST .
- Development of a real-time ocean forecast system for the Bay of Bengal : Indira Gandhi Center for Atomic Research
- CFD studies on RDEL Basin – Reliance Naval and Engineering Ltd.
- Design of a canal on Arabian gulf: Al Waseet Consulting: Saudi Arabia
- Development of bridge over half moon bay:Al Waseet Consulting: Saudi Arabia
- Circulation study over dammam bridge after dredging:Al Waseet Consulting: Saudi Arabia
- Water circulation modeling & sedimentation study upon the construction of an island at king fahd causeway, arabian gulf: Al Waseet Consulting: Saudi Arabia

## Some publications

- Experimental and numerical investigation of the hydrodynamic characteristics of Autonomous Underwater Vehicles over sea-beds with complex topography by Mitra A., Panda J.P., Warrior H.V. Ocean Engineering 198 - (2020)
- The effects of free stream turbulence on the hydrodynamic characteristics of an AUV hull form by Mitra A., Panda J. , Warrior H. V. Ocean Engineering 174 148-158 (2019)
- Study of turbulent flow past a square cylinder using partially-averaged Navier Stokes method in OpenFOAM by Chakraborty A., Warrior H.V. Proceedings of the Institution of Mechanical Engineers, Part C: Journal of Mechanical Engineering Science 234 2821-2832 (2020)
- Wide area surveillance using ship wakes by Barman J., Kumar A., Warrior H.V., Maheswaran P.A., Kumar H. Current Science 114 1606-1607 (2018)
- A representation theory-based model for the rapid pressure strain correlation of turbulence by Panda J., Warrior H. V. ASME Journal of Fluids Engg. 140 81-111 (2018)
- Configuration and skill assessment of the coupled biogeochemical model for the carbonate system in the Bay of Bengal by Joshi A.P., Roy Chowdhury R., Kumar V., Warrior H.V. Marine Chemistry 226 - (2020)
- Coastal modelling incorporating artificial neural networks for improved velocity prediction by Sumangala D., Warrior H. ISH Journal of Hydraulic Engineering - (2020)
- A review on the hydrodynamic characteristics of autonomous underwater vehicles by Panda J.P., Mitra A., Warrior H.V. Proceedings of the Institution of Mechanical Engineers Part M: Journal of Engineering for the Maritime Environment 235 15-29 (2021)
- An Improved Model Including Length Scale Anisotropy for the Pressure Strain Correlation of Turbulence by Panda J. P., Warrior H. V. Journal of Fluids Engineering 139 139-143 (2017)
- Lecture Notes in Civil Engineering by Swathy Krishna P.S., Warrior H.V. Seasonal variability of circulation along the north-east coast of India using princeton ocean model 22 733-748 (2019)
- An improved model including length scale anisotropy for the pressure strain correlation of turbulence (2017) ASME journal of Fluids Engg., JP Panda, H V Warrior, S Maity, A Mitra, K Sasmal 139 (4), 044503.
- Knowledge dissemination in earth system science in India (2016) H Warrior, Current Science 11(2) 131.
- Modeling of turbulent dissipation and its validation in periodically stratified region in the Liverpool Bay and in the North Sea by KaushikSasmal, SubhenduMaity, Hari V. Warrior Ocean Dynamics,DOI:10.1007/s10236-0 (2015)
- On the application of a new formulation of nonlinear eddy viscosity based on anisotropy to numerical ocean models byKaushikSasmal, SubhenduMaity, Hari Warrior Journal of Turbulence Vol. 15(8), (2014)
- An Improved Model for the Return to Isotropy of Homogeneous Turbulence byHari Warrior, Sajo Mathews, SubhenduMaity, and KaushikSasmal ASME Journal of fluids engineering, doi: 10.1115/1.40262 (2014)

- Development and role of flux coupler in a coupled atmosphere-ocean modeling system (2014) S Bonthu, K Sasmal, H Warrior, International Journal of Computer applications 92 (6)
- Development of an automated Regional Ocean modeling System for coastal Kalpakkam b SubbaReddy Bonthu, Kaushik Sasmal, Hari V Warrior International Journal of Oceans and Climate systems, 87-116 (2013)
- Reynolds Stress Anisotropy based Turbulent Eddy Viscosity Model Applied to Numerical Ocean Models by Maity, S. and Warrior, H. V. ASME Journal of Fluids Engineering, Vol 133, Issue 6(2011)
- Role of Parallel Computing in Numerical Weather Forecasting Models by Subhendu Maity, SubbaReddy Bonthu, Kaushik Sasmal, Hari Warrior International Journal of Computer Applications (Special Issue), pp. 22-27 (2013)
- Water circulation Modeling study upon construction of al-dannat construction at the Half Moon Bay, Saudi Arabian Gulf by Kaushik Sasmal, Hari Warrior and S. Maity Journal of Oceanography and Marine Science, vol 2(7), pp 148-157 (2011)
- An optical model for heat and salt budget estimation for shallow seas by Warrior, H\*, and K. Carder J. Geophys. Res., doi:10.1029/2006JC00 (2007)
- Sea-breeze-initiated rainfall over the east coast of India during the Indian southwest monsoon, by Simpson, M., Warrior, Hari\*, Raman, S., Aswathanarayana, P.A., Mohanty, U.C., Suresh, R. Natural Hazards, 42 (2007)
- Production of hyper-saline plumes in shallow basins by evaporation by Hari Warrior, Kendall Carder Geophysical Research Letters, 32 (2005)
- Ocean Science Mission needs: real time AUV data for command, control and model inputs [west Florida shelf] (2001) K L Carder, DK Costello, H Warrior, L C Langebrake, W Hou, IEEE Journal of Ocean Engg 26 (4), 742-751.
- A study of marine boundary layer processes in the ITCZ and non-ITCZ regimes over Indian Ocean with INDOEX IFP (2011) A N V Satyanarayana, U C Mohanty,... H Warrior, Current Science, 80 39-45.
- Effect of Atmospheric Forcing on Plume Dispersion and Study of Nuclear Effluent Trajectories for the Kalpakkam Coast, India by Kaushik Sasmal SubbaReddy Bonthu Subhendu Maity and Hari V Warrior J. Hazard. Toxic Radioact. Waste, 04014035 (2014)