TEJASWIN PARTHASARATHY

Graduate Student

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PROFILE: Graduate student interested in application of numerical fluid dynamics across scales to understand and use systems involving fluid-structure interaction

RESEARCH INTERESTS: Fluid physics, applied mathematics, numerical algorithms, high performance computing, flow and instability control, aeroacoustics

🎓 EDUCATION

2016 - Present
University of Illinois Urbana-Champaign (UIUC)

Masters
Major : Mechanical Sciences
Cumulative GPA : **4.00/4.00**

2012 - 2016
Indian Institute of Technology, Madras (IITM)

B.Tech. (Honours)
Major : Mechanical Sciences
Cumulative GPA : **9.67/10.00**
Rank : **2/160**

☰ PUBLICATIONS

T Parthasarathy, FK Chan and M Gazzola
Viscous streaming for transport enhancement at finite Reynolds numbers (submitted)
Journal of Fluid Mechanics, 2018

T Parthasarathy and SP Das
Effect of synthetic jet parameters on controlled flow over an airfoil
International Journal of Fluid Mechanics Research, 2017

T Parthasarathy and SP Das
Some aspects of flow control over a NACA0015 airfoil using synthetic jets
Journal of Physics: Conference Series, 2017

T Parthasarathy, VS Ragavan and S Santhanakrishnan
ADAMS-MATLAB co-simulation of a serial manipulator
MATEC Web of Conferences, 2017

📢 CONFERENCES

T Parthasarathy and M Gazzola
Scaling for flows induced by oscillating cylinders
Bulletin of the Americal Physical Society, 2017

M Gazzola and **T Parthasarathy**
Viscous streaming for locomotion and transport
Bulletin of the Americal Physical Society, 2017

🏆 AWARDS

MechSE Distinguished Fellowship (UIUC)   **2016**
Awarded to select graduate students for scholastic aptitude

Dr. Vivekanand Kochikar Award   **2016**
Best academic record in the 5th & 6th semester of B.Tech.

Dr. Dinesh Balagangadhar Prize   **2016**
Best academic record in the first seven semesters of B.Tech.

Z-Wing Award   **2016**
Best overall performance in the Narmad dormitory (B.Tech.)

Nissan Global Foundation Scholarship   **2014**
Best scholastic & extra-curricular performance across IITM

KVPY Fellowship & DST-Inspire Fellowship   **2012**
Awarded to select students in India for scientific aptitude

National Olympiad (Physics, Astronomy) finalist **2011**
Finalist among all high-schools across India

🔍 RESEARCH PROJECTS

Simulation and applications of viscous streaming (Masters)
Dr. Mattia Gazzola, UIUC (2016-Present)
» Constructed and validated numerical tools to simulate viscous streaming flows across the dynamical parameter spectrum
» Investigated streaming physics and harnessed it for enhancing transport in a representative drug-delivery system

Flow control over airfoils using synthetic jets
Dr. Shyama Prasad Das, IIT Madras (2015-2016)
Executed a numerical parametric study exploring the physics and quantitative benefits of synthetic-jet based fluid flow control

Virtual environment for robotics education
Dr. Soundarapandian S, IIT Madras (2014-2015)
Designed a game engine to simulate varied manipulator arms, coupling it with path-planning and control algorithms to virtually recreate robotic environments—for use as visual teaching aids

📄 COURSE PROJECTS

A solver for the steady stokes PDE using integral equation methods coupled with fast algorithms
Prof. Andreas Klöckner, CS598, UIUC

A solver for the steady stokes PDE using hybrid Finite Element Methods (FEM)
Prof. Paul Fischer, CS555, UIUC

A Navier Stokes solver for simulation of atmospheric phenomenon
Prof. Brian Jewett, CSE566, UIUC

Analytical solutions for inviscid flow past arbitrarily distributed circular cylinders
Prof. Arul Prakash, AM5530, IITM

🔧 RELEVANT SKILLS

Languages: C, C++, Python, Matlab, Bash and $\LaTeX$

Software: Version Control (Git) , Parallelism APIs (OpenMP, TBB)

💼 EXPERIENCE

May 2015 - July 2015
Hindustan Unilever Ltd.

Engineering Intern, India
Soaps division

» Designed and implemented an automatic reel-changing mechanism for soap tablet wrapping, reducing downtime from **41 s** per reel change to **4 s** thus saving **$ 11000** per annum (p.a.) per line
» Initiated the rollout of the above universal, safe and maintainable design across affiliated soap factories in India
» Investigated and solved the issue of tablet infeed jamming, reducing the incidence by **90%** thus recovering **$ 6314** p.a. in direct costs
» Secured the **TechTris** award for holistic performance

👤 ACTIVITIES

Head, Marketing & Student Relations
Shaastra 2016, Annual Technical Festival of IITM

» Managed one of Asia's biggest technical festival, with a budget of **$165000** & footfall of **30000,** as part of its steering committee
» Spearheaded a team of **40** and organised **21** events across India to reach out to **20000** students directly
» Extended professional hospitality services to **1500** participants despite logistical difficulties caused by the 2015 South India floods