



ACTIVE CONTROL OF SMART BEARINGS

By

Antoine Salama Dimitri Abboud

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY
in
Mechanical Design and Production Engineering

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Title of Thesis:

Active Control of Smart Bearings

Key Words:

journal bearings; magnetic bearings; smart integrated bearings; oil whip instability

Summary:

The work in this thesis presents the design of a smart integrated bearing which provide the load carrying capacity and controllability. The new bearing is designed, manufactured, and tested. Different control algorithms are successfully implemented leading to the elimination of the oil whip instability.

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Dedication

To the woman who supported me during this long and hard journey

‘Mum, thank you dear’

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