

Dr. Horizon Walker Gitano-Briggs

USM Dept. of Mechanical Engineering
14300 Nibong Tebal, Penang, Malaysia

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HorizonUSM@yahoo.com

EDUCATION

Colorado School of Mines, Golden CO, August 1984 to May 1988
B. Sc. Engineering Physics, May 1988

University of California at San Diego, August 1988 to December 1991
M. Sc. Mechanical Engineering, December 1991

Colorado State University, Fort Collins CO, Aug. 2001 to May 2004
Ph. D. Mechanical Engineering, May 2004

WORK EXPERIENCE

Conner Peripherals, San Jose CA and Longmont CO, 1992 to 1995
Component level head/disk tribology tester development

Seagate Technologies (merged with Conner in 1997) Penang, Malaysia
1995 to 2001, **Managed Failure Analysis group** (6 engineers, 3 technicians)
responsible for yield and quality improvement and customer returns.
Conducted industrial training courses in Malaysia, China, and Mexico

Colorado State University, Fort Collins CO, August 2001 to Sept. 2002
Graduate Teaching Assistant occasionally lecturing full classes and teaching lab
courses in mechatronics and dynamics, grading and holding office hours

Colorado State University, September 2002 to May 2004, **Instructor**,
Prepared syllabus, tests, and assigned grades to large Junior level classes:
Mechatronics, Dynamics, Materials, Fluids Lab, Machine Design
Research included: Large bore natural gas two-stroke engine exhaust
tuning, Two-stroke motorcycle exhaust tuning, Small displacement two-
stroke engine direct injection conversion, Engine/Generator matching
Ion probe positioning system development for Boeing Space Systems
Electric Toothbrush Dynamics high-speed photography and analysis

Private Consulting, May 2004 -

Worked with various companies (Envirofit, Omnilux, Agilent, Modenas) in the
Philippines, Malaysia and the US developing product prototypes, R&D equipment and
instrumentation, establishing vehicle test centers. **Founded Focus Applied
Technologies Sdn. Bhd. in 2008** to commercialize operations.

Professor of Mechanical Engineering, Universiti Sains Malaysia, June 2006
Director of USM Engines Lab performing research in the areas of alternate energies,
fuels and engines, Direct Fuel Injection, electric vehicles and etc. Reorienting the
Mechanical Engineering curriculum to reflect greater importance of electronics and
mechatronics as well as industrial research ties.

SKILLS

Industrial project/problem management (including KT trouble shooting)
Industrial training: SPC, Disk Drive Technology, Failure Analysis
Experimental measurements and automation
Programming: PLCs, Micro Controllers, Z-80 and 8088 Assembler Language, Pascal, Fortran, Basic, C
Computer Modeling: Wave Engine Dynamics, 3-D modeling
Mechatronics, digital and analog electronics, electrical wiring for power
Gasoline engine tuning and rebuilding, 27 cc to automotive, EFI & Carbureted
Sterling Engine Development
Languages: English, Spanish, Portuguese, Malay, German
Some proficiency in Mandarin, Thai
Extensive multicultural experience over 35 countries

PAPERS

For a current list of papers please see the attached addendum

MAGAZINES

Monthly articles in "*Motor News Malaysia*" on engine technologies, 2010-2012

BOOKS

"*Small Wind Turbine Power Controllers*" pages 165-188 in the book entitled "*Wind Power*", ISBN 978-953-7619-81-7

PATENTS

US Patent 6,275,353 "Disk Drive Housing Having Cantilevered Base Slot to Reduce Mechanical Shock Damage", August 1999
US Patent 5,545,989 "Non-intrusive Measurement of Spindle Velocity, Head-Disk Interference, and Head Takeoff Velocity", Jan. 1995
US Patent 5,490,024 "High Wall Disk Clamp Design", Nov. 1993
Pending: Compression Pressurization Technique for Direct Fuel Injection
Pending: Mechanically Resonant Reflector for a Scanning Light
Malaysian Patent: Method for Determination of TDC from a 2-Stroke Waist Spark Ignition System for Direct Fuel Injection Applications
Malaysian Patent: Magnetic Coupling of an Eddy Current Dynamometer to an Engine

REFERENCES

Dr. Allan Kirkpatrick, Dept. Head, ME. CSU, allan@engr.colostate.edu
Dr. Dave Alciatore, Dept. of Mech. Eng. CSU, +1 (970) 491-6589
Dr. Rudolph Stangelmaier, Dept. of Mech. Eng. CSU, +1 (970) 214-3305
Darrell Cosper, former boss at Seagate, Malaysia +1 (361) 645-1832

ADDITIONAL RESPONSIBILITIES

Academic Program Advisor for UNI-KL MSI in Kulim, Malaysia, 2008-
Chairman of the Malaysian National Standards (SIRIM) Committee on Eclectic Motorcycles 2010-2011
Contractor for United Nations FCCC (2011-2012)
Vehicle Accident Failures Analysis for Consumers Association of Penang

Attachment to the resume of Dr. Horizon Gitano-Briggs

PUBLISHED PAPERS

- "Design and Optimization of Mechanically Resonant Torsional Spring Mechanism for Laser Light Dispersion Applications", Journal of Mechanical Design, ASME, 2011
- "Analysis of Motorcycle Fuel Consumption in Malaysia" SAE2010-10SETC-0064
- "Development of Motorcycle Drive Cycles for Malaysia" SAE2010-10SETC-0067
- "Design optimization and fatigue testing of an electronically-driven mechanically-resonant cantilever spring mechanism" Journal of Materials and design, 2010
- "Development of the Gaseous Fuel Direct Injection System for Small Two-Stroke Transports", SAE 2009-SETC
- "Small Motorcycle Electronic Port Fuel Injection Retrofitting", SAE2009-SETC-7034
- "Well-To-Wheel Energy Analysis of Conventional and Electric Motorcycles in Malaysia", SAE-2009-SETC
- "Design Analysis and Performance Prediction of the Cardiac Axial Blood Pump", Res. J. of Bio. Sci. 4 (6): 2009, ISSN:1815-8846
- "Outlet Optimization of the Centrifugal Blood Pump", J. of Eng. and App. Sci. 3(9), 2008, ISSN:1816-949X
- "Friction and Wear Characteristics of Surface Coatings in a Small Two-Stroke Utility Engine", SAE 2008-SETC-32
- "The Performance Characterization of a Direct Injection LPG Fueled Two-Stroke Motorcycle Engine", SAE 2008-SETC-0031
- "Design Optimization and Fatigue Testing of an Electronically-Driven Mechanically-Resonant Cantilever Spring Mechanism" USM Product Optimization and Simulation Conference DEC 2007
- "Two-Stroke Engine Emissions Prediction for Premixed and Directly Injected Gaseous Fuels", USM Product Optimization and Simulation Conference DEC 2007
- "Carburetor Tuning Optimization of a 120cc Motorcycle", USM Product Optimization and Simulation Conference DEC 2007
- "Frictional analysis of a small two-stroke utility engine via tear-down testing", SAE 2007-SETC-32-067
- "LPG direct injection: an alternative fuel solution to the two-stroke emissions problem", SAE 2007-23-8451
- "Design and testing of a low cost peak-power tracking controller for a fixed blade 1.2 kVA wind turbine", Elect. Pow. Qual. And Utilization, July 2008
- "Development of a Compression Pressurized Direct Fuel Injection System, SAE ICERT, September 2004
- "Design of a Compression Pressurized Air-Blast Direct Injection System for Small Displacement Two-Stroke Engines" ASME ICEF2003-785, 2003
- "Simulation of the airflow Characteristics of a Two-Stroke Natural Gas Engine with an Articulated Crank" ASME ICES2003-552, 2003
- "Effects of Exhaust Tuning on the performance of Large Bore CNG Engines" ASME 2003
- "The effect of Disk Clamping Warpage on the Tribological Performance of the Head-Disk Interface" Adv. Info. Storage Syst, Vol. 5, 1993
- "The Dynamics of 50% Style Sliders Using Laser Doppler Vibrometry" IEEE Transactions on Magnetics, MAG-27, 1991
- "The Dynamics of 'Micro' Sliders Using Laser Doppler Vibrometry"

IEEE Transactions on Magnetics, MAG-26, 1990
"The Dynamics of IBM 3380K Slider Using Laser Doppler Vibrometry"
IEEE Transactions on Magnetics, MAG-25, 1989

GRANTS

USM Short Term Grant, 19,000RM, 2006-2008, Direct Injection of Gaseous Fuels in Two-Stroke Engines
Fundamental Research Grant, 111,000RM, 2007-2010, Composite Surface Roughness Effects on Friction and Wear
Research University Grant, 898,000RM, 2007-2010, Small Engine Developments
Industrial Research Grant (BioEnergy), 5,000RM, 2006, Fuel Additive Testing
Industrial Research Grant (Modenas) Multiple:
9,881RM, 2007, Kriss 120 Oil/Fuel consumption Investigation
1,900RM, 2008, Ignition Timing Combustion Analysis
1,200RM, 2008, Initial WAVE Training
3,400RM, 2008, Superflow Dynamometer Refurbishing
1,815RM, 2009, Knock Investigation of AM120
4,000RM, 2009, Extended WAVE Training
15,000RM, 2011, Intake and Exhaust Tuning of 110cc engine
Industrial Research Grant (Ecozoil), 2,000RM, 2009, Diesel Fuel Emissions Testing
Industrial Research Grant (Envirofit International) 57,000RM, 2009, LPG-DI
Fundamental Research Grant, 82,500, 2008-2009, Artificial Heart Blood Pump Optimization

US PATENTS

Patent 6,275,353 "Disk Drive Housing Having Cantilevered Base Slot to Reduce Mechanical Shock Damage", August 1999
Patent 5,545,989 "Non-intrusive Measurement of Spindle Velocity, Head-Disk Interference, and Head Takeoff Velocity", Jan. 1995
Patent 5,490,024 "High Wall Disk Clamp Design", Nov. 1993
Pending: Compression Pressurization Technique for Direct Fuel Injection
Pending: Mechanically Resonant Reflector for a Scanning Light
Pending: TDC Determination in 2-Stroke Engine Waist Spark System

GRADUATE STUDENTS

Teoh Yew Heng, Msci. 2007-2010, Direct Injection of LPG in 2-Stroke Engines
Dhyaa Hussien, Msci. 2008-2010, Optimization of Artificial Heart Blood Pump
Wong Chee Khoon, Msci. 2008-2011, Ammonia-Water Cycle Air Conditioner
Teoh Say Lai, Msci. 2008-2011, Electronic Fuel Injection for Motorcycles
Loh Jian Haur, Msci 2008-2011, 2-Stroke DI Diesel Development
Tan Yee Hern, Msci. 2007-2011, Simulation of Gaseous Fuel Direct Injection
Lim Kar Loon, Msci. 2008-2011, Aerospace Vehicle Controls
Chong Chuong Leong, Msci. 2008-2011, Wind Energy Systems
Ahmad Syazli Mhod. Khalil, Msci. 2007-2011, Electrical Vehicle Studies
Koay Loke Kean, PhD 2009-2014, Mech. Resonant Control system
Lee Ying Wei, Msci. 2010-2013, Autonomous Vehicle Controls
Devarajan Ramasamy, PhD 2010-2015, CNG Tubulant Flame Speed Optimization
Goh Chin Yuan, Msci. 2010-2014, Autmomotive CNG Engine Optamization
Lee Jih Houh, PhD 2010-2015, Small Vehicle Efficiency Improvments
Knog Ching Hwa, Msci 2010-2014, Composite Metal Friction Reduction

Koo Aik Soon, Msci 2010-2012, Engine Torque Optamization at Low Speed
Vigren Radha, Msci. 2010-2014, Wind Energy Systems
Ali Jamaluddin, Msci 2007-2011, Small Engine Friction and Wear