Sandeep Reddy Bukka

Post-Doc @Max Planck Institute, Magdeburg

sandeepreddyb7@gmail.com

+49 17636955071

https://www.sandeepreddyb.net/

Education

Ph.D.| Data-Driven Computational Fluid Dynamics | National University of Singapore | 2020 | GPA: 4.33/5 |

B.Tech & M.tech (Dual Degree)| Ocean engg & Applied Mechanics | IIT Madras | 2015 | 8.21/10

Skills

Languages: python, Matlab, FORTRAN, Julia
Simulation : Ansys, FLUENT, STAR-CCM+, AVEVA Marine
Certifications: completed Deep learning and Tensorflow in practice specializations from coursera, EPAT-2020 @Quantinsti

Student Leadership

Resident assistant @ Utown residence
- In charge for around 60 to 70 students at graduate residence.
- Organized several events at graduate residence which include Welcome reception, Diwali night, UTR movie night, Acting 101 workshop, Art carnival
-Received outstanding RA award
-UTR welcome reception and UTR art carnival received best event awards.

Hospitality core @ SAARANG 2015
- One of the 23-member Core team of SAARANG*, budgeted at 10 million INR and above.
- Lead a team of 45 members which had a budget of around 0.3 million INR and turnover of 0.6 million INR.
- Reached the position of coreship in final year gradually from the stage of volunteer in first year.
SAARANG is Annual Cultural Festival of IIT Madras

Summary

Self-driven and innovative researcher with expertise in data-driven computational methods/A.I. models for dynamical systems and more than 6 years of experience in high level programming. It is my strong desire to build on this experience and create cutting-edge solutions at the intersection of data-driven science with the traditional physics-based methods.

Research and Work experience

Post-Doc @MPI — Physics Enhanced Machine learning — 09/21 - present

-Development of parsimonious dynamical models using scientific machine learning
- Discovery of physically interpretable continuum models of materials science from experimental data

Scientist @TCOMS — Development of digital twin of deep water ocean basin — 03/20 - 09/21

-Reconstruction of ocean wave field from instantaneous probe data using the concepts of compressed sensing
- Reduced order models for fast propagation of multi-directional ocean wave fields
- Data-driven models for reconstruction and propagation of multi-directional ocean wave fields

Research Scholar, Research Engineer @NUS — Data-driven computing for stability analysis and prediction of fluid-structure interaction — 08/15 - 03/20

- Data-driven computing for stability analysis of passive suppression
- Hybrid reduced order model for fluid structure interaction
- Convolutional recurrent autoencoder networks for complete prediction of flow field.
- Model order reduction for nonlinear evolution of ocean waves

Publications

- Bukka, S. R., Law, Y. Z., Santo, H., Chan, E. S. (2021). Reduced order model for nonlinear multi-directional ocean wave propagation. Physics of Fluids, 33(11), 117115.
- Bukka, S. R., Gupta, R., Magee, A. R., Jaiman, R. K. (2021). Assessment of unsteady flow predictions using hybrid deep learning based reduced-order models. Physics of Fluids, 33(1), 013601
- Bukka, S. R., Magee, A. R., Jaiman, R. K. (2020). Stability analysis of passive suppression for vortex-induced vibration. Journal of Fluid Mechanics, 886.

Scholastic Achievements

- All India Ranks: IIT-JEE 2887/ out of 0.5 million, AIEEE 2788 out of 1 million, GATE 90 in Engineering Sciences Paper, EAMCET 3566 out of 0.2 million (state level)

Extra Curricular Activities and Interests

- Runner up in basket-ball, volley ball and kho- kho games in school competitions
- Participated in three Half Marathons and a full Marathon in singapore.
- Taekwondo practitioner, currently at black belt
- Outdoor person with great affinity towards martial arts, driving, adventure sports, travel and fitness