

## Xinqiang Chen

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## Education Background & Work

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1. 2018.7- Now Shanghai Maritime University *Institute of logistics science & engineering* **Assistant Professor, Master Supervisor**
2. 2020.05-Now: Fudan University *Department of Atmospheric and Oceanic Sciences* **Research Associate**
3. 2013.9-2018.6 Shanghai Maritime University *Traffic Information Engineering* Ph.D.
4. **2015.9-2016.9 University of Washington Traffic Engineering Visiting Ph.D.**
5. 2010.9-2012.7 Shanghai Maritime University *Traffic Information Engineering* Master

## Research Interests

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1. Video data - driven intelligent complex environment perception and understanding
2. Visual navigation for IGV under unmanned port, smart shipping
3. Large-scale transportation data analysis (traffic flow data, AIS, etc.)
4. Traffic Safety
5. Connected Vehicle

## Selected Publications (\* represents the corresponding author)

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1. **Xinqiang Chen**, Zhibin Li, Yongsheng Yang, Lei Qi, Ruimin Ke (2021). "*High-Resolution Vehicle Trajectory Extraction and Denoising from Aerial Videos*" IEEE Transactions on Intelligent Transportation Systems, 22(5): 3190-3202. (**SCI, ESI, Hot paper**).
  2. **Xinqiang Chen**, Yongsheng Yang, Shengzheng Wang, Huafeng Wu, Jinjun Tang, Jiansen Zhao, Zhihuan Wang (2020). "*Ship Type Recognition via a Coarse-to-Fine Cascaded Convolution Neural Network*", Journal of Navigation, 73(4), 813-832. (**SCI, ESI**).
  3. **Xinqiang Chen**, Shengzheng Wang, Chaojian Shi, Huafeng Wu, Jiansen Zhao, Junjie Fu (2019). "*Robust ship tracking via multi-view learning and sparse representation*", Journal of Navigation, 72(1), 176-192. (**SCI, ESI**).
  4. **Xinqiang Chen**, Huixing Chen, Yongsheng Yang, Huafeng Wu, Wenhui Zhang, Jiansen Zhao, Yong Xiong (2021). "*Traffic flow prediction by an ensemble framework with data denoising and deep learning model*" Physica A: Statistical Mechanics and Its
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Applications, 565(2021), 1-11. (SCI, ESI).

5. **Xinqiang Chen**, Lei Qi, Yongsheng Yang, Qiang Luo, Octavian Postolache, Jinjun Tang, Huafeng Wu (2020). "*Video-based Detection Infrastructure Enhancement for Automated Ship Recognition and Behavior Analysis*", Journal of Advanced Transportation, 2020, 1-12 (SCI, ESI).
  6. **Xinqiang Chen**, Xueqian Xu, Yongsheng Yang, Huafeng Wu, Jinjun Tang, Jiansen Zhao (2020). "*Augmented Ship Tracking under Occlusion Conditions from Maritime Surveillance Videos*" IEEE ACCESS, 8(1), 42884-42897. (SCI, ESI).
  7. **Xinqiang Chen**, Huixing Chen, Xianglong Xu, Lijuan Luo, Salvatore Antonio Biancardo (2022). "*Ship tracking for maritime traffic management via a data quality control supported framework*" Multimedia tools and applications, (2022) 81:7239-7252 (SCI).
  8. **Xinqiang Chen**, Jun Lin, Yongsheng Yang, Shengzheng Wang, Lijuan Luo, Ying Yan (2021). "*Ship Detection from Coastal Surveillance Videos via an Ensemble Canny-Gaussian-Morphology Framework*" Journal of Navigation, 74(6): 1252-1266. (SCI).
  9. **Xinqiang Chen**, Xueqian Xu, Yongsheng Yang, Yanguo Huang, Jing Chen, Ying Yan (2021). "*Visual Ship Tracking via a Hybrid Kernelized Correlation Filter and Anomaly Cleansing Framework*" Applied Ocean Research, 106(2021), 1-10. (SCI).
  10. **Xinqiang Chen**, Shubo Wu, Chaojian Shi, Yanguo Huang, Yongsheng Yang, Ruimin Ke, Jiansen zhao (2020). " *Sensing Data Supported Traffic Flow Prediction via Denoising Schemes and ANN: A Comparison*" IEEE Sensors Journal, 20(23), 14317-14328. (SCI).
  11. **Xinqiang Chen**, Jun Ling, Yongsheng Yang, Hailing Zheng, Pengwen Xiong, Octavian Postolache (2020). " *Ship Trajectory Reconstruction from AIS Sensory Data via Data Quality Control and Prediction*" Mathematical Problems in Engineering, 1-9. (SCI).
  12. **Xinqiang Chen**, Jinquan Lu, Jiansen Zhao, Zhijian Qu, Yongsheng Yang, Jiangfeng Xian (2020). "*Traffic Flow Prediction at Varied Time Scales via Ensemble Empirical Mode Decomposition and Artificial Neural Network*" Sustainability, 12, 1-17. (SCI).
  13. **Xinqiang Chen**, Huixing Chen, Huafeng Wu, Yanguo Huang, Yongshegn Yang, Wenhui Zhang, Pengwen Xiong (2020). "*Robust Visual Ship Tracking with an Ensemble Framework via Multi-view Learning and Wavelet Filter*" Sensors, 20(3), 1-17 (SCI)
  14. **Xinqiang Chen**, Jinbiao Zheng, Zichuang Wang, Jianjun Wu, Ying Yan. "*Abnormal Behavior Recognition under Shipping Working Environment via Asynchronous Interaction Aggregation*", Journal of Transport Information and Safety, **Accepted**
  15. **Xinqiang Chen**, Xianglong Xu, Jing Peng, Yang Sun, Zichuang Wang, Ying Yan. " *Maritime traffic pattern recognition based on Douglas-Peucker and Quick Bundles models*", Journal of Shanghai Maritime University, **Accepted**
  16. **Xinqiang Chen**, Jun Ling, Lei Qi, Yongsheng Yang, Yamin Zou (2021). " *Multi-*
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*Targets Ship Tracking via a Multi-Dimension Features Fusion and Scale Estimation "* Computer Engineering and Applications, 57(13), 246-250.

17. **Xinqiang Chen**, Zhibin Li, Yinhai Wang, Jinjun Tang, Wenbo Zhu, Chaojian Shi, Huafeng Wu (2018). "*Anomaly Detection and Cleaning of Highway Elevation Data from Google Earth Using Ensemble Empirical Mode Decomposition*", Journal of Transportation Engineering, Part A: Systems, 144(5), 1-14. (SCI).
  18. **Xinqiang Chen**, Zhibin Li, Yinhai Wang, Zhiyong Cui, Chaojian Shi, and Huafeng Wu (2017). "*Evaluating the impacts of grades on vehicular speeds on interstate highways*", PloS one, 12(9), 1-15. (SCI).
  19. Shubo Wu, **Xinqiang Chen\***, Chaojian Shi, Junjie Fu, Ying Yan, Shengzheng Wang (2022). "*Ship Detention Prediction via Feature Selection Scheme and Support Vector Machine (SVM)*" Maritime Policy & Management, 49(1):140-153. (SCI).
  20. Junjie Fu, **Xinqiang Chen\***, Shubo Wu, Chaojian Shi, Yongsheng Yang, Jiangfeng Xian (2020). "*Ship Detention Situation Prediction via Optimized Analytic Hierarchy Process and Naive Bayes Model*" Mathematical Problems in Engineering, 2020, 1-11. (SCI).
  21. Junjie Fu, **Xinqiang Chen\***, Shubo Wu\*, Chaojian Shi, Huafeng Wu, Jiansen Zhao, and Pengwen Xiong (2020). "*Mining Ship Deficiency Correlations from Historical Port State Control (PSC) Inspection Data*" PloS one, 15(2), 1-19. (SCI).
  22. Xueqian Xu, **Xinqiang Chen**, Bing Wu, Zichuang Wang, Jinbiao Zhen. "*Exploiting high-fidelity kinematic information from port surveillance videos via a YOLO-based framework* " Ocean & Coastal Management, (SCI, accepted).
  23. Jiansen Zhao, Jinquan Lu, **Xinqiang Chen\***, Zhongwei Yan, Ying Yan, Yang Sun. "*High-Fidelity data supported Ship Trajectory Prediction via an Ensemble Machine Learning Framework*" Physica A: Statistical Mechanics and its Applications, 586(2022), 1-10, (SCI).
  24. Jinjun Tang, Jin Hu, Wei Hao, **Xinqiang Chen\*** and Yong Qi\* (2020). "*Markov Chains based route travel time estimation considering link spatio-temporal correlation*" Physica A: Statistical Mechanics and its Applications, 545(2020), 1-13. (SCI).
  25. Qiang Luo, Jie Yuan, **Xinqiang Chen\***, Shubo Wu, Zhijian Qu, and Jinjun Tang\* (2019). "*Analyzing start-up time headway distribution characteristics at signalized intersections*", Physica A: Statistical Mechanics and its Applications, 535(2019), 1-10 (SCI).
  26. Zhijian Qu, Xubing Sun, **Xinqiang Chen\***, and Shengao Yuan (2019). "*A novel RFID multi-tag anti-collision protocol for dynamic vehicle identification*" PloS one, 14(7): e0219344 (SCI).
  27. Qiang Luo, Xiaodong Zang, Jie Yuan\*, **Xinqiang Chen\***, Junheng Yang, Shubo Wu (2020). "*Research of Vehicle Rear-End Collision Model considering Multiple Factors* " Mathematical Problems in Engineering, vol. 2020 (SCI).
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28. Qiang Luo, Jie Yuan\*, **Xinqiang Chen\***, Junheng Yang, Wenhui Zhang and Jiansen Zhao (2019). "*Research on mixed user equilibrium model based on mobile internet traffic information service*" IEEE ACCESS, 7, 164775-164791 (SCI).
  29. Jinjun Tang, Fan Gao, Fang Liu, **Xinqiang Chen\*** (2020). "*A Denoising Scheme Based Traffic Flow Prediction Model: Combination of Ensemble Empirical Mode Decomposition and Fuzzy C-means Neural Network*" IEEE ACCESS, vol. 8, 11546-11559 (SCI).
  30. Qiang Luo, **Xinqiang Chen**, Jie Yuan, Xiaodong Zang, Junheng Yang and Jing Chen (2020). "Study and Simulation Analysis of Vehicle Rear-End Collision Model considering Driver Types" Journal of Advanced Transportation, vol. 2020: 1-11. (SCI).
  31. Jinjun Tang, **Xinqiang Chen**, Zheng Hu, Fang Zong, Chunyang Han, and Leixiao Li (2019). "*Traffic flow prediction based on combination of support vector machine and data denoising schemes*" Physica a-statistical mechanics and its applications, vol. 534, 120642. (SCI).
  32. Wen Liu, Yuanqiao Wen, **Xinqiang Chen**, and Yuxu Lu (2021). "An enhanced CNN-enabled learning method for promoting ship detection in maritime surveillance system," Ocean Engineering, vol. 235, p. 109435. (SCI).
  33. Yang Sun, Xinqiang Chen, Jun Ling, Jiansen Zhao, Qinyou Hu, Xianghui Fang, Ying Yan (2021), "Ship trajectory cleansing and prediction with historical ais data using an ensemble ANN framework" International journal of innovative computing information and control, 17(2): 443-459. (EI)
  34. Jinjun Tang, Shen Zhang, **Xinqiang Chen**, Fang Liu, and Yajie Zou (2018). "*Taxi trips distribution modeling based on Entropy-Maximizing theory: A case study in Harbin city-China*" Physica A: Statistical Mechanics and its Applications, vol. 493: 430-443. (SCI).
  35. Jiansen Zhao, **Xinqiang Chen**, Shengzheng Wang, Wei Liu, Baoxian Ji, Yue Liu, Zhen Sun, and Tie Xu (2017). "*A Study of the Characteristics of a Deformable Antenna Based on Gas Discharge*" IEEE Transactions on Antennas and Propagation, vol. 66, no. 1: 59-70. (SCI).
  36. Huafeng Wu, Xiaojun Mei, **Xinqiang Chen**, Junjun Li, Jun Wang, and Prasant Mohapatra (2018). "*A novel cooperative localization algorithm using enhanced particle filter technique in maritime search and rescue wireless sensor network*" ISA transactions, vol. 78: 39-46. (SCI).
  37. Haoyang Yan, Zhiyong Cui, **Xinqiang Chen**, Xiaolei Ma. "*Distributed Multi-Agent Deep Reinforcement Learning for Multi-line Dynamic Bus Timetable Optimization*" IEEE Transactions on Industrial Informatics, Preprint. (SCI).
  38. Zhijian Qu, Hanxin Liu, Hailin Wang, **Xinqiang Chen**, Rui Chi, Zixiao Wang (2020). "*Cluster equilibrium scheduling method based on backpressure flow control in railway power supply systems*" PLoS ONE, vol. 15, no. 12: 1-23 (SCI).
  39. Salvatore Antonio Biancardo, Francesco Avella, Ernesto Di Lisa, **Xinqiang Chen**,
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- Francesco Abbondati, Gianluca Dell'Acqua (2021). "*Multiobjective Railway Alignment Optimization Using Ballastless Track and Reduced Cross-Section in Tunnel*" Sustainability, 13: 1-19, (SCI).
40. Ruyi Feng, Changyan Fan, Zhibin Li, **Xinqiang Chen** (2020). " *Mixed Road User Trajectory Extraction from Moving Aerial Videos based on Convolution Neural Network Detection*" IEEE ACCESS, 1-12 (SCI).
  41. Jinjun Tang, Shaowei Yu, Fang Liu, **Xinqiang Chen**, and Helai Huang (2019). "A *hierarchical prediction model for lane-changes based on combination of fuzzy C-means and adaptive neural network*" Expert Systems with Applications, vol. 130: 265-275. (SCI).
  42. Wenhui Zhang, Yongmin Su, Ruimin Ke, and **Xinqiang Chen** (2018). "*Evaluating the influential priority of the factors on insurance loss of public transit*" PloS one, vol. 13, no. 1: e0190103. (SCI).
  43. Jiansen Zhao, Shengzheng Wang, Huafeng Wu, Yue Liu, Yongmeng Chang, and **Xinqiang Chen** (2017). "*Flexible plasma linear antenna*" Applied Physics Letters, vol. 110, no. 9: 094108. (SCI).
  44. **Xinqiang Chen**, Yongsheng Yang, Huafeng Wu, Ruimin Ke. "*Detecting Ships from Coastal Surveillance Videos with a Canny-Gaussian Morphology Framework*" The 99th Annual Meeting of Transportation Research Board, 2020, **(Poster Presentation)**.
  45. **Xinqiang Chen**, Zhibin Li, Yongsheng Yang, Huafeng Wu, Ruimin Ke, and Wenzhu Zhou. "*Extracting and Denoising Vehicle Trajectory Automatically from Aerial Roadway Surveillance Videos*" The 98th Annual Meeting of Transportation Research Board, No. 19-03147, 2019, **(Poster Presentation)**.
  46. Zhibin Li, **Xinqiang Chen\***, Lei Ling, Huafeng Wu, Wenzhu Zhou, and Cong Qi. "*Accurate Traffic Parameter Extraction from Aerial Videos with Multi-Dimensional Camera Movements*" The 98th Annual Meeting of Transportation Research Board, No. 19-02817, 2019, **(Poster Presentation)**.
  47. **Xinqiang Chen**, Chaojian Shi, Shengzheng Wang, Huafeng Wu, Zhibin Li, and Jibiao Zhou. "*Recognizing typical merchant ship categories based on a deep network*" The 97th Annual Meeting of Transportation Research Board, No. 18-02544. 2018, **(Poster Presentation)**.
  48. **Xinqiang Chen**, Chaojian Shi, Shengzheng Wang, Huafeng Wu, Jiansen Zhao, and Zhibin Li. "*Automatic tracking of ships based on maritime surveillance videos*" The 97th Annual Meeting of Transportation Research Board, No. 18-02553. 2018, **(Poster Presentation)**.

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1. **Xinqiang Chen**, Zichuang Wang, Zhibin Li, Yongsheng Yang, Ruimin Ke, Octavian Postolache. "*Traffic parameter exploitation from unmanned aerial videos under multi-dimension camera movement interference*" IEEE Transactions on Instrumentation & Measurement, **(SCI, under review)**.
  2. **Xinqiang Chen**, Jinbiao Zheng, Daolun Feng, Bing Wu, Jakub Montewka, Salvatore Antonio Biancardo. " *Maritime traffic situation awareness analysis via high-fidelity ship imaging trajectory*" Journal of Navigation, **(SCI, under review)**.
  3. **Xinqiang Chen**, Zichuang Wang, Qiaozhi Hua, Wenlong Shang, Qiang Luo, Keping Yu. " *AI-Empowered Speed Extraction via Port-like Videos for Vehicular Trajectory Analysis* " IEEE Transactions on Intelligent Transportation Systems, **(SCI, under review)**.
  4. **Xinqiang Chen**, Xingyu Wu, Dilip K. Prasad, Bing Wu\*, Octavian Postolache, Yongsheng Yang. " *Pixel-wise Ship Identification from Maritime Images via a Semantic Segmentation Model* " IEEE Sensors Journal, **(SCI, under review)**.

## **Selected Projects (PI/Co-PI)**

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1. Ship trajectory tracking from maritime images under hybrid navigation environment interference, **National Natural Science Foundation of China, PI**
2. **China Postdoctoral Science Foundation (No. 2021M700790), PI**
3. **Fund of National Engineering Research Center for Water Transport Safety (No. A2022003), PI**
4. **Foundation for Jiangsu key Laboratory of Traffic and Transportation Security (No. TTS2021-05), PI**
5. **Fund of Hubei Key Laboratory of Inland Shipping Technology (NO. NHHY2021002), PI**
6. Highway Grade Characterization and Operating Efficiency Methods, Tools and Data Development (**Sponsored by Federal Highway Administration**).
7. Drive net phase II: Online moving Washington platform for network-wide system operations, monitoring and analysis (**Sponsored by Washington State Department of Transportation**).
8. Regional Map Based Analytical Platform for State-Wide Highway Safety Performance Assessment (**Sponsored by Regional Transportation Center for Federal Region 10**).
9. The three-dimensional dynamic cooperative localization mechanism of ocean sensor network based on the ocean wave shielding effect model (**Sponsored by National Natural Science Foundation of China**)
10. Dynamic topology and spatial-temporal stochastic coverage mechanism of maritime search and rescue wireless sensor networks (**Sponsored by National Natural Science Foundation of China**).

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11. Maritime target detection via GNSS-R and heterogeneous sensor information fusion method for maritime surveillance (**Sponsored by National Natural Science Foundation of China**).
  12. Energy-friendly route design based on big data and machine learning (**Sponsored by Shanghai Municipal Education Commission**).
  13. Study on the mechanism of dynamic topology and temporal and spatial random coverage of wireless sensor network in maritime search and rescue (**Sponsored by Shanghai Municipal Education Commission**).

## **Academic Service/Honors/Memberships**

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- **Leading Guest Editor** for Journal of Advanced Transportation (SCI, 2021)
- **Guest Editor** for Sensors (SCI, 2021)
- **Guest Editor** for Applied Sciences (SCI, 2021)
- **Guest Editor** for Sustainability (SCI, 2020)
- **Guest Editor** for Frontier Frontiers in Future Transportation (2021)
- **Area Editor** for the COTA CICTP (2020-21, **Best Area Editor award**)
- **Session Chair** for the 3rd International Conference of the Yangtze River Research and Innovation Belt (2020)
- **Outstanding Reviewer** of Maritime Policy & Management (SCI)
- **Outstanding Reviewer** of Journal of King Saud University-Computer and Information Sciences (ESCI)
- Member of TRB AW010(3) Subcommittee on Port Performance
- Academic Committee Member of World Transport Convention 2018, 2019, 2020 (WTC 2018, 2019, 2020)
- Member of Technical Program Committee of International Conference on Data Science and Business Analytics (ICDSBA 2018)
- Member of Technical Program Committee of International Conference on Sensing and Instrumentation in IoT Era (ISSI 2018)
- Member of Technical Program Committee of 2018 the third International Conference on Electrical, Control and Automation Engineering (ECAE2018)
- Committee Member of 2018 International Symposium on Traffic Transportation and Civil Architecture (ISTTCA 2018)
- **Editorial Board Member** of SCIREA Journal of Computer
- **Editorial Board Member** of SCIREA Journal of Information Science and Systems Science
- **Editorial Board Member** of SCIREA Journal of Traffic and Transportation
- **Editorial Board Member** of Journal of Shipping and Ocean Engineering
- **Editorial Board Member** of International Journal of Transportation Engineering and Technology
- Member of International Association of Engineers

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- Second-class prizes of outstanding graduate students achievements of Shanghai Maritime University
  - Reviewer of IEEE Transactions on Intelligent Transportation Systems (SCI)
  - Reviewer of IEEE Transactions on Neural Networks and Learning Systems (SCI)
  - Reviewer of IEEE Transactions on Multimedia (SCI)
  - Reviewer of ACM Transactions on Intelligent Systems and Technology (SCI)
  - Reviewer of Ocean Engineering (SCI)
  - Reviewer of Maritime Policy & Management (SCI)
  - Reviewer of IET Intelligent Transportation Systems (SCI)
  - Reviewer of Transportation Research Record (SCI)
  - Reviewer of IEEE Sensors Journal (SCI)
  - Reviewer of Journal of Transportation Engineering, Part A: Systems (SCI)
  - Reviewer of Geo-spatial Information Science (SCI)
  - Reviewer of Journal of Navigation (SCI)
  - Reviewer of Computer Journal (SCI)
  - Reviewer of Connection Science (SCI)
  - Reviewer of Circuit World (SCI)
  - Reviewer of Journal of Intelligent Transportation Systems Technology, Planning, and Operations (SCI)
  - Reviewer of Transport Policy (SCI)
  - Reviewer of Journal of Computational Design and Engineering (SCI)
  - Reviewer of International Journal of Remote Sensing (SCI)
  - Reviewer of Physica A: Statistical Mechanics and Its Applications (SCI)
  - Reviewer of Journal of Transport and Land Use (SCI)
  - Reviewer of Mathematics (SCI)
  - Reviewer of Alexandria Engineering Journal (SCI)
  - Reviewer of International Journal of Environmental Research and Public Health (SCI)
  - Reviewer of Journal of Advanced Transportation (SCI)
  - Reviewer of International Journal of Intelligent Robotics and Applications (SCI)
  - Reviewer of Scientific Programming (SCI)
  - Reviewer of Transportmetrica B: Transport Dynamics (SCI)
  - Reviewer of Advances in Civil Engineering (SCI)
  - Reviewer of Journal of Marine Science and Engineering (SCI)
  - Reviewer of IEEE ACCESS (SCI)
  - Reviewer of PLoS ONE (SCI)
  - Reviewer of Sustainability (SCI)
  - Reviewer of Sensors (SCI)
  - Reviewer of Processes (SCI)
  - Reviewer of Energies (SCI)
  - Reviewer of Entropy (SCI)
  - Reviewer of Physics (SCI)



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- Reviewer of Mathematical Problems in Engineering (SCI)
  - Reviewer of International Journal of Information Technology and Web Engineering (EI)
  - Reviewer of Journal of King Saud University - Computer and Information Science (ESCI)
  - Reviewer of The Journal of Engineering
  - Reviewer of International Journal of Transportation Science and Technology Reviewer of Smart Cities
  - Reviewer of International Journal of Transportation Science and Technology
  - Reviewer of TRB (ABJ50 committee)
  - Reviewer of TRB (ADB20 committee)
  - Reviewer of TRB (ABJ70 committee)
  - Reviewer of the COTA International Conference of Transportation Professionals (CICTP 2017, CICTP 2018, CICTP 2019, CICTP 2020, CICTP 2022)
  - Reviewer of International Conference on Physics, Mathematics and Statistics (ICPMS 2018)
  - Reviewer of the World Transport Convention (WTC 2018, WTC 2019, WTC 2020, WTC 2021)
  - Reviewer of International Conference on Data Science and Business Analytics (ICDSBA 2018)
  - Reviewer of International Conference on Sensing and Instrumentation in IoT Era (ISSI 2018, ISSI 2019)
  - Reviewer of ASCE International Conference on Transportation & Development (ICTD 2020)
  - Reviewer of International Conference on Fuzzy Systems and Data Mining (FSDM 2020)
-