Post-Doc / PhD in the Department of Marine Technologies

Salary Details: 2,500 USD per month
Contract Type: Temporary/Fixed term
Contract Term: Full time/Half time

The Underwater Acoustic and Navigation Laboratory (ANL), University of Haifa, Israel, is looking for a post-doctoral researcher and PhD students with a background in signal processing; telecommunications; networks; control; and/or navigation, and with strong skills in lab and experimental based research to work on multiple sea-related projects. Full time or half time position is possible.

Applicants are encouraged to submit their CV to:

ANLUHaifa@gmail.com

The underwater acoustic and navigation laboratory (ANL) is part of the newly established Department of Marine Technology, as part of the School of Marine Sciences in the University of Haifa. Our facilities are located in the newly established center of marine technology in the building of the Israel Oceanographic and Limnological Research (IOLR) in Shiknoma, Haifa. The ANL is active in the fields of underwater acoustic communication, underwater signal detection, object classification, underwater localization, and underwater navigation. Our research interests include channel modeling, design of algorithms and protocols, analysis, development of simulation tools, and the performing of sea experiments. We focus on applied research and develop tools for problems like underwater mine detection, navigation without GPS, communication between divers and autonomous vehicles, classification and characterisation of marine mammals and fish, tracking the motion of marine animals, and long range acoustic communication.

The equipment in the lab includes an hydroacoustic chamber, amplifiers, transducers and hydrophones for various frequency bands, deep water AUV, shallow water AUV, an ROV, several testing vessels. We are also able to perform tests directly from the lab in a testing pool and in the Shikmona reef.

Below is a brief outline of the activities in the ANL.

Hydroacoustic research:

- Underwater Acoustic Communication (mid range 1-5km, long range >50km): focus on robust medium range communication to allow transmission of text, voice, pictures, and video.
- Underwater Networks: development of entire stack layer for network supporting both unicast and broadcast transmissions for any (unknown) network topology.
- Detection of signals: development of detectors for signals of known and unknown structure to handle target detection and false alarm probabilities. Activities include:
- Underwater Image compression: Due to the low bit rate of underwater acoustic communication, the focus here will be to find unique image (pictures and video) compression techniques for the underwater environment.
- Object Detection and Classification: the objective is to detect and classify in real-time an object of interest in picture or sonar data of an AUV.
- Acoustic Measurements:

Underwater navigation research:

- Observability analysis: the goal in this study is to learn what are the navigation features that can be updated given a set of measurements and a certain type of maneuvering.
- Navigation in shallow water: the focus here is to compensate for fast time-varying pitch and roll angles due to surface waves. Activities include:
- Online calibration of sensors.
- Self-localization: the focus here is to estimate the geographical location of a sensors given transmissions from anchor nodes. Activities include:

University of Haifa, 199 Aba Khoushy Ave, Mount Carmel, Haifa, Israel 3498838, למרכה רה, הפיח 199אבא ישוח 'דש, הפיח תטיסרבינוא
Multi-Purpose Building, Room 283, 283תילכת, רדח -ונב רב
E-mail: martec@univ.haifa.ac.il Fax: 82-0488267 , סקפ: Phone: 04-8288794טל':