



Louisville **Section Technical Meeting**

Date: Thursday, May 19, 2022

Time: Presentation at 6:00 PM

Location: IEEE WebEx Virtual Meeting
RSVP to Charlie Waters for Logon Details

Price: Free

RSVP: Charlie Waters, Section Secretary
Email: cwaters8@gmail.com

Topic: Classification of blended and malt Scotch whiskey via smart sensing

Speaker: Steven Su, University of Technology, Sydney, Australia

Wentian Zhang, University of Technology, Sydney, Australia

Taoping Liu, Academy of Advanced Interdisciplinary Research, Xidian University, China

Abstract:

Well-trained human experts can undoubtedly find the differences between whiskies, but it is still not an easy job for most consumers. For whisky authentication to become a feasible option for consumers, a rapid and simple on-site authenticity assessment solution, or an electronic nose (e-nose), has been developed. This talk will introduce a new e-nose prototype (NOS.E) developed by the NOS.E team to identify differences between whiskies. The discussion will cover both hardware design and classification algorithm development. It will also discuss the plan to improve the performance of the proposed solution, e.g., a portable carrier gas unit will be introduced in the NOS.E system to isolate the background odors coming from the environmental context.

Biographies:

Steven W. Su (M'99-SM'17) received the Ph.D. degree from the Research School of Information Sciences and Engineering, Australian National University, Canberra, Australia, in 2002. He was a Post-Doctoral Research Fellow with the Faculty of Engineering, University of New South Wales, Sydney, NSW,

Australia, from 2002 to 2006. He is currently an Associate Professor of University of Technology Sydney, Sydney, Australia. His main research interests are system control and modelling, artificial intelligence, robot-assisted rehabilitation, parameter identification. Dr. Su is a Senior Member of IEEE, and Co-chair of IEEE ACT and NSW chapter (IEEE Australian Capital Terr & New South Wales Joint Sections Control Systems Society Chapter), Australian. He published 1 book (Advances in Discrete-Time Sliding Mode Control Theory and Applications) and more than 270 international research papers.

Taoping Liu received the B.E. degree in Mechanical and Electrical Engineering from the Central South University, Changsha, China, in 2013, the M.E. degree in Mechanical Engineering from the Xi'an Jiaotong University, Xi'an, China, in 2016, and the Ph.D. degree in Biomedical Engineering from the University of Technology Sydney, Sydney, Australia, in 2021. He is currently working at the Academy of Advanced Interdisciplinary Research, Xidian University, Xi'an, China. His current research interests include machine olfactory system, machine learning, system identification, and signal processing.

Wentian Zhang received a Ph.D. degree from the University of Technology Sydney, Sydney, Australia, in 2020. He worked on the NOS.E as a Research Associate with the School of Biomedical Engineering, University of Technology Sydney. His research interests include medical devices, gas analysis system, machine learning, and signal processing.

References:

E-Nose Sniffs Out the Good Whiskey

IEEE Spectrum, Michelle Hampson, February 18, 2022

<https://spectrum.ieee.org/electronic-nose-whiskey>