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| Full Name (English): | **Qing Li** |  |
| Affiliated Institution and Title (English): | **Anhui Agricultural University** | |

Biography
(Please provide in paragraph form within 500 words.)

**Dr. Qing Li received the Ph.D degree from College of Mechanical Engineering, Donghua University in 2019. He is currently an Associate Professor in Department of Mechanical Engineering at Anhui Agricultural University, Hefei, China. He is now a visiting scholar with 1 year at Institute for Automatic Control and Complex Systems (AKS) at University of Duisburg-Essen, Duisburg, Germany. He was a Post-doctoral Research Fellow in the Department of Mechanical Engineering at University of Alberta, Edmonton, Canada, from 2019.06 to 2020.06. He was a visiting researcher at Georgia Institute of Technology, Atlanta, USA, from 2016.12 to 2018.07. He is now an Associate Professor for IEEE Sensors Journal (SCI) and Editorial Board Member for Measurement Science Review (SCI), and Editorial Board Member other international prestigious journals, and lead guest editor of special issue for 3 SCI journals. His technical interests focus on fault diagnosis and prognostics for industrial system, advanced signal processing, and more than 90 research articles and patents have been authored in these areas.**

Speech Title (English):

**Fractional quaternion Kalman filter for RUL prognosis of rotating machinery with life-cycle acceleration signals**

Speech Abstract
(Please provide in paragraph form within 500 words.)

**Deterioration prognosis and remaining useful life (RUL) estimation of rotating machinery (e.g., rolling bearings, gearbox) are of significance for improving equipment reliability and availability, reducing maintenance costs and ensuring production quality and safety. In this talk, we present a fractional quaternion Kalman filter method for RUL prognosis of rotating machinery with life-cycle acceleration signals. Some common methods and techniques used in equipment fault prediction will be discussed, then the fractional quaternion filter with random motion is formulated, and real-work application cases with rotating machinery are given. Experimental results and corresponding conclusion, the future promising direction and potential hot spots on RUL estimation will also be provided.**