Dr Hussein Jama

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RELEVANT EXPERIENCE

June 2013 – to date **University of Nairobi, Kenya**

Senior lecturer, Department of Mechanical & Manufacturing Engineering

June 2010 – June 2013, University of Nairobi, Kenya

Lecturer, Department of Mechanical & Manufacturing Engineering

- Teaching second year and third year mechanics of solids courses in mechanical engineering
- Teaching second year strength of materials service course - to Electrical engineering students
- Teaching fourth year mechanical engineering design course
- Setting, marking and grading of assignments and examinations, demonstrating and supervising laboratory assignments.
- Guiding and supervising capstone student projects
- Secretary of committee updating engineering curriculum
- Member of school of engineering examination board
- Member of committee designing curriculum for MSc in control system program in conjunction with the department of electrical engineering
- Secretary of the committee that designed a joint program in petroleum engineering with Curtin University of Australia.

June 2015 – Mar 2020 **University of Nairobi, Kenya**

Coordinator, Petroleum Engineering Program

- Designed and got senate approval for Petroleum engineering curriculum
- Recruited academic staff for the department of Petroleum engineering
- Set-up the office for the Department of Petroleum engineering
- Procured furniture and equipment for the Department of Petroleum engineering

Feb 2009 – Jan 2010 , University of New South Wales, Sydney Australia

Research Fellow, NSW Injury Risk Management Research Centre

- Carrying out research on road safety with a particular emphasis on motorcycle crashes into roadside safety barriers. This includes data gathering, analysis and accident reconstruction.
- Accident reconstruction and computer simulations of vehicular accidents.
- Development and installation of roll-over protection system for 4-wheel drive vehicles

- Carrying out research on road safety with a particular emphasis on motorcycle crashes into roadside safety barriers. This included data gathering, analysis and accident reconstruction.

Jul 2007 – Sept 2007 Amog Consulting Engineers, Melbourne, Australia
FEA Analyst (Part time) .

- Numerical modelling of tubular structures subjected to impact loads.

Mar 2007 – Jun 2007 Victoria University, Melbourne, Australia
Research Assistant (Part time)

- Carrying out experiments on strengthening tubular structures with Carbon Fibre Reinforced Polymers (CFRP). This is will aid in rehabilitating aging infrastructure.
- Numerical modelling of tubular structures strengthened with CFRP.
- Reporting on research progress and writing scholarly publications
- Supervising and guiding 4th year students with projects on computational mechanics and experimental work.

Aug 2005 – Dec 2008 Monash University, Melbourne, Australia
Teaching Assistant

- Provide in-class and out-of-class help to students in the area of solid mechanics. These were mainly 2nd and 3rd year students.
- Marking and grading assignments and demonstrating and supervising laboratory assignments.
- Supervising and guiding 4th year students with projects on computational mechanics.
- Supervising and demonstrating computational mechanics assignments.

Dec 2003 – Aug 2005 Prodrive Automotive Technology Pty Ltd, Melbourne, Australia
Test and Homologation Engineer

- Testing of full-scale vehicles for aerodynamic parameters.
- Testing of vehicles and radiators for cooling performance.
- Testing for external noise levels emitted by motor vehicles (ADR).
- Testing of air conditioning system performance of cars.
- Testing and evaluation of wheels and tyres combinations for compliance with government regulations and customer requirements.
- Evaluation of vehicle towing capabilities and braking performance .
- Preparation and costing of test proposals, Costing and procuring vehicle parts and test equipment.
- Managing prototype vehicle and engine builds and designing test rigs and supervising their manufacture.
- Identifying and supervising the installation of test instrumentation on vehicles.
- Documenting test outcomes and reporting to internal and external customers.

Mar 2002 – Mar 2004 RMIT University, Melbourne Australia
Research/Teaching Assistant

- Provided in-class tutorials and out-of-class help to students primarily in the area of thermo-fluids and heat transfer.
- Developed teaching and course notes for off-campus based students.
- Conducted wind tunnel tests for outside organizations.
- Conducted aerodynamic and cooling performance tests on radiator rigs.
- Demonstrated practical laboratory experiments to students.
- Set and marked end-of-semester examinations.
- Assisted with writing proposals for funding requests to outside organizations by providing background work and carrying out literature review.
- Designed, managed and executed an industry-based research project to satisfy the customer and meet award conditions for master of engineering.

Jul 1999 – Jun 2000 (General Motors) Holden Ltd, Melbourne, Australia

Trainee Engineer

- Developed engineering test procedures for test dummy certification laboratory.
- Evaluated and tested prototype vehicles for rattles and squeaks.
- Assessed and reported on vehicle quality after durability drive cycles.
- Carried out full-frontal and side impact tests for vehicle certification.
- Co-ordinated prototype vehicle builds and reported on progress and completion dates to senior mangers.
- Arranged for prototype vehicle documentation and sign-offs.
- Procured and ensured that prototype parts are available when required.

TEACHING EXPERIENCE

Mechanics of Solids II – Lecturer at the department of mechanical & manufacturing engineering, University of Nairobi. This is a second year course for students majoring in mechanical engineering.

Mechanics of Solids III – Lecturer at the department of mechanical & manufacturing engineering, University of Nairobi. This is a third year course for students majoring in mechanical engineering.

Strength of materials - Lecturer at the department of mechanical & manufacturing engineering, University of Nairobi. This is a second year course for students majoring in electrical engineering.

Engineering design II **–** design of machine elements taught entirely as project based. Lecturer at the department of mechanical & manufacturing engineering, University of Nairobi. This is a fourth year course for students majoring in mechanical engineering

Statics – Sessional lecturer at the school of architectural, civil and mechanical engineering, Victoria University in 2007. Taught first year students studyng for architectural, civil and mechanical engineering degrees.

Mechanics of Solids – Tutor (teaching assistant) at the department of civil engineering, Monash University in 2006, 2007 & 2008. Taught second year students.Topics covered included normal & shear stress, torsion and geometrical and material properties.

Steel structures – Tutor (teaching assistant) at the department of civil engineering at Monash university in 2006 & 2007. Taught second year students. Topics included design criteria, flexural strength, ultimate strength, elastic-plastic behaviour and load and resistance.

Advanced structural analysis – Tutor (teaching assistant) at the department of civil engineering at Monash university in 2006. Taught fourth year students. Topics included minimum potential energy, free vibration, and an introduction to the use of the finite element method such as discretisation, element types and boundary conditions.

EDUCATION

Aug 2005 – Feb 2009 Monash University Melbourne, Australia
PhD candidate
Thesis Title: "***The Behaviour of Tubular Steel Beams Subjected to Transverse Blast Loads***"

Mar 2002 – Mar 2004 RMIT University Melbourne, Australia
M. Eng. (by research), School of Aerospace, Mechanical & Manufacturing Engineering
Thesis Title: "***Variable Area Cooling Air Intakes: A Method for Assuring Improved Aerodynamics and Adequate Engine Cooling for Passenger Vehicles***"

1997 – 2001 RMIT University Melbourne, Australia
B. Eng. (Mechanical) (Hons) School of Aerospace, Mechanical & Manufacturing Engineering

February - April 2008 & May and June 2006 Visiting scholar - Blast Impact Survivability Research Unit (BISRU) Department of Mechanical Engineering, University of Cape Town, South Africa.

May 2008, Visiting Scholar –Structural impact Laboratory (SimLab), Department of Structural Engineering, Norwegian University of Science and Technology, Trondheim, Norway.

SCHOLARSHIPS AND AWARDS

2012-2013 – Deans' Committee Research Grant, University of Nairobi – Research grant worth Approx. US$3000 to investigate carbon fibre reinforced steel plates subjected to impact and blast loads.

2007 Victoria Fellowship – a travel fellowship worth $18,000 awarded by the Government of Victoria to six emerging scientists, engineers and technologists in recognition of leadership potential and to enhance their future careers, while developing new ideas that could be of benefit to Victoria.

2007 Best Departmental Presentation Award - $300 and a certificate in recognition of the best postgraduate presentation out of 22 students at the Department of Civil Engineering, Monash University .

Aug 2005 – Feb 2009 Monash University Departmental Scholarship to undertake a PhD in structural engineering.

2002 – 2004 Australian Post graduate Award – Industry (APA-I) scholarship to undertake a master of engineering degree by research.

EXAMINATION OF HIGHER DEGREES AND PEER REVIEW

Examination of Masters thesis "*Characterisation of Corrosion Rate for Metal Materials for Water Tanks in Sub-Saharan Africa*" by Fakher Jribi, Department of Mechanical Engineering, Pan African University, Institute for Basic Sciences, Technology & Innovation, August 2020.

Examination of Masters thesis "*Investigation on the Beneficiation Methods for Local Iron Ore for Making Steel*" by Alvin Kipron Bett, Department of Mechanical Engineering, Jomo Kenyatta University of Agriculture and Technology, May 2018.

Examination of Masters thesis " *The Response of Circular Plates Subjected to Repeated Uniform Blast Loads: An experimental and Numerical Study*" by Travies Henchie, Department of Mechanical Engineering, University of Cape Town, March 2013.

Peer reviewer for the **2009 Australasian Conference of Road Safety Research, Policing and Education Conference,**

SCHOLARLY PUBLICATIONS

Peer Reviewed Journals

1. **Jama H.H**., Nurick G.N., Bambach M.R., Grzebieta R.H. & Zhao X-L. (2012) *Steel Square Hollow Sections Subjected to Transverse Blast Loads* Thin Walled Structures, Volume 53 Pages 109 – 122
2. **Jama H.H**., Grzebieta R.H., Friswell R. & McIntosh A. (2011) *Characteristics of fatal motorcycle crashes into roadside safety barriers in Australia and New Zealand* Accident Analysis and Prevention, Volume 43 Issue 3, Pages 652 - 660.
3. Bambach M.R., Zhao X-L & **Jama H.H,.** (2010) *Energy Absorbing Characteristics of Aluminium Beams Strengthened with CFRP subjected to Transverse Blast Loads* International Journal of Impact Engineering Volume 37 Issue 1, Pages 37 - 49
4. **Jama H.H**., Bambach M.R, Nurick G.N., Grzebieta R.H. & Zhao X-L. (2009) *Numerical Modelliing of Square Tubular Steel Beams Subjected to Transverse Blast Loads* Thin Walled Structures, Volume 47 Issue 12 Pages 1523 - 1534
5. Bambach M.R., **Jama H. H** & Elchalakani M.(2009) *Static and Dynamic Axial Crushing of Spot-Welded Thin-walled Composite Steel-CFRP Square Tubes* International Journal of Impact Engineering, Volume 36 Issue 9 Pages 1083 - 1094
6. Bambach M.R., **Jama H. H** & Elchalakani M. (2009) *Axial Capacity and Design of Thin-walled Steel SHS Strengthened with CFRP* Thin-Walled Structures, Volume 47 Issue 10, Pages 1112 - 1121
7. Bambach M.R., **Jama H.,** Zhao X-L & Grzebieta R. H. (2008) *Hollow and Concrete Filled Steel Hollow Sections Under Transverse Impact Loads*, Engineering Structures, Volume 30, Issue 10, Pages 2859 - 2870

Peer-Reviewed Conference Papers

1. **Jama H.H.,** Bambach M., Nurick G.N., Grzebieta R. & Zhao X-L. "*The Energy Consumed in the Flectural Bending and Local Cross-sectional Deformation of SHS Steel Beams Subjected to Blast Loads* ", in 8th International on Structures under Shock and Impact Loads, Adelaide, Australia, 2nd– 4th Dec 2009.
2. Bambach M.R., Elchalakani M. & **Jama H.H.** " *CFRP Strengthening of Steel Tubes for Impact Energy Absorbtion*", in 8th International on Structures under Shock and Impact Loads, Adelaide, Australia, 2nd– 4th Dec 2009.
3. Grzebieta R., **Jama H.,** Friswel R., McIntosh A & Attard M. "*Overview of Motorcycle Crashes into Roadside Barriers*", in 2009 Australasian Conference of Road Safety Research, Policing and Education Conference, Sydney Australia, 11th –13th Nov 2009.
4. **Jama H.,** Elchalakani M. & Bambach M. *"Axial Crushing of High Strength Square Steel Columns Strengthened with Carbon Fibre Reinforced Polymer",* in South African Conference on Computational and Applied Mechanics, Cape Town, South Africa, 26th – 28th Mar 2008
5. **Jama H. H.,** Bambach M.R, Nurick G.N., Grzebieta R.H. & Zhao X-**L** (2007). *"Numerical modeling of the mode 1 deformation of clamped square steel beams subjected to blast loads*". 7th International Conference on Shock and Impact Loading of Structures (SILOS 07), Beijing, China, October 2007
6. Bambach M.R, **Jama H.H.,** Zhao X-L & Grzebieta R.H. *"Effect of concrete filling steel square hollow section beams under transverse impact loads".* 7th International Conference on Shock and Impact Loading of Structures (SILOS 07), October 2007, Beijing, China
7. **Jama H.H.,** Nurick G.N., Bambach M., Grzebieta R. & Zhao X-L. *"Failure Modes of Clamped Square Steel Tubes Subjected to Blast Loads",* in 4th International Structural Engineering and Construction Conference, Melbourne, Australia, 26th – 28th Sep 2007

8. **Jama H**., Bambach M., Grzebieta R. & Zhao X-L. *"Numerical modelling of Simply Supported Square Tubular Beams Subjected to a Uniform Blast Load",* 19th Australasian Conference on the Mechanics of Structures and Materials, 29th Nov - 1st Dec 2006, Christchurch, New Zealand.
9. Elchalakani M., Zhao X-L & **Jama H**. *"Structural Collapse of Slender and Non-compact Circular Tubes subjected to Large Deformation Pure Bending",* 19th Australasian Conference on the Mechanics of Structures and Materials, 29th Nov - 1st Dec 2006, Christchurch, New Zealand.
10. **Jama H**., Nurick G., Bambach M., Grzebieta R . & Zhao X-L. "*Failure Modes and Thresholds of Square Tubular Steel Beams Subjected to Blast Loads*", The 2nd International Conference on Design and Analysis of Protective Structures, 13th - 15th Nov 2006, Singapore.