Resume

Name: Ranadev Datta

1. Present Job

Associate Professor

Dept. of Ocean Engineering and Naval Architecture

IIT Kharagpur

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2. Experience

Institution	Post	Year	Duration of the work
Dept. of Mathematics, BITS Pilani, Goa Campus	Sr. Lecturer	October 2006-May 2008	1.5 Years
Axsys Technologist	Naval Architect	June 2008 - July 2009	1 Year
CENTEC Lisbon	Post Doc Research	August 2009-July 2012	3 Years
Axsys Technologist	Sr. Naval Architect	August 2012-May 2013	10 Months
Dept. of OE & NA, IIT Kharagpur	Assistant Professor	June 2013-November 2021	8 Years
Dept. of OE & NA, IIT Kharagpur	Associate Professor	November 2021-present	2.5 Years

3. Fields of major scientific interest

Numerical Ship Hydrodynamics, Hydroelasticity, Fluid Structure Interaction

4. List of publications

Journal

1) Sengupta D., Show T. K., Hirdaris S., **Datta R.,** 2022, A semi analytic method for the analysis of the symmetric hydroelastic response of a container ship under slamming and green water loads., Proc IMechE Part M., https://journals.sagepub.com/doi/10.1177/14750902231165808
2) Kudupudi R B., **Datta R.,** and Guedes Soares C., 2023, Modelling green water loads on ships using coupled impulse response function and CFD solution, Ocean Engineering, 281, https://doi.org/10.1016/j.oceaneng.2023.114918
3) Acharya A., Chowdhury S D., Paloth F. P.,**Datta R.** , 2023, Numerical investigation of bottom slamming using one and two way coupled methods of S175 hull, Applied Ocean Research, https://doi.org/10.1016/j.apor.2023.103684
4) Garad S., Bhattacharyya A, **Datta R.,** 2023, Numerical investigations of water column responses at different moonpool locations within a fixed vessel, J. Offshore Mech. Arct. Eng. https://doi.org/10.1115/1.4062445
5) Show T. K., Hirdaris S., **Datta R.,** 2022, A Fully Coupled Time-Domain BEM-FEM Method for the Prediction of Symmetric Hydroelastic Responses of Ships with Forward Speed, Shock and Vibration, https://doi.org/10.1155/2022/4564769
6) Acharya A., **Datta R.** , 2022, Parametric study of bow slamming for a KRISO container ship, Ocean Engineering, 244, doi : 10.1016/j.oceaneng.2021.110420
7) Garad S., Bhattacharyya A, **Datta R.,** 2022 Resonant Oscillations within Multiple Moonpools for a Fixed Rectangular Vessel, Journal of Ship Research, 2022, http://dx.doi.org/10.5957/JOSR.01220004
8) Sengupta D., **Datta R**., Sen D., 2021, A simplified model of the hydroelasticity of containership. Journal of Engineering Mathematics. https://doi.org/10.1007/s10665-021-10142-2
9) Garad S., Bhattacharyya A, **Datta R.,** 2020 Oscillating water column behavior at forward, central and aft moonpool within a fixed vessel. Ocean Engineering, 236, 1-14
10) Vijay K., Sahoo T., and **Datta R**, 2020, Wave-induced responses near a wall in the presence of permeable plates. Coastal Engineering Journal, 62, 35-52.
11) Kundu S., **Datta R**., and Gayen R., Islam N, 2019, The interaction of flexural-gravity waves with a submerged rigid disc. Applied Ocean Research, 2019, 92, 101912
12) Kudupudi R. B., Bhattacharyya A., and **Datta R,** 2019, Numerical investigation of heave and pitch motion effects on green water loading for a floating body. Journal of Marine Science and Application, 2019, DOI:10.1007/s11804-019-00118-1
13) Kudupudi R. B., Pal S. K., and **Datta R.** A three step CFD-BEM-FEM method to study the influence of green water impact on a large containership in time domain, 2019, Journal of Offshore Mechanics and Arctic Engineering 141
14) **Datta R.,** and Guedes Soares C. Analysis of the hydroelastic effect on a container vessel using coupled BEM FEM method in the time domain. 2019, Journal of Ships and Offshore Structures
15) Kudupudi R. B., Bhattacharyya A., and **Datta R**. Parametric study of green water impact on container vessel. 2019. Journal of Ships and Offshore Structures, DOI:10.1080/17445302.2019.1615728
16) Pal S. K., **Datta R**., and Sunny M. R. 2018, Fully coupled time domain solution for hydroelastic analysis of a floating body. Ocean Engineering 153 173-184

17) Pal S. K., Kudupudi R. B., Sunny M. R., and **Datta R. 2018,** Numerical investigation of green water loading on flexible structures using three-step CFD-BEM-FEM approach by Journal of Marine Science and Application 1-11.
18) Kundu S., Gayen R., and **Datta R.** Scattering of water waves by an inclined elastic plate in deep water 2018, Ocean Engineering 167 221-228
19) Sengupta D., Pal S. K., and **Datta R.** Hydroelasticity of a 3D floating body using a semi analytic approach in time domain, 2017. Journal of Fluids and Structures 71 96-115
20) Sengupta D, **Datta R** and Sen D., A simplified approach for computation of nonlinear ship loads and motions using a 3D time-domain panel method, Ocean Engineering, 2015, vol. 117, pp. 99- 113.
21) **Datta R,** Fonseca N and Guedes Soares C., Analysis of forward speed effects on the radiation forces on a Fast Ferry, Ocean Engineering, 2013, vol. 60, pp. 136-148
22) **Datta R**, and Guedes Soares C., NURBS based scheme for automatic quadrilateral Mesh Generation for FE and BIEM analysis, Marine Systems and Ocean Engineering, 2012, vol. 7(1), June edition, pp: 29 – 35.
23) **Datta, R.,** Rodrigues, J.M. and Guedes Soares, C., Prediction of the motions of fishing vessels using a time domain 3D panel method. In: C. Guedes Soares, et al (Ed.) Maritime Engineering and Technology,2012, pp. 165- 172
24) Sen D, **Datta R** and Singh S,P., Modelling wave induced ship motion and loads Marine Technology and Engineering, 1, pp. 621-638 (2012)
25) **Datta R,** Rodrigues J. M and Guedes Soares C. ,Study of the Motions of Fishing Vessels by a Time Domain Panel Method, Ocean Engineering, 2011, vol. 38, pp. 782-792
26) **Datta R** and Sen D., The simulation of ship motion using a B-spline based panel method in time domain, Journal of Ship Research, 2007, vol. 51(3), pp. 267-284
27) **Datta R** and Sen D.,A B-spline solver for the forward speed diffraction problem of a floating body in time domain, Applied Ocean Research, 2006, vol. 28(2), pp. 147-160
28) **Datta R** and Sen D., A B-spline based method for radiation and diffraction problems, Ocean Engineering, 2006, vol. 33, pp. 2240-2259.

Conference:

1) Acharya A., Datta R., 2022, Study of slamming load using one and two way coupled method, 6th International conference on Maritime Technology and Engineering.24-26 May, Lisbon, Portugal
2) Sengupta D, Kudupudi, R., and **Datta R**., 2018. Numerical investigation of green water impact on floating barge. 32nd Symposium on Naval Hydrodynamics, Germany
3) Sengupta D, **Datta R**, and Sen D., 2018. Hydroelastic analysis of a 3D floating body considering uncoupled flexural and torsional vibrations. 37th OMAE conference, 2018, Madrid, Spain.
4) Kudupudi R and Datta **R**, 2017, Numerical investigation of effect due to vessel motion on green water impact on deck. 36th OMAE conference, Norway, 2017.
5) **Datta R,** Rodrigues J. M and Guedes Soares C., A time domain panel method for prediction of nonlinear hydrodynamic forces., 11th International Conference on Hydrodynamics, 2014, Singapore.
6) **Datta R** and Sunny, M R., Hydroelasticity analysis of Ships, 11th International

Conference on Hydrodynamics, 2014, Singapore.

7) **Datta R,** Rodrigues J. M and Guedes Soares C., Comparative motion calculations for various types of fishing vessels (14th IMAM conference, 2011, Genoa, Italy)
8) **Datta R,** Rodrigues J. M and Guedes Soares C., Prediction of the motion of a fishing vessels using time domain 3D panel method (1st MARTECH conference, 2011, Lisbon, Portugal)
9) **Datta R** and Sen D., A B-spline time domain solution for the forward speed diffraction problems. 25th International Conference on Offshore Mechanics and Artic Engineering (ASME conference), Humburg, Germany, June 4-9, 2006
10) **Datta R** and Sen D., A B- Spline solver for the free surface flow problems in presence of surface piercing rigid bodies. (ICCMS-06, IIT- Guwhati, 2006)
11) **Datta R** and Sen D., A B-spline solution scheme for the computation of forward speed ship motions, 9th Annual CFD Symposium (AeSI conference), 2006, Bangalore
12) **Datta R** and Sen D., A B-spline based solver for potential flow problems in marine hydrodynamics, 8th Annual CFD Symposium (AeSI conference), 2005, Bangalore

5. List of Completed and Ongoing projects:

Completed

- Development of 3D panel method to perform hydroelastic analysis of ships by NRB
- Advancement of previously developed Rig Loader Software by M/s Green Palm Marine Consultancy
- Model Making and Tank Testing for Survey Boat by WATERWAYS SHIPYARD PVT LTD
- Hydrodynamic Analysis of the Flotilla Combination by S. S. Engineering Service
- Development of Goal Based Standards (Regarding few hydrodynamic forces) for IRS AXSYS Technologies Ltd.
- Hydrodynamic Load analysis of 12m Floating Barge Pump for Durga Das Agency
- Structural and Hydrodynamic Analysis of floating Jetties by Das and Kumar
- Seakeeping and Other Performance of a Vessel for Passenger Comfort by Waterways Shipyard Private Ltd.

Ongoing

- Ship Design for Inland and Coastal Water Ways by Ministry of Shipping
- Hydroelasticity of a Large and High Speed Ships Considering the Slamming and Green Water Impact on Regular and Ir-regular Waves **Naval Research Board**
- Analysis of L Shaped Jetty by Litmus Marine Innovation Pvt Ltd
- Investigation of Safety of 15 Floating Jetties in West Bengal, Bihar and UP **DAS AND KUMARS**
- Stability Check For Self Propelled Jetties **DAS AND KUMARS**

6. Research Students

a. Completed

Name	Degree Awarded	Thesis Title
Sumit Paul	Masters in Engineering (MS)	Fully coupled time domain solution for hydroelastic analysis of ships

Ravindra Babu Kudupudi	Ph.D	Study of green water loading of a floating vessel with/without forward speed.
Debasmit Sengupta	Ph.D	Development of a Semi Analytic Approach to Perform Hydroelastic Analysis of Ships
Abhishek Acharya	Ph.D	Parametric Study of Slamming using CFD based Methods
Suraj Kanchak Garad	Ph.D	Resonant Water Column Response within Moonpools for a Rectangular Vessel

b. Ongoing Ph.D Students

Name	Broad Area of Research
Tushar Kanti Show	Hydroelasticity
Sayed Abul Hossain	Fluid-Structure Interaction
Subhojit Kumar Ghosh	Fluid-Structure Interaction
Ajijul Hoque	Fluid-Structure Interaction

7. Course Taken

- Marine Hydrodynamics
- Seakeeping
- Computational Marine Hydrodynamics
- Numerical Ship and Offshore Hydrodynamics

8. Other Academic/Non-academic Interests

- Mathematics
- CAD CAM
- Solving Chess Puzzles
- Travelling