

Curriculum Vitae
Jacques Muiyser

Email: jacques.muiyser@gmail.com



Personal information

Full name: Jacques Muiyser
Date of birth: 9 April 1987
Nationality: South African

Qualifications

PhD (Mechanical Engineering)	Stellenbosch University	2016
MScEng (Mechanical Engineering)	Stellenbosch University	2012
BEng (Mechanical Engineering)	Stellenbosch University	2009

Employment history

Lecturer	Department of Mechanical and Mechatronic Engineering, Stellenbosch University, South Africa	1 March 2015 - present
	Courses taught: <ul style="list-style-type: none">- Engineering Drawings 123- Machine Design A314- Machine Design B344- Vibration and Noise 354- Advanced Dynamics 814	
Junior lecturer	Department of Mechanical and Mechatronic Engineering, Stellenbosch University, South Africa	2013 - 2014

Language proficiencies

I am fluent in English and Afrikaans.

Prizes and awards

Best paper award in the Fans and Blowers track for “The Determination of Fan Blade Aerodynamic Loading from a Measured Response” at the ASME Turbo Expo 2015.

Relevant skills

On-site strain gauge application	I have been involved with the application of strain gauges to large fan blades and gearbox shafts in South Africa and Saudi Arabia. Additionally, I was involved in instrumenting structural members at the stern of the SA Agulhas II polar supply and research vessel. Finally, I was also involved in a project where various weapons were instrumented to measure chamber strain when firing 40 mm grenades.
Data acquisition systems	My research and consulting focus is the vibration and dynamic loading of very large axial flow fan systems. A typical measurement installation consists of strain being measured on rotating components as well as air flow and accelerometer measurements. As the behaviour of these systems is dependent on wind conditions all of the measurements need to be synchronised. In the past I have used HBM Quantum products for synchronisation and MicroStrain wireless bridge amplifiers for data acquisition from rotating components. In the vibration course that I teach we also make use of Siemens LMS hardware and software.
Data analysis	While I use HBM Catman for data capturing I prefer using Python or Matlab for processing and visualisation of data. The reason for this is that I often want to present a combination of data in a very specific way to communicate my findings. Also, it is often interesting to perform some statistical analysis of measured data, such as a correlation matrix or multivariate linear regressions, for the purpose of predictions or better understanding of the complex relationships between several uncontrolled variables.
Interpersonal and communication skills	As a lecturer I have taught subjects in dynamics, vibration, introductory CAD and machine design. These class sizes ranged from 6 to over 200 students where I received positive student feedback. I have also supervised a number of under- and postgraduate student projects in a one-on-one environment. Additionally, I have presented several conference papers internationally and successfully worked with clients and small teams on various consulting projects.

CFD, FEM and MBD simulations

I have completed courses in CFD (Ansys FLUENT) and FEM (MSC SimXpert), but have not used either tool extensively. I have also taught myself the basics of and used MSC ADAMS during my PhD for simple multibody dynamics simulations.

Published work

Journal publications:

1. J Muiyser, DNJ Els, SJ van der Spuy and A Zapke. *Measurement of air flow and blade loading at a large-scale cooling system fan*. R&D Journal of the South African Institution of Mechanical Engineers. (30) 30-38. 2014

Conference papers:

1. J Muiyser, DNJ Els, SJ van der Spuy and A Zapke. *Simultaneous measurement of air flow and blade loading conditions in an air-cooled steam condenser fan*. Fan 2012 International conference on fan noise, technology and numerical methods. Senlis, France, April 2012.
2. J Muiyser, DNJ Els, SJ van der Spuy and A Zapke. *Investigation of large-scale cooling system fan blade vibration*. ASME Turbo Expo 2014. Dusseldorf, Germany, June 2014.
3. J Muiyser, DNJ Els, SJ van der Spuy and A Zapke. *The determination of fan blade aerodynamic loading from a measured response*. ASME Turbo Expo 2015. Montreal, Canada, June 2015.
4. J Muiyser, DNJ Els, SJ van der Spuy and NR Basson. *Analysis of vibration inducing sources of a large-scale cooling system fan blade*. 10th South African Conference on Computational and Applied Mechanics (SACAM 2016). Potchefstroom, South Africa, October 2016.
5. CHO Lombard, DNJ Els, J Muiyser and A Zapke. *Analysis of large-scale cooling system fan gearbox loads*. ASME Turbo Expo 2017. Charlotte, NC, June 2017.
6. (accepted) DNJ Els, J Muiyser, SJ van der Spuy, C Meyer, FG Louw and A Zapke. *Performance testing of a retrofitted ACC fan*. Fan 2018 International conference on fan noise, aerodynamics, applications and systems. Darmstadt, Germany, April 2018.
7. (accepted) J Muiyser, SJ van der Spuy, A Bekker. *Comparison of sound quality metrics for axial flow fans with straight and forward swept blades*. Fan 2018 International conference on fan noise, aerodynamics, applications and systems. Darmstadt, Germany, April 2018.

Unpublished work:

1. J Muiyser. *Simultaneous measurement of air flow conditions and resultant blade and gearbox loading at large-scale cooling system fans*. Masters thesis. Department of Mechanical and Mechatronic Engineering, Stellenbosch University, South Africa. 2012.
2. J Muiyser. *Investigation of large-scale cooling system fan vibration*. PhD thesis. Department of Mechanical and Mechatronic Engineering, Stellenbosch University, South Africa. 2016.

Postgraduate student supervision

<u>Student:</u>	<u>Degree:</u>	<u>Thesis title:</u>	<u>Graduated:</u>
1. CHO Lombard	MEng	Analysis of gearbox loads in large air-cooled condensers	2017
2. E Purcell	MEng	Whole-body vibration of heavy mobile equipment operators at an open cast mine	2017
3. CFW Saunders	MEng	Identification of wave slamming on-board the S.A. Agulhas II	-
4. FS Marincowitz	MEng	Experimental investigation into the effects of windscreens on air-cooled condenser fan performance and dynamic blade loading	-
5. J van Eck	MEng	In-situ testing of an ACC fan	-
6. S Chung	MEng	The design of a computer fan based on sound quality metrics	-
7. MC Engelbrecht	MEng	Investigation of sleep disturbance on-board the S.A. Agulhas II	-