# Analysis of General Rotor-Flux Oriented Vector Control Systems

ABDULLATIF HAKAMI
University of South Florida

Abstract
Reduced-order beholder for rotor flux estimation of generalization motor s are considered. The "electric current" model and "voltage" model are obtained as special cases. It is shown that the flux dynamics variant a nonlinear closed-loop scheme when the flux estimate is used for study orientation course. The beholder increase survival of the fittest is extremely critical for goodness behavior of this system. A human body work is developed, in which the dimension of any gain selection easily can be assessed. Four candidates gain selections are considered, two of which proceeds schemes that do not use the rotor speed in their equations (inherently sensor less schemes). It is also shown that for any gain selection, an equivalent synchronous-frame implementation (i.e., indirect field orientation) always exists. Forefinger Terms—Field orientation, flux estimation, generalization motor, senseless control. Induction machines (IMs), unlike synchronous machines, do not allow the flux position to be easily measured. For vector control, one must resort to flux estimation. The "current" model (CM) and "voltage" model (VM) are the traditional solutions, and their benefits and drawbacks are well known. (Due to their respective parameter sensitivities, they are useful at low and nominal speeds, respectively.) Various observers for flux estimation were analyzed in the pioneering work by Verghese and Sanders. Over the years, several other have been presented, many of which also include speed estimation.



My name is Abdullatif Hakim and I am a graduate Electrical Engineering student at the University of South Florida with emphasis on power systems. I have five years of experience at the Jazan power plant. I've completed my bachelor's degree in 2016 at Gannon University, PA and my master's degree in 2017 at University of South Florida, FL. I'm in the Ph.D. program at University of South Florida in Electrical Engineering.

Email: aah2@mail.usf.edu