### WUWNet’19 Program (Tentative)

**Wednesday October 23, 2019 (Day 1)**

11:00am - 1:00pm **Registration**

1:00pm - 1:30pm **Plenary Talk**
Speaker: Dr. Zheng Peng, the City College of New York

1:30pm - 2:00pm **Technical Session I-A: Underwater wireless channel modeling, communications, and data processing**
6 Extended Abstracts/5 minutes each [30 minutes]
Session Chairs: TBD

- **SLIM-Detector for Undersampling Preamble in Underwater Acoustic Communications**
  *Xin Wang* (Harbin Institute of Technology, Shenzhen, P.R. China); *Wei Li* (Harbin Institute of Technology, Shenzhen, P.R. China); *Xiaoyuan Wang* (Harbin Institute of Technology, Shenzhen, P.R. China); *Xiuqing Li* (Harbin Institute of Technology (Shenzhen), P.R. China)

- **Narrowband Interference Cancellation for Index-Modulated TDS-OFDM in Underwater Acoustic Communications**
  *Xiaohui Zhang* (Tsinghua University, P.R. China); *Jintao Wang* (Tsinghua University, P.R. China)

- **FIR-Filter-based Ambient Noise Implementation for Acoustic Underwater Communication Analysis**
  *Marcel W Rieß* (Ulm University, Germany); *Frank Slomka* (Ulm University, Germany)

- **Research on Ship Radiated Noise Enhancement Based on Automatic Encoder**
  *Luo Wuxiong* (Harbin Engineering University, P.R. China); *Li Li* (Harbin Engineering University, P.R. China); *Jing Wei Yin* (Harbin Engineering University, P.R. China); *Yu Xuesong* (Harbin Engineering University, P.R. China); *Gu Shijia* (Harbin Engineering University, P.R. China)

- **Comparison of Underwater Ambient Noise Based on past Two Years Data for Dongshan Offshore**
  *Yougan Chen* (Xiamen University, P.R. China); *Jianying Zhu* (Xiamen University, P.R. China); *Weijian Yu* (Xiamen University, P.R. China); *Xiaokang Zhang* (Xiamen University, P.R. China); *Xiaomei Xu* (Xiamen University, P.R. China)

- **Underwater Image Denoising via Approximate Message Passing with Renyi Entropy**
  *Lei Yan* (Yanshan University, P.R. China); *Jihua Lu* (Beijing Institute of Technology, P.R. China); *Huan Wang* (Beijing Institute of Technology, P.R. China); *Lihui Feng* (Beijing Institute of Technology, P.R. China); *Xinbin Li* (Institute of Electrical Engineering, Yanshan University, Afghanistan)

2:00pm - 2:30pm **Coffee Break**

2:30pm - 3:15pm **Technical Session I-B: Underwater network protocols, network architecture, implementation, and experimentation**
9 Extended Abstracts/5 minutes each [45 minutes]
Session Chairs: TBD

- **A Two-Fold Handshaking Full-Duplex MAC Protocol for Underwater Acoustic Communication Networks**
Xiaoxiao Zhuo (Zhejiang University, P.R. China); Meiyan Liu (Zhejiang University, P.R. China); Fengzhong Qu (Zhejiang University, P.R. China); Yan Wei (Zhejiang University, P.R. China); Jianghui Li (Institute of Sound and Vibration Research, University of Southampton, United Kingdom (Great Britain))

- **Data-driven Adaptive Predictive Control of Unknown Autonomous Underwater Vehicles**
  Yongpeng Weng (Dalian Maritime University, P.R. China); Ning Wang (Dalian Maritime University, P.R. China); Yi Liu (Dalian University of Technology, P.R. China)

- **Efficient Underwater Sensor Network Data Collection Employing Unmanned Ships**
  Jie Wang (The Chinese University of Hong Kong, Shenzhen, P.R. China); Jun Ma (The Chinese University of Hong Kong, Shenzhen, P.R. China); Jianyu Yang (The Chinese University of Hong Kong, Shenzhen, P.R. China); Shenghao Yang (The Chinese University of Hong Kong, Shenzhen, P.R. China)

- **Radio extension for acoustic underwater networks**
  Michael Goetz (Fraunhofer FKIE, Germany); Gunnar Schneider (Fraunhofer FKIE, Germany)

- **CDMA-Based Multi-Domain Communications Network for Marine Robots**
  Jay C Patel (Dalhousie University, Canada); Mae Seto (Dalhousie University, Canada)

- **Development of a Multi-source Energy-Harvesting Buoy for Underwater Acoustic Sensor Networking Application**
  Hovannes K. Kulhandjian (California State University, Fresno, USA); Bhanupriya Sharma (California State University, Fresno, USA); Michel Kulhandjian (University of Ottawa & Carleton University, Canada)

- **Omnidirectional Surface Vehicle for Evaluating Underwater Acoustic Communication Performance in Confined Space**
  Qiuyang Tao (Georgia Institute of Technology, USA); Aijun Song (University of Alabama, USA); Fumin Zhang (Georgia Institute of Technology, USA); Yue hai Zhou (Xiamen University, P.R. China); F Tong (Xiamen University, P.R. China); Yanhui Yu (Georgia Institute of Technology, USA); Yee Aung (Georgia Institute of Technology, USA); Joseph Lobley (Georgia Institute of Technology, USA)

- **Design of a UW-IoT Network Test Platform for Shallow Water Environment**
  Siyuan Zheng (Xiamen University, P.R. China); Weihua Jiang (Xiamen University, P.R. China); F Tong (Xiamen University, P.R. China); Xiuling Cao (Xiamen University, P.R. China); Yougan Chen (Xiamen University, P.R. China); Bing Li (Xiamen University, P.R. China)

- **Sea Experiment for Mobile Underwater Acoustic Networks**
  Wei Feng (Zhejiang University, P.R. China); Yayuan Zhang (Zhejiang University, P.R. China); Penghui Pei (Zhejiang University, P.R. China); Yuanxin Xu (Zhejiang University, P.R. China); Wen Xu (Zhejiang University, P.R. China)

3:15pm - 6:00pm **Posters and Vendor Exhibition**

6:30pm - 9:00pm **Welcome Reception**
Thursday October 24, 2019 (Day 2)

7:00am - 8:15am Registration/Breakfast

8:15am - 8:30am Opening Remarks

8:30am - 9:15am Keynote Speech 1
Speaker: Dr. Michele Zorzi, the University of Padova, Italy
Chair: TBD

9:15am – 9:45am Plenary Talk: Adaptive Networking for Underwater Acoustic Systems
Speaker: Dr. Paul Mitchell, the University of York, UK
Chair: TBD

9:45am - 10:00am Coffee Break

10:00am - 11:15am Technical Session II-A: Underwater wireless communications
2 Full Papers/22 minutes each and 2 Short Papers/15 minutes each
Session Chairs: TBD

- Empirical Characterization of Vertical Channel in Underwater Visible Light Communication [Full Paper]
  S M Towhidul Islam (Georgia State University, USA); Ashwin Ashok (Georgia State University, USA)

- Integrated Hybrid OFDM-PPM and Time-Frequency Spreading for Range-extended Underwater Optical Communications [Full paper]
  Zhuoran Qi (Rutgers University, USA); Xueyuan Zhao (Rutgers University, USA); Dario Pompili (Rutgers University, USA)

- Self-interference Characterization for In-Band Full Duplex Underwater Acoustic Communications [Short paper]
  Zheng Guo (University of Alabama, USA); Aijun Song (University of Alabama, USA); Mohammad Towliat (University of Delaware, USA); Leonard Cimini (University of Delaware, USA); Xianggen Xia (University of Delaware, USA); Chien-Chung Shen (University of Delaware, USA)

- Training-based Adaptive Channel Tracking for Correlated Underwater Acoustic Channels [Short paper]
  Xiaoyuan Wang (Harbin Institute of Technology, Shenzhen, P.R. China); Wei Li (Harbin Institute of Technology, Shenzhen, P.R. China); Yanping Liu (Harbin Institute of Technology, Shenzhen, P.R. China); Yunzhe Chen (Harbin Institute of Technology, Shenzhen, P.R. China)

11:15am - 12:10pm Technical Session II-B: Underwater Vehicles and Applications
1 Full Paper/22 minutes each and 2 Short Papers/15 minutes each
Session Chairs: TBD

Wenjie Chen (Rutgers University, USA); Mehdi Rahmati (Rutgers University, USA); Vidyasagar Sadhu (Rutgers University, USA); Dario Pompili (Rutgers University, USA)

- UW-Telepathy: Implicit Compression in Underwater Acoustic Communications for Dynamic Interaction with Semi-autonomous Underwater Vehicles [Short paper]  
  Mehdi Rahmati (Rutgers University, USA); Archana Arjula (Rutgers University, USA); Dario Pompili (Rutgers University, USA)

- Passive Localization for Multi-AUVs by Using Acoustic Signals [Short paper]  
  Kai Zheng (Dalian Maritime University, P.R. China); Yi Jiang (Dalian Maritime University, P.R. China); Yongjun Li (Gas Production Plant 1 of Petrochina Changqing Oilfield Company, P.R. China)

12:10pm - 1:00pm Lunch (Posters/Demos Setup)

1:00pm - 2:30pm Special Session I: Underwater IOT
3 Full Papers/22 minutes each and 1 Short Paper/15 minutes each  
Session Chairs: TBD

- Invited paper: Miniature Underwater Animal Tags and Smart Sensors for Civil Engineering Applications [Full paper]  
  Yahong Rosa Zheng (Lehigh University, USA); Xiyuan Zhu (Lehigh University, USA); Max Tan (Phillips Exeter Academy, USA)

- Invited paper: An adaptive TDMA-based MAC protocol for underwater acoustic sensor networks [Full paper]  
  Wael Gorma (University of York, UK); Paul D Mitchell (University of York, UK)

- A Named Data Networking Architecture Implementation to Internet of Underwater Things [Full paper]  
  Qi Zhao (University of California, Los Angeles, USA); Zheng Peng (City College of New York, USA); Xiaoyan Hong (University of Alabama, USA)

- Pipe Data Through the Water: Stress Wave Communications Along Pipelines [Short paper]  
  Debing Wei (University of Houston, USA); Chaoxian Qi (University of Houston, USA); Jiefu Chen (University of Houston, USA); Aijun Song (University of Alabama, USA); Gangbing Song (University of Houston, USA); Miao Pan (University of Houston, USA)

2:30pm - 3:30pm Technical Session II-C: Underwater Systems, Implementations and Standardization
1 Full Paper/22 minutes each and 2 Short Paper/15 minutes each  
Session Chairs: TBD

- Efficient Faster-Than-Nyquist Transceiver Design for Underwater Acoustic Communications [Full paper]  
  Dong Li (Institute of Acoustics, Chinese Academy of Sciences, P.R. China); Yanbo Wu (Institute of Acoustics, Chinese Academy of Sciences, P.R. China); Min Zhu (Institute of Acoustics, Chinese Academy of Sciences, P.R. China); Xisheng Wu (Institute of Acoustics, Chinese Academy of Sciences, P.R. China)
On Connectivity of Wireless Underwater Sensor Networks Using MI-assisted Acoustic Distributed Beamforming [Short paper]
Qingyan Ren (China University of Mining and Technology, P.R. China); Yanjing Sun (China University of Mining and Technology, P.R. China); Song Li (China University of Mining and Technology, P.R. China); Liang Zhang (Shenzhen University, P.R. China); Zhi Sun (State University of New York at Buffalo, USA)

The Effect of Acoustic-Shell Coupling on Near-End Self-Interference Signal of In-Band Full-Duplex Underwater Acoustic Communication Modem [Short paper]
Qiao Gang (Harbin Engineering University, P.R. China); Yunjiang Zhao (Harbin Engineering University, P.R. China); Songzuo Liu (Harbin Engineering University, P.R. China); Niaz Ahmed (Harbin Engineering University, P.R. China); Yinheng Lu (Harbin Engineering University, P.R. China); Yangze Dong (Shanghai Ship Research, P.R. China)

3:30pm - 4:00pm Coffee Break

4:00pm - 5:00pm Technical Session II-D: Underwater Signal Processing and Applications
2 Full Papers/22 minutes each and 2 Short Papers/15 minutes each
Session Chairs: TBD

An LSTM based Kalman Filter for Spatio-temporal Ocean Currents Assimilation [Full paper]
Ziqiao Zhang (Georgia Institute of Technology, USA); Mengxue Hou (Georgia Institute of Technology, USA); Fumin Zhang (Georgia Institute of Technology, USA); Catherine Edwards (Skidaway Institute of Oceanography, USA)

A Comparison of Kriging and Cokriging for Estimation of Underwater Acoustic Communication Performance [Full paper]
George P. Kontoudis (Virginia Tech, USA); Daniel Stilwell (Virginia Tech, USA)

A Stratified Linear Sound Speed Profile Simplification Method for Localization Correction [Short paper]
Wei Huang (Wuhan University, P.R. China); Mingliu Liu (Wuhan University, P.R. China); Deshi Li (Wuhan University, P.R. China); Yi Cen (Wuhan University, P.R. China); Shuaijun Wang (Wuhan University, P.R. China)

5:00pm - 6:00pm Posters and Vendor Exhibition

6:30pm - 9:00pm Banquet/ Panel Topics

Friday, October 25, 2019 (Day 3)

7:00am - 8:00am Breakfast

8:00am - 8:45am Keynote Speech: Going from one to many: Scaling challenges in marine robotics
8:45am - 9:15am Plenary Talk 2
Speaker: Dr. Yahong Rosa Zheng, Lehigh University
Chair: TBD

9:15am - 10:00am Memorial Session to Commemorate Prof. Mario Gerla

10:00am - 10:10am Coffee Break

10:10am - 11:40am Special Session II: Underwater Mobile Communications and Networking
1 Full Papers/22 minutes each and 4 Short Papers/15 minutes each
Session Chairs: TBD

- Virtual MIMO Transmissions for Underwater Acoustic Communications with Moving Platforms [Full paper]
  Qiang Fu (University of Alabama, USA); Aijun Song (University of Alabama, USA); Qiuyang Tao (Georgia Institute of Technology, USA); Fumin Zhang (Georgia Institute of Technology, USA); Miao Pan (University of Houston, USA)

- UW-MARL: Multi-Agent Reinforcement Learning for Underwater Adaptive Sampling Using Autonomous Vehicles [Short paper]
  Mehdi Rahmati (Rutgers University, USA); Mohammad Nadeem (Rutgers University, USA); Vidyasagar Sadhu (Rutgers University, USA); Dario Pompili (Rutgers University, USA)

- Geometric Multi-path Avoiding Approach for Adaptive Acoustic Underwater Communications [Short paper]
  Marcel W Rieb (Ulm University, Germany); Frank Slomka (Ulm University, Germany)

- R&D of a Low-complexity OFDM Modem for micro-AUV [Short paper]
  Dongsheng Chen (Xiamen University, P.R. China); Bin Li (Xiamen University, P.R. China); F Tong (Xiamen University, P.R. China); Qiuyang Tao (Georgia Institute of Technology, USA); Fumin Zhang (Georgia Institute of Technology, USA)

- MAC Protocol for Underwater Acoustic Networks Based on Deep Reinforcement Learning [Short paper]
  Xuan Geng (Shanghai Maritime University, P.R. China); Yahong Rosa Zheng (Lehigh University, USA)

11:40am - 1:30pm Lunch (Demos/Vendor Exhibition around the Swimming Pool)

1:30pm - 2:40pm Technical Session III-A: Underwater Networking
1 Full Paper/22 minutes each and 3 Short Papers/15 minutes each
Session Chairs: TBD

  Zheng Peng (City College of New York, USA); Dmitrii Dugaev (City College of New York, USA)
Prolonging the Lifetime of Underwater Sensor Networks Under Sinkhole Attacks [Short paper]  
_Huseyin Ugur Yildiz_ (TED University, Turkey)

A Heterogeneous Network with Multiple Routing Protocols for Autonomous Underwater Vehicles [Short paper]  
_Penghui Pei_ (Zhejiang University, P.R. China); _Yayuan Zhang_ (Zhejiang University, P.R. China); _Wei Feng_ (Zhejiang University, P.R. China); _Yuanxin Xu_ (Zhejiang University, P.R. China); _Wen Xu_ (Zhejiang University, P.R. China)

Deep Reinforcement Learning Based MAC Protocol for Underwater Acoustic Networks [Short paper]  
_Xiaowen Ye_ (Xiamen University, P.R. China); _Liqun Fu_ (Xiamen University, P.R. China)

2:40pm - 3:50pm **Technical Session III-B: Underwater Sensing, Localization and Security**
1 Full Paper/22 minutes each and 3 Short Papers/15 minutes each
Session Chairs: _TBD_

- **Jamming the Underwater: a Game-Theoretic Analysis of Energy-Depleting Jamming Attacks** [Full Paper]  
_Alberto Signori_ (University of Padova, Italy); _Chiara Pielli_ (University of Padova, Italy); _Federico Chiariotti_ (University of Padova, Italy); _Marco Giordani_ (University of Padova, Italy); _Filippo Campagnaro_ (University of Padova, Italy); _Nicola Laurenti_ (University of Padova & CNIT, Italy); _Michele Zorzi_ (University of Padova, Italy)

- **Human Activity Classification in Underwater using sonar and Deep Learning** [Short paper]  
_Hovannes K. Kulhandjian_ (California State University, Fresno, USA); _Narayanan Ramachandran_ (California State University, Fresno, USA); _Michel Kulhandjian_ (University of Ottawa & Carleton University, Canada); _Claude D’Amours_ (University of Ottawa)

- **Active Jamming for Eavesdropping Prevention in Underwater Wireless Networks** [Short paper]  
_Yun Ye_ (City University of New York, USA); _Zheng Peng_ (City University of New York, USA); _Arun Raj Kumar P_ (NIT Calicut, India); _Vasudevan A R_ (NIT Calicut, India); _Xiaoyan Hong_ (University of Alabama, USA)

- **Feasibility Study for Authenticated Key Exchange Protocols on Underwater Acoustic Sensor Networks** [Short paper]  
_Chiara Petrioli_ (University of Rome, Sapienza, Italy); _Gabriele Saturni_ (University of Rome, Sapienza, Italy); _Daniele Spaccini_ (University of Rome, Sapienza, Italy)

3:50pm - 4:00pm **Coffee Break**

4:00pm - 6:00pm **Panel Discussion**
Panelists: _TBD_

6:30pm - 9:30pm **Banquet on a three-hour yacht cruise (Best Paper/Best Demo Award/Closing Remarks)**