Foreword

Welcome to the Third International Workshop on Underwater Networks (WUWNet'08). Underwater Networking is an emerging area of research, which has a profound impact on many civilian and military applications including environmental monitoring, marine biology, earthquake detection, weather forecasting. Water systems are of vital importance to climate regulation, agriculture, nutrient production, oil retrieval and transportation, yet they represent one of the least explored frontiers. As such, there is significant interest in real-time, in-situ monitoring of aquatic environments for scientific, environmental, commercial, safety and military applications.

Underwater networking has attracted strong attention in the recent few years. Although there is a long history of underwater acoustic communication, many new applications requires networking of multiple nodes, either static or mobile, and potentially over multiple hops. The physical challenges of acoustic channel and the complexity of diverse aquatic environments require us to completely re-think network design for underwater environments. Some major challenges at the physical layer and higher layers include the severely limited range-dependent bandwidth and attenuation, extensive time-varying multi-path propagation, the low speed of sound in water that is five orders of magnitude less than that of radio waves in air. In addition, underwater nodes are neither inexpensive nor easy to deploy. These distinct features yield grand challenges to every layer of the protocol suite in underwater networks.

The call for papers attracted 26 submissions from the United States, Singapore, Italy, Switzerland, Norway, Canada and Tunisia. The program committee accepted 10 full-length papers and 5 short papers (to be presented as posters). We are also delighted to include an invited speaker, Dr. Hanumant Singh, of the Woods Hole Oceanographic Institution. The papers cover a variety of topics in underwater communications, networking, and applications. Specifically, they address acoustic modem technology, methods for localization, network topology, energy efficiency, media access control, routing protocols, and deployment considerations. We hope these proceedings will serve as a valuable reference for users, engineers, and researchers interested in underwater networks. The goal of WUWNet is, in fact, to bring together researchers and practitioners in all areas relevant to underwater networks. Thus, all layers of the protocol stack, from the physical layer to application, will be represented. Its objective is to serve as a forum for presenting state of the art research, exchanging ideas and experiences, and facilitating interaction and collaboration.

Putting together WUWNet was a team effort spanning areas of computer science, electrical engineering, environmental engineering, and ocean engineering. First of all, we would like to thank the authors and the invited speaker for providing the content of the program. We would like to express our gratitude to the program committee, who prepared reviews for papers and suggestions for improvements. We would also like to thank other organizing committee members, Shengli Zhou, Payman Arabshahi, Dario Pompili, Qilian Liang, Shu Xiao, and James Zheng Peng for our poster/demo session organization, finances, publicity, publications, local arrangements and web support. We gratefully acknowledge the student travel support of the National Science Foundation. Finally, we would like to thank our sponsors, ACM SIGMOBILE and IEEE OES, for their continued support of exploratory work in the new area.

We hope that you will find this program interesting and thought-provoking and that the workshop will provide you with a valuable opportunity to share ideas with other researchers and practitioners around the world.

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