

Sheng-Long Kao

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Research Interests

Mobile Communication Systems (MCSs), Marine Geographic Information System (MGIS), Marine Intelligent Transportation Systems (MITs), AIS CubeSat, AI method for Smart Harbor and Fuzzy Spatial Decision Support Systems (Fuzzy SDSSs) for navigation safety and ship collision avoidance.

Education

09/1997~07/2006 **The National Taiwan Ocean University, Taiwan, R.O.C.**

Environmental Biology and Fisheries Science from NTOU. Ph.

D. Dissertation: “Studies on the navigation and operation safety system for vessels by Fuzzy Guarding Ring”

Advisor: Dr. K. T. Lee

09/1991~06/1994 **National Taiwan Ocean University, Taiwan, R.O.C.**

M.B.A., Marine Technology.

09/1989~06/1991 **National Taiwan Ocean University, Taiwan, R.O.C.**

B.S., Navigation Technology.

Research Experience

1. **Assistant Teacher** of Navigation Technology of N.T.O.U. (07/1991~07/2006)

2. **Assistant Professor** of Transportation Science in N.T.O.U. (08/2006~07/2017)

3. **Associate Professor** of Transportation Science in N.T.O.U. (08/2017~Present)

Work Experience

Assistant Teacher of Navigation Technology of N.T.O.U. (07/1991~07/2006)

Publications (in preparation for journal submissions)

1. Wu-Hsun Chung, Sheng-Long Kao, Chun-Min Chang, Chien-Chung Yuan (2019, Nov). Association rule learning to improve deficiency inspection in port state control. *Maritime Policy & Management*.
2. C. M. Su, K.Y. Chang, S. L. Kao, C. Lin (2019, May). A Study on Seaworthiness of the Kinmen-Xiamen Fairways by Fuzzy Method. *Journal of Marine Engineering & Technology (SCI)*, 27(1), 1-7.
3. S. L. Kao, C. K. Hsueh, C. C. Chou, T. Y. Yuan (2018, Mar). A Decision-making Support System for Determining Automatically the Route Priority of Vessels Entering/Exiting the Ports. *Transportation Journal (SCI)*. (Accepted).
4. Sheng-Long Kao, Ki-Yin Chang, Tai-Wen Hsu (2017, Mar). Fuzzy Grounding Alert System for Vessel Traffic Service via 3D Marine GIS. *Journal of Marine Science and Technology (SCI)*, 25(2),186-195..
5. Sheng-Long Kao, Ki-Yin Chang (2017, Jan). Study on Fuzzy GIS for Navigation Safety of Fishing Boats. *Journal of Marine Engineering & Technology (SCI)*, 16(2), 84-93.
6. Jia Lin Lin, Sheng Long Kao, Ming An Lee (2017). A feasibility of CubeSat Automatic Identification System on the fishing application in Taiwan. *Journal Of The Fisheries Society Of Taiwan*, 44(2), 27-36.
7. K.Y. Chang, S.S. He, C.C. Chou, S.L. Kao, A.S. Chiou (2015, May). Route planning and cost analysis for travelling through the Arctic Northeast Passage using public 3D GIS. *International Journal of Geographical Information Science (SCI)*, 29(8), 1375-1393.
8. Shih-Chan Ting, Jaw-Shen Wang, Sheng-Long Kao, Flor Melina Pitty (2010, Jun). Categorized stacking models for import containers in port container terminals. *Maritime Economics & Logistics (SCI)*, 12(2), 162-177.
9. M.C. Tsou, S.L. Kao, C.M. Su (2010, Jan). Decision Support from Genetic Algorithms for Ship Collision Avoidance Route Planning and Alerts. *The Journal of Navigation (SCI)*.
10. Sheng-Long Kao, Kuo-Tien Lee, Ki-Yin Chang, Min-Der Ko (2007, Mar). A Fuzzy Logic Method for Collision Avoidance in Vessel Traffic Service. *The Journal of Navigation (SCI)*, 60, 17-31.
11. 高聖龍、薛朝光、袁自揚 (2016 年 12 月)。MGIS平台下船舶近岸航行

之避障航路規畫模式建構與開發。海運學報，93-112。本人為第一作者。

- 12.黃燦煌、高聖龍、楊智傑（2014年10月）。可變反光標記設計之研究。
管理資訊計算，46-53。
- 13.蘇健民、高聖龍、張啟隱、鄭智湧（2010年06月）。海洋地理資訊系統
應用於船舶復航決策。**航運季刊**，19(2)，23-38。
- 14.高聖龍、邱柏翰、蘇健民（2009年03月）。船舶載具自動避碰安全系統
解析。**船舶與海運通訊**，63，2-4。
- 15.邱柏翰、高聖龍、蘇健民（2009年01月）。海洋地理資訊系統於電子海
圖之研究。**地理資訊系統季刊**，3(1)，16-20。
- 16.高聖龍、李明安、李國添、莊昇偉（2006年07月）。雷達波應用在小型
漁船避碰安全之研究。**海洋及水下科技季刊**，16(2)，3-7。
- 17.高聖龍、李國添、李明安、柯明德（2005年06月）。海洋環境地理資訊
系統於水文環境監測之研發。**水產學會會刊**，32(2)，159-173。(SCI)。
- 18.高聖龍、李國添、柯明德（2003年06月）。漁船自動識別系統AIS之比
較分析。**水產學會會刊**，30(2)，131-145。(SCI)。
- 19.柯永澤、李台生、楊國誠、李耀輝、高聖龍（1994年11月）。船速與船
軌跡量測之即時差分式全球衛星定位系統。**中國造船暨輪機工程學
刊**，13(2)，141-151。

Publications (in refereed conference proceedings)

1. Sheng-Long Kao, Chien-Min Su, Ming-Feng Yang, Lu-An Chen. Fuzzy Closed-Loop Supply Chain Considered Container Return Time. *International Multi Conference of Engineers and Computer Scientists*, 2019, pp. 381-385, (EI).
2. S. L. Kao, C. M. Su, M. R. Tu and C. H. Lin. Empty Container Dispatching Inventory Model in Fuzzy Environment. *International Multi Conference of Engineers and Computer Scientists*, 2019, pp. 447-451, (EI).
3. Chien-Min Su, Sheng-Long Kao, Ming-Fung Yang, and Cheng-Hao Lin. Empty Containers Inventory System with Fuzzy Demand. *International Multi Conference of Engineers and Computer Scientists*, 2019, pp. 537-541, (EI).
4. Hsin-Hsiung Fang, Chien-Min Su, Sheng-Long Kao, and Lu-An Chen. Integrated Inventory Model for Returnable Transport Items considered Container Return Time and Fuzzy Demand. *International Multi Conference of Engineers and Computer Scientists*, 2019, pp532-536, (EI).
5. Mengru Tu, Po-Hsun Shih, Ming-Feng Yang, Cheng-Kuan Lin, and Sheng-Long Kao. Using Multi-Objective Genetic Algorithm on Order Picking System. *International Multi Conference of Engineers and Computer Scientists*, 2019, pp35-39, (EI).
6. T. Shao, S. Kao and C. Su. Taiwan AIS CubeSat Tracking System for Marine Safety. *2019 International Conference on Intelligent Computing and its Emerging Applications (ICEA)*, Tainan, Taiwan, 2019, pp. 70-73, (IEEE).
7. Sheng-Long Kao, Jia-Lin Lin, Pei-Yi Chen, Ying-Ting Wang, Co-Ler Ho, Li-Yu Chang, Li-Hsueh Chang, Yi-Hua Tseng, Shih-Chia Peng (2019, Nov). Study on the FS-5 Remote Sensing in Algae Reef. *International Conference on Astronautics and Space Exploration (iCASE2019)*, Taiwan.
8. Sheng-Long Kao, Jia-Lin Lin, Ming-An Lee (2019, Oct). The Fuzzy Method for Vessel Speed Limit and Pollution Reduction on Summer in Keelung Port. *4th IAG'i Symposium*, Japan.
9. Meng-Ru Tu, Ming-Feng Yang, Sheng-Long Kao, Min-Der Ko, Cheng-Kuan Lin (2019, Jul). A Novel Multi-Objective Genetic Algorithm to Improve Warehouse Picking Efficiency. *International Conference on Innovative Computing and Management Science (ICMS2019)*, Japan.
10. Meng-Ru Tu, Sheng-Long Kao, Tsai-fu Hu, Chan-Min Tsai (2019, Jul). Innovative Blockchain System for Global Supply Chain Trade. *International*

- Conference on Innovative Computing and Management Science (ICMS2019), Japan.
11. Sheng Long Kao, Meng-Ru Tu, Chien-Min Su, Yung-Shang Cheng and Jia Lin Lin (2019, Jul). Fuzzy Crossing Priority for Inland River Bridge. International Conference on Innovative Computing and Management Science (ICMS2019), Japan.
 12. Sheng-Long Kao, Jia-Lin Lin, Meng-Ru Tu (2019, Jul). The Green Harbor Speed Limit for Reducing Air Pollution by Fuzzy Method. International Conference on Innovative Computing and Management Science (ICMS2019), Japan.
 13. Sheng-Long Kao, Ming-An Lee, Hsun-Tsan Shen, Jia-Lin Lin, Pei-Yi Chen (2019, Jun). Taiwan AIS CubeSat Remote Sensing System for Navigation Safety. International Conference on Earth Observations and Societal Impacts 2019, Taiwan.
 14. Anson Tai, Alex Wang, Randson Huang, S.-L. Kao, Chen-Joe Fong, Ming-Shong Chang, Henry Chen, Stan Lee, Albert Lin, Chih-Chien Liu (2018, Nov). The Torque Design and Analysis in YuSat-1. 2018 UP to Space International Symposium, Tainan.
 15. Jia-Lin Lin, Sheng-Long Kao, Ki-Yin Chang (2018, Jul). Study on the Fuzzy Division Method for Speed Limit and Pollution Reduction in Green Ports. 18th Asian Conference on Maritime System and Safety Research, Taiwan.
 16. S.-L. Kao, Ming-An Lee, Anson Tai, Hsun-Tsan Shen, Chih-Chien Liu, Alex Ming, Randson Huang, Chen-Joe, Fong, Albert Lin, Ming-Shong Chang, Henry Chen (2018, Jul). The Taiwan Global Yushan AIS CubeSat for Marine and Land Big Data Applications. International Conference on Earth Observations and Societal Impacts (ICEO&SI 2018), Hsinchu.
 17. Ying-Ting Wang, Sheng-Long Kao, Hsun-Tsan Shen, Chien-Min Su (2018, Jul). The Optimal Speed for Green Energy Boat in Sun Moon Lake. 18th Asian Conference on Maritime System and Safety Research, Taiwan.
 18. Yung-Shang Cheng, Sheng-Long Kao, Chien-Min Su (2018, Jul). Bridge Crossing Priority Index by Fuzzy Logic Control. 18th Asian Conference on Maritime System and Safety Research, Taiwan.
 19. Tai, J.-C. Lee, S. Chen, R. Huang, S.-L. Kao, C.-J. Fong, M.-S. Chang, H. Chen, S. Lee, A. Lin (2017, Jun). YUSAT-1 CubeSat: Global AIS/APRS Tracking System for Marine and Land Safety. ICEO-SI 2017, Yi-Lan.

20. Chun-Min Chang, Wu-Hsun Chung, Sheng-Long Kao, Chien-Chung Yuan (2017, May). Association Analysis on Inspection Deficiencies of Ships in Port State Control. International Forum on Shipping, Ports and Airports (IFSPA 2017), Hong Kong.
21. Sheng-Long Kao, Chen-Joe Fang (2016, Nov). CubeSat Solution for AIS Radio Blind Coverage Sea Areas in Taiwan. Remote Sensing Satellite Technology Workshop 2016, Taiwan, Hsinchu.
22. Sheng-Long Kao, Tai-Wen Hsu, Ki-Yin Chang (2016, Oct). Applications for Fuzzy theory in AIS for vessel Traffic safety. The fifth international multi-conference on engineering and technology innovation, Taiwan.
23. Sheng-Long Kao, Ki-Yin Chang, Chien-Min Su (2015, Dec). 3D Fuzzy Grounding Alert System for Ship Maneuvering Based on Shallow Water Point. The 9th International Symposium on Mobile Mapping Technology, Sydney, Australia.
24. Wu-Hsun Chung, Sheng-Long Kao, Chao-Wei Chen, Hsiao-Cheng Chang, (2015, Dec). Application of AIS and GIS on the Improvement of Carbon Emissions in a Green Port. 2015 International Symposium on Environmentally Conscious Design and Inverse Manufacturing(2015 Eco Design), Tokyo, Japan .
25. Shih-Chan Ting, Sheng-Long Kao, Flor Melina Pitty (2009, Jan). Categorized stacking for imported containers in port container terminals. Proceedings of the Eastern Asia Society for Transportation Studies, Surabaya, Indonesia.
26. Sheng-Long Kao, Chien-Min Su, Chih-Yung Cheng, Kao, Ki-Yin Chang (2007, Nov). A new method of collision avoidance for vessel traffic service. International conference on maritime technology. NSC 96-2416-h-019-012.
27. 高聖龍、何可樂 (2019 年 09 月)。台灣西岸離岸風機海域船舶航道之規劃。2019 海峽兩岸第七屆"海事風險評估與管理"研討會，海南，中國。
28. 高聖龍、陳沛沂 (2019 年 09 月)。立方衛星酬載AIS應用於多船舶監測。2019 海峽兩岸第七屆"海事風險評估與管理"研討會，海南，中國。
29. 林佳霖、陳沛沂、王盈婷、何可樂、高聖龍、張立雨、張莉雪、曾怡華、

- 彭思嘉 (2019 年 08 月)。福衛五號於藻礁遙測之研究。108 年第 38 屆測量及空間資訊研討會，臺灣。
30. 高聖龍、鄭詠尚、牟軍敏、蘇建民 (2018 年 12 月)。模糊區分法建立內陸河船舶橋樑通過之優先順序指標。2018 海峽兩岸第六屆海事風險評估與管理研討會，臺灣。
31. 高聖龍、王盈婷、沈勳燦 (2018 年 12 月)。日月潭綠能船航行速度之最適化。2018 海峽兩岸第六屆海事風險評估與管理研討會，臺灣。
32. 高聖龍、林佳霖、張啟隱 (2018 年 12 月)。模糊區分法於綠色港口限速減排之研究。2018 海峽兩岸第六屆海事風險評估與管理研討會，臺灣。
33. 陳昭維、鍾武勳、高聖龍 (2016 年 12 月)。應用 AIS、GIS 與模糊邏輯於港口船舶空汙排放之監控以基隆港為例。105 年運輸年會暨學術論文國際研討會，臺灣。
34. 高聖龍、張孝誠、吳貞怡 (2016 年 12 月)。基因演算法於漁船應急回報路徑之研究。105 年運輸年會暨學術論文國際研討會，臺灣。
35. 高聖龍、袁自揚、薛朝光 (2016 年 07 月)。船舶交通服務之船舶行路權模糊區分法-以基隆港航道為例。第 62 屆航海節學術研討會，臺灣。
36. 高聖龍、薛朝光、袁自揚 (2015 年 12 月)。模糊區分船舶交通服務之

- 船舶航路權。中華民國運輸學會 104 年學術論文研討會，海洋大學。
37. 蘇健民、高聖龍、林川（2014 年 12 月）。模糊方法於金廈航道規劃之研究。中華民國運輸學會 103 年學術論文研討會，南投市。
38. 高聖龍、錢威任、張孝誠（2014 年 12 月）。智慧型動態資訊系統於日月潭電動船管理與驗船(The Intelligent Dynamic Information Systems for Sun Moon Lake Electric Boat Management and Ship Trial)。中華民國運輸學會 103 年學術論文研討會，南投市。
39. 高聖龍、袁自揚、洪逸樺、張孝誠（2014 年 12 月）。空間決策支援於金門船舶交通管理系統雷達站選址之研究(Research of Spatial Decision Support site selection for Kinmen VTS radar stations)。中華民國運輸學會 103 年學術論文研討會，南投市。
40. 張啓隱、何曉詩、高聖龍（2014 年 03 月）。3D地理資訊系統應用於北極東北航道規劃及效益分析。2014 海空運學術論文研討會。
41. 蘇健民、高聖龍、林川（2014 年）。金廈航道適航性評估之研究。2014 年海峽兩岸海事風險評估與管理學術研討會。
42. 高聖龍、李明安、許築安（2013 年 12 月）。模糊虛擬助礙航設施於海上避碰之研究。中華民國運輸學會 102 年學術論文研討會，宜蘭淡江大學宜蘭校區。

43. 高聖龍、陳婷婷、蘇健民、廖坤靜（2010 年 08 月）。海峽兩岸污染防治之交通安全規劃。兩岸海洋污染防治學術交流研討會，台北。
44. 高聖龍、蘇健民、蕭力豪、張啟隱（2009 年 12 月）。船舶 3D 擱淺警戒系統應用於近岸航行。第七屆十校聯盟航運物流學術研討會，台北海洋技術學院。
45. 高聖龍、蘇健民、邱柏翰（2009 年 11 月）。運轉受限制船舶模糊避碰警示系統之開發。第二屆兩岸海上救助打撈技術研討會，台北。
46. 高聖龍、蘇健民、邱柏翰（2009 年 10 月）。整合 AIS 及 MGIS 應用於港灣油污監控。國際海上污染防治及應急技術研討會，北京，中國。
47. 鄒明城、高聖龍、蘇健民（2009 年 05 月）。遺傳演算法於船舶避碰路徑規劃與預警之研究。2009 海峽兩岸智慧型運輸系統學術研討會，台灣。
48. 邱柏翰、高聖龍、蘇健民（2008 年 11 月）。模糊理論與海洋地理資訊系統應用於漁船航行安全警示之研究。中華民國運輸學會 97 年年會暨學術論文國際研討會，高雄第一科技大學，高雄。
49. 高聖龍、蘇健民、邱柏翰（2008 年 09 月）。作業中漁船模糊避碰警示機制之研究。第五屆中國國際救撈論壇論文集，大連，中國。國科會：96-2622-E-019-008-CC3。

50. 邱柏翰、高聖龍、蘇健民（2008年04月）。AIS與MGIS整合用於港埠監控。中華海員品質提升研討會，台北。

Patents

Sheng-Long, Kao, “Method for small-scale fishing boat equipped with RADAR receiver to avoid ship collision and the RADAR receiver therefore”, (12/331,258) **US7,710,309** (2009)

Languages

English, Chinese, Taiwanese