

## **CURRICULUM VITAE**

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### **Braden T. Warwick**

Queen's University

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March 2020

#### **Education**

**Ph.D. in Mechanical & Materials Engineering**, Queen's University 2019

Focus: Aircraft design to minimize interior cabin noise levels

Thesis: "*Vibroacoustic Analysis and Optimization of an Aft-Fuselage Mounted Twin-Engine Aircraft*"

Advisors: Prof. Chris K. Mechefske and Prof. Il Yong Kim

**B.Sc. in Engineering Physics**, Queen's University 2015

Focus: Design of a sound monitoring system for an off-shore wind farm

Thesis: "*Sound Monitoring System for the Wolfe-Island Wind Farm*"

Advisor: Prof. Jordan Morelli

#### **Academic Employment**

**Postdoctoral Fellow** 2019-present

Supervisors: Prof. Chris K. Mechefske and Prof. Il Yong Kim

Department of Mechanical & Materials Engineering, Queen's University

**Adjunct Professor** 2020-present

Department of Mechanical & Materials Engineering, Queen's University

**Teaching Fellow** 2018

Department of Electrical & Computing Engineering, Queen's University

**Research Assistant** 2015-2019

Department of Mechanical & Materials Engineering, Queen's University

**Teaching Assistant** 2015-2019

Department of Mechanical & Materials Engineering, Queen's University

**Research Assistant** 2014-2015

Department of Physics, Engineering Physics, & Astronomy, Queen's University

Supervisor: Prof. Jordon Morelli

## Non-Academic Employment

<b>Bombardier Aerospace</b> Intern Department of Acoustics and Vibrations	2018
<b>Valcoustics Canada Ltd.</b> Research Assistant	2015

## Publications

### **Peer Reviewed Journal Articles**

1. Warwick, Braden T., Il Yong Kim, and Chris K. Mechefske. "Multi-objective model updating optimization considering orthogonality." *Journal of Computational and Nonlinear Dynamics* 14.6 (2019): 061009.
2. Warwick, Braden T., Chris K. Mechefske, and Il Yong Kim. "Topology optimization of a pre-stiffened aircraft bulkhead." *Structural and Multidisciplinary Optimization* (2019): 1-19.
3. Warwick, Braden T., Il Yong Kim, and Chris K. Mechefske. "Substructuring verification of a rear fuselage mounted twin-engine aircraft." *Aerospace Science and Technology* 93 (2019): 105305.
4. Warwick, Braden T., Chris K. Mechefske, and Il Yong Kim. "Effect of bulkhead pressurization on the vibro-acoustic properties of an aft-fuselage mounted twin-engine aircraft." *Journal of Vibration and Acoustics* (2019): 1-11.
5. Warwick, Braden T., Il Yong Kim, and Chris K. Mechefske. "Damping of Powder Metal Rings" *International Journal of Vehicle Dynamics, Stability, and NVH*. (In Press).
6. Garro, Guiseppe, T.V., Braden T. Warwick, and Chris K. Mechefske. "Analysis of an automobile door closure vibroacoustic response" *Journal of Vibration and Control*. (In Press).
7. Chamberlain, Diego A., Braden T. Warwick, and Chris K. Mechefske. "Experimental modal testing and analysis of rear fuselage mounted twin-engine aircraft components" *Journal of Vibration and Acoustics*. (In Press).

### **Articles in Refereed Conference Proceedings**

1. Warwick, Braden T., Chris K. Mechefske, and Il Yong Kim. "Computational modal analysis of a twin-engine rear fuselage mounted aircraft support frame." *ASME 2017 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*. American Society of Mechanical Engineers Digital Collection, 2017.
2. Warwick, Braden T., Chris K. Mechefske, and Il Yong Kim. "Effect of stiffener configuration on bulkhead modal parameters." *ASME 2018 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*. American Society of Mechanical Engineers Digital Collection, 2018.

3. Warwick, Braden T., Il Yong Kim, and Chris K. Mechefske. "Model updating of an aircraft engine support frame." *CASI AERO Aerospace Structures & Materials*, 2019.
4. Warwick, Braden T., Chris K. Mechefske, and Il Yong Kim. "Natural Frequency Based Topology Optimization of an Aircraft Engine Support Frame." *ASME 2020 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*. American Society of Mechanical Engineers Digital Collection, 2020.

### **Poster Presentations**

1. Warwick, Braden T., Diego A. Chamberlain, Chris K. Mechefske, and Il Yong Kim. "Modal analysis of a twin-engine fuselage mounted aircraft." OAC Conference, February 2018.
2. Warwick, Braden T., Chris K. Mechefske, and Il Yong Kim. "Multi-objective model updating of an aircraft bulkhead." OAC Conference, February 2019.

### **Industry Reports**

1. Warwick, Braden T., Arinze Imasogie, and Chris K. Mechefske. "Vibration Analysis of Powered Metal Gear Rings" Stackpole, August 2019.

### **Teaching Awards & Scholarships**

Dean's Teaching Assistant Award	2019
Ontario Graduate Scholar	2018-2019
Queen Elizabeth II Graduate Scholar in Science & Technology	2017-2018
Albert H. Ruddell Award	2011-2014
Toronto Dominion Bank Higher Education Award	2012
Queen Elizabeth II Scholarship	2011
Queen's University Excellence Scholarship	2011
Katherine Doyle Scholarship	2011

### **Research Grants**

#### **NSERC CRD Grant**

"Fuselage Structural Dynamic and Vibro-acoustic Analysis, Modeling, and Optimization"

In Collaboration with Bombardier Aerospace

\$360,000 over 5 years (\$72,000/year); 2019-2024

(Wrote for applicants Prof. Chris K. Mechefske & Prof. Il Yong Kim)

### Service to the Profession

Refereed articles for:

- International Journal of Precision Engineering and Manufacturing.
- SAE International Scholarly Journals.

### Professional Memberships

American Society of Mechanical Engineers (ASME)	2017-present
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### Academic Responsibilities

#### **Undergraduate Courses Taught**

APSC 143: Introduction to Computer Programming for Engineers

MECH 482: Noise Control

APSC 100: Engineering Practice I (Teaching Assistant)

MECH 213: Manufacturing Methods (Teaching Assistant)

MECH 323: Machine Design (Teaching Assistant)

MECH 350: Automatic Controls (Teaching Assistant)

MECH 398/399: Mechanical Engineering Laboratory I and II (Teaching Assistant)

MECH 420: Mechanical Vibrations (Teaching Assistant)

MECH 448: Compressible Fluid Flow (Teaching Assistant)

#### **Student Supervision**

##### Current:

Simon Kersten, M.Sc. Mechanical and Materials Engineering	2020-present
Kevin Wrubel, B.Sc. Engineering Physics and B.Sc. in Economics	2019-present
Christopher Lam, M.Sc. Mechanical and Materials Engineering	2018-present
Ian Donaldson, M.Sc. Mechanical and Materials Engineering	2018-present

##### Past:

Arinze Imasogie, B.Sc. Mechanical and Materials Engineering	2019
Grant Murison, B.Sc. Mechanical and Materials Engineering	2019
Diego Chamberlain, M.Sc. Mechanical and Materials Engineering	2015-2018

Christopher Lam, B.Sc. Mechanical and Materials Engineering

2017

**Administrative and Service Responsibilities at Queen's University**

Lecturer for the Structural and Multidisciplinary System Design (SMSD) research group  
lecture series 2017-present

Organized the McLaughlin Hall graduate seminar series 2017-2019