US 20240213898A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2024/0213898 A1**

Jefremow et al. (43) **Pub. Date: Jun. 27, 2024**

(54) **RESOLVER-TO-DIGITAL CONVERSION WITH ROTATION SPEED OFFSET**

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(21) Appl. No.: **18/069,307**

(22) Filed: **Dec. 21, 2022**

Publication Classification

(51) **Int. Cl.**

H02P 21/10 (2006.01)

H02P 21/09 (2006.01)

(52) **U.S. Cl.**

CPC ***H02P 21/10*** (2013.01); ***H02P 21/09*** (2016.02)

(57) **ABSTRACT**

A resolver-to-digital converter, comprising: a feedback (FB) filter chain loop having a state observer configured to estimate a rotation speed and a rotation angle of an object, based on a pair of input sine and cosine signals that are amplitude-modulated (AM) to correspond with the rotation angle of the object; and a feedforward (FF) filter chain path configured to estimate the rotation speed of the object based on the pair of input sine and cosine signals, wherein the state observer of the FB filter chain loop is further configured to offset the estimated rotation speed of the FB filter chain loop with the estimated rotation speed of the FF filter chain path to decrease a settling time of the estimated rotation angle.