

*The Hong Kong Polytechnic University*  
*Department of Logistics and Maritime Studies*  
*Research Seminar*

**Development of a Non-Parametric Classifier:  
Effective Identification, Algorithm, and Applications in Port  
State Control for Maritime Transportation**

by

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**Date: 9 April 2019 (Tuesday)**  
**Time: 10:00am - 11:00am**  
**Venue: R501, Shirley Chan Building**  
**The Hong Kong Polytechnic University**

**(Conducted in English)**

**Abstract:**

Maritime transportation plays a pivotal role in economy and globalization, while it does render threats and risks to maritime environment. In order to maintain the maritime safety, one of the most important mitigation solutions is the Port State Control (PSC) inspection. In this paper, a data-driven Bayesian network classifier named TAN classifier is developed to identify the high risk foreign vessels coming to the PSC inspection authorities. By using data on 250 PSC inspection records from Hong Kong port in 2017, we construct the structure and quantitative parts of the TAN classifier. Then the proposed classifier is validated by another 50 PSC inspection records from the same port. The results show that compared with the current Ship Risk Profile selection scheme that is implemented in practice, the TAN classifier can discover 130% more deficiencies on average. The proposed classifier can help the PSC authorities to better identify sub-standard ships as well as to allocate resources.

**Bio:**

YAN Ran is currently pursuing her Master of Philosophy under the supervision of Dr. Hans (Shuaian) WANG. Her interested research areas include using big data to improve ship efficiency, maritime safety and maritime transportation.

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**All are welcome!**