SREERAM RADHAKRISHNAN

The Center for Maritime Systems
Stevens Institute of Technology
711 Hudson Street, Hoboken, NJ 07030
(973) 767 8611
sradhakr@stevens.edu
http://personal.stevens.edu/~sradhakr

PROFESSIONAL OBJECTIVE

A full-time research and developmental position employing my skills in the area of acoustical oceanography, underwater acoustic propagation modeling and data analysis

EDUCATION

STEVENS INSTITUTE OF TECHNOLOGY, Hoboken, NJ

Jan 2005 – Present **Doctor of Philosophy in Ocean Engineering**
Dissertation: Real-time assessment and prediction of sound propagation in a highly variable urban estuarine environment with application to underwater detection.
Advisor: Dr. Alexander Sutin.

Sept 2003 – Dec 2004 **Master of Engineering in Ocean Engineering**
Thesis: Theoretical and experimental analysis of tethered spherical buoy instability in gravity waves.
Advisors: Dr. Raju Datla & Dr. Richard I. Hires

Relevant Coursework
Dynamic Oceanography**,** Stochastic Analysis of Ocean Waves, Estuarine Oceanography, Advanced Hydrodynamics Lab, Coastal Ocean Dynamics, Mixing of Inland & Coastal Waters, Sediment Transport, Introduction to Dynamic Meteorology, Coastal Engineering, Special Problems in Ocean Engineering - Remote Sensing of New York Harbor.

INDIAN INSTITUTE OF TECHNOLOGY (IIT) MADRAS, India

Aug 1999 - Aug 2003 **Bachelor of Technology in Naval Architecture and Ocean Engineering**
Minor: Operations Research
Senior Project: System Identification in Linear Ship Maneuvering using MATLAB.

Relevant Coursework
Fluid Mechanics**,** Introduction to Ocean Engineering & Oceanography, Marine Engineering, Ocean Wave Hydrodynamics, Computer Simulation, Vibration of Marine Structures and Acoustics, Offshore Structural Design, Physical Modeling and Instrumentation, FEM applied to Ocean Engineering.

RESEARCH EXPERIENCE

Graduate Research Assistant — **The Center for Maritime Systems**
July 2004 – Present — Stevens Institute of Technology, Hoboken, NJ

Key Contributions:

- Conducted underwater sound transmission experiments in the Hudson River estuary with a focus on transmission loss, noise level and the water column characteristics that affect propagating acoustic fields. Developed signal-processing algorithms to determine impulse response function of shallow water acoustic channels.

- Validated acoustic model predictions with experimental data and improved model predictions by incorporating realistic loss mechanisms. Analyzed model simulation results to understand the impact of variable sound speed field on the propagation of sound in an estuary. Integrated hydrodynamic and acoustic models to forecast acoustic field due to a sound source with ocean information feeding to the acoustic model.

- Utilized the BELLHOP Gaussian beam tracing model to generate eigenray plots and selectively display the multipath propagation from the source to the receiver. Analyzed channel impulse response measurements for different source-receiver spatial configurations in shallow water and obtain statistics of pulse-to-pulse acoustic fluctuations.

- Processed underwater sound recordings to develop an algorithm for the automatic detection of soniferous entities in passive acoustic signals. The algorithm was applied to identify the presence of cusk-eels in hydrophone measurements taken during acoustic surveys. The passive acoustic detection algorithm was also applied to the problem of automatically recognizing the presence of SCUBA divers in a noisy urban estuary.

- Participated as a diver in the SCUBA diver acoustic signature characterization experiment conducted in the Davidson laboratory towing tank. Gained considerable diving experience by participating in research as well as recreational dives with experienced SCUBA divers at Stevens. Currently certified as an Open-water Diver by PADI and NAUI.

- Assisted Research Engineers in carrying out hydrographic surveys and conducting field experiments in the Hudson River and New York harbor area. Worked as a deckhand on board research vessels and helped in deploying, operating and retrieving oceanographic instruments.

- Performed physical model testing of various marine crafts, coastal and offshore structures. Evaluated the stability of a spherical buoy in surface gravity waves in Davidson Laboratory towing tank as a part of master's thesis research. Analyzed the data from hydrodynamic experiments for publication.

TEACHING EXPERIENCE

Teaching Assistant — **Dept. of Civil, Environmental and Ocean Engineering**
Sept 2003 - June 2004 — Stevens Institute of Technology, Hoboken, NJ

- Taught two recitations a week for E 243 Probability and Statistics class. Administered exams, handled grades and supervised course graders. Topics included random variables, probability distributions, hypothesis testing and statistical data analysis.

- Managed Online Instructions tool (WebCT) to post assignments, solutions and grades. Held daily office hours and established individual tutoring sessions for students in need of extra help.

INTERNSHIPS

Western India Shipyard Ltd.
Goa, India
Dec 2001 - Jan 2002

- Gained extensive hands-on experience working as part of a team of technicians responsible for testing and troubleshooting shipboard mechanical systems and components.

Cochin Shipyard Ltd.
Kerala, India
May 2000 - June 2000

- Identified the various processes involved in building an entire ship from the ground up as part of the curricular industrial training at a ship building and repair yard.

INSTRUMENT SKILLS

I'm skilled in the use and installation of the following instruments:

ITC Wideband hydrophone ITC 6050C
RESON Broad Band Hydrophone TC4014
RESON Projector TC4034
Acoustic Doppler Current Profiler (ADCP) - RDI
CTD –YSI, Sea-Bird and Applied Microsystems

COMPUTER SKILLS

Programming Languages: MATLAB, FORTRAN, PASCAL
Operating Systems: Windows, DOS, UNIX (AIX, Linux, Solaris)
Software Packages: LabView, SpectraLab, AutoCAD, STAAD, Microsoft Office

SCHOLARSHIPS & AWARDS

The Center for Maritime Systems — **Research Assistantship**
Stevens Institute of Technology, Hoboken, NJ — July 2004 - Present

Civil, Environmental and Ocean Engineering — **Teaching Assistantship**
Stevens Institute of Technology**,** Hoboken, NJ — Sept 2003 - June 2004

ASCE Stevens Student Chapter Outstanding Teaching Assistant Award — May 2005

AFFILIATIONS

PADI and NAUI Certified Open Water Diver
Acoustical Society of America (ASA)
American Society of Civil Engineers (ASCE)

PUBLICATIONS

Sreeram Radhakrishnan, Alexander Sutin, "Impulse-response and acoustic fluctuation of high-frequency signals in a shallow water estuary", 156th Meeting of the **Acoustical Society of America**, Miami, Florida, November 2008 (accepted).

Sreeram Radhakrishnan, Raju Datla, Richard I. Hires (2007), "Theoretical and experimental analysis of tethered spherical buoy instability in gravity waves", **Ocean Engineering**, Elsevier, Vol. 34, pp. 261-274.

Sreeram Radhakrishnan, Alexander Sutin, Alan F. Blumberg, "Tidal time-scale variations of sound propagation in the Hudson River Estuary," **J. Acoust. Soc. Am.**, 122, 3005 (2007).

R. Stolkin, **S. Radhakrishnan**, A. Sutin, R. Rountree, "Passive acoustic detection of modulated underwater sounds from biological and anthropogenic sources," **OCEANS 2007 MTS/IEEE** Conference Proceedings, Vancouver, CA, Sep. 2007.

R. Stolkin, A. Sutin, **S. Radhakrishnan**, M. Bruno, B. Fullerton, A. Ekimov, M. Raftery, "Feature based passive acoustic detection of underwater threats," Proceedings of **SPIE** Volume 6204, 620408, Photonics for Port and Harbor Security II, May 2006.

REFERENCES

Dr. Alexander Sutin
Senior Scientist, Center for Maritime Systems
Stevens Institute of Technology,
Hoboken, NJ 07030
E-mail: Alexander.Sutin@stevens.edu
Phone: (201) 216-5339

Dr. Alan F. Blumberg
Director, Center for Maritime Systems
Stevens Institute of Technology,
Hoboken, NJ 07030
E-mail: Alan.Blumberg@stevens.edu
Phone: (201) 216-5289

Other references available upon request