

Received April 1, 2019, accepted June 7, 2019, date of publication June 12, 2019, date of current version June 26, 2019.

*Digital Object Identifier 10.1109/ACCESS.2019.2922211*

# **Robust RFID Based 6-DoF Localization for Unmanned Aerial Vehicles**

**JIAN ZHANG<sup>1</sup>, XIANGYU WANG<sup>1,2</sup>, ZHITAO YU<sup>1,2</sup>, YIBO LYU<sup>1</sup>,  
SHIWEN MAO<sup>1</sup><sup>2</sup>, (Fellow, IEEE), SENTHILKUMAR CG PERIASWAMY<sup>1</sup>,  
JUSTIN PATTON<sup>1</sup>, XUYU WANG<sup>3</sup>, (Student Member, IEEE)**

<sup>1</sup>The RFID Lab, Auburn University, Auburn, AL 36849, USA

<sup>2</sup>Department of Electrical and Computer Engineering, Auburn University, Auburn, AL 36849-5201, USA

<sup>3</sup>Department of Computer Science, California State University, Sacramento, CA 95819-6021, USA

Corresponding author: Shiwen Mao (smao@ieee.org)

This work was supported in part by U.S. NSF under Grant CNS-1702957, and in part by the RFID Lab and the Wireless Engineering Research and Education Center (WEREC) at Auburn University.