Dear **Professor Swanson**,

I introduce myself as an undergraduate student from india. As a result of my application to your department at the university of washington (Department of Applied Mathematics), I have obtained an official offer of admittance for the Master of science program. I am summarizing my relevant undergraduate research in the following points.

- I have added more functionalities to an existing in-house multipurpose fluid flow solver. This solver is based on a new porosity based approximation of immersed boundary methods.

- I have coded a marker cell based fluid flow solver on a staggered grid.

- I have coded a finite volume based direct forcing immersed boundary method.

- I have comprehended and used an existing code to compute Lagrange coherent structures (which we have presented in the symposium organized by IUTAM (International Union of Theoretical and Applied Mechanics)

- I have presented at 4 international conferences as result of the above mentioned works. Additionally we are in the process of submitting our new draft to the journal of fluids and structures.

Although I have not worked in Mathematical biology, I have the following qualities listed in your requirements page:

- Experience with computational methods

- Experience in computer programming

- Experience in visualization of results

- Excellent Communication skill (I have obtained an IELTS speak section score 8.0 out of the maximum possible 9.0)

- Enthusiasm for communicating results

I have also attached the contact details of my professors at the final section of this document, in case you needed to know more about me. I would also be happy to talk to you through the telephone or through Skype, in case you need to interview me. I am also in search of a faculty advisor for my studies, will you be interested in taking me as your student ?

Sincerely,
Sudharsan Madhavan

M. SUDHARSAN

IIIT D&M KANCHEEPURAM

IIT MADRAS CAMPUS

Chennai-600 036

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EDUCATION

QUALIFICATION	INSTITUTION	YEAR OF COMPLETION	PERCENTAGE OF MARKS OBTAINED
10th std	New prince matriculation, higher secondary school, Chennai	2006	84.2
12th std	St. Johns matriculation higher secondary school, Chennai	2008	85.08
B.Tech (7th semester)	IIIT D&M, KANCHEEPURAM,	2008-currently pursuing	8.28/10

AREA OF INTEREST

- Scientific computing and numerical analysis
- Mathematical modeling
- Fluid mechanics and Heat Transfer
- Optimization and linear algebra

RELEVANT COURSES UNDERTAKEN

- Numerical methods and Scientific computing
- Operational Research and Genetic algorithm
- Fluid Mechanics and Heat Transfer
- Computational Fluid Dynamics
- Linear Algebra
- Probability and statistics

PUBLICATIONS

[1] **M. Sudharsan**, S. Ganga Prasath, S. Jayavel, and Shaligram Tiwari. Flow and heat transfer for flow past elliptic tubes in fin-tube heat exchangers. In *Proceedings of the 37th National and 4th International Conference on Fluid Mechanics and Fluid Power*. IIT Madras, 2010.

[2] S. Ganga Prasath, **M. Sudharsan**, and S. Jayavel. Numerical study of heat transfer and vortex shedding characteristics due to unsteady flow past square cylinders. In *Proceedings of the 37th National and 4th International Conference on Fluid Mechanics and Fluid Power*. IIT Madras, 2010.

[3] **M. Sudharsan**, S. Ganga Prasath, and S. Jayavel. Numerical study on the effect of suction and blowing on flow past two inline cylinders. In *Proceedings of International Conference on Theoretical, Applied, Computational and Experimental Mechanics*, IIT Kharagpur, 2010.

[4] S. Ganga Prasath, **M. Sudharsan**, and S. Jayavel. Numerical study on influence of blowing on lid-driven cavity flow using LCS. International Union of Theoretical and Applied Mechanics Symposium on Bluff body flows, IIT Kanpur, 2011.

PROJECTS

- Summer 2009 - Design and fabrication of low speed open-circuit wind-tunnel.
- Winter 2009 - Development of numerical code to simulate fluid flow using Marker and Cell Algorithm from the scratch.
- Summer 2010 - Development of numerical code to simulate fluid flow using fractional-step based finite volume immersed boundary-direct forcing technique from the scratch.
- Winter 2010 - Experimental calibration of Hot-wire Anemometer and validation of wind tunnel using bluff body studies.
- Summer 2011 - Industrial internship at BHEL R&D, IIT Madras Research park - Simulating flow through valves of complex geometry using OpenFoam.
- Current - Performing simulations with an existing in-house numerical code based on fixed grid porosity approach.

COMPUTER SKILLS

CODING LANGUAGES	C, C++, MATLAB, FORTRAN.
GEOMETRY MODELING SOFTWARES	PRO/ENGINEER, AutoCAD, FreeCAD.
SIMULATION SOFTWARE	OpenFoam, Fluent, SALOME, ALGOR.
PLOTTING SOFTWARES	Tecplot, gnuplot, ParaView.
OTHER SOFTWARES	Latex, Microsoft Office, iWork.
OPERATING SYSTEMS	Mac OS X, Ubuntu, Windows.

EXTRA CURRICULAR ACTIVITIES

✶ Coordinator - for the Environmental Conscious group, National Services Scheme, IIIT D&M

✶ Volunteer - NSS JEE Coaching Group - Taught IIT-JEE Mathematics for selected students from Govt.Hr.Sec.School with responsibilities including the conduct of periodic assessment tests.

✶ NSS Teaching Group Member - Taught Mathematics for 11th std children at Taramani Govt. Hr.Sec. school.

✶ Stood 4th in under-18 category of State-level Children Chess Tournament (conducted by Saranya chess academy)

PERSONAL DETAILS

Date of Birth	15th May 1991
Sex	Male
Marital status	Single
Nationality	Indian
Permanent Address	24/62, Door No: A4, Anand apartments , Warren road, Mylapore, Chennai-600004, Tamil Nadu.

REFERENCES

• Prof. T. Sundararajan
 Professor and Head
Department of Mechanical Engineering,
IIT Madras, Chennai-600036.
Email: tsundar@iitm.ac.in

• Dr. Shaligram Tiwari
Associate Professor,
Department of Mechanical Engineering,
IIT Madras, Chennai - 600 036.
Email: shaligt@iitm.ac.in

• Dr. S Jayavel
Assistant Professor,
Department of Mechanical Engineering,
Indian Institute of Information Technology,
Design & Manufacturing (IIITD&M) Kancheepuram,
Melakottaiyur , Vandalur-Kelambakkam Road,
Chennai-600048.
Email: sjv@iiitdm.ac.in

DECLARATION

I hereby declare that all the information provided above are true to the best of my knowledge.