# **CURRICULUM VITAE**

#### **Personal Information**

Surname : Abidin First name : Zainal

Address : 8902 Hetherington Drive, San Antonio

Texas 78240

Phone: 210 5223904 (office) 210 2694670 (cell)

Email: zabidin@swri.org

Date of birth : January 3<sup>rd</sup> 1975

Place of birth : Nganjuk, East Java, Indonesia

Sex : Male
Nationality : Indonesia
Marital status : Married



## Education

August 1994– Oct. 1998 Bachelor degree at the Department of Mechanical Engineering,

Bandung Institute of Technology, Indonesia.

Graduate with Grade Point Average: 3.10 (out of 4).

August 1999 – May 2001 Master degree at the Department of Mechanical Engineering,

Bandung Institute of Technology, Indonesia.

Thesis: Theoretical Study and Simulation of Hydrocarbon

Production System.

Graduate with Grade Point Average: 3.93 (out of 4).

Oct. 2002 - Nov. 2005 Ph.D. at the Faculty of Mechanical Engineering, Graz

University of Technology, Austria.

Dissertation: Thermodynamics Analysis of a Hermetic Reciprocating Compressor for Household Refrigeration Using

CFD.

Graduate with distinction (mit Auszeichnung), Grade Point

Average: 4 (out of 4).

# **Work Experiences**

Nov. 1998 – June 1999 Research staff at Indonesian Institute of Science.

• Responsible for the feasibility study of micro gas turbine in

Indonesia.

May 2001 – Oct 2002 Lecturer staff at the Department of Mechanical Engineering,

Brawijaya University Malang, Indonesia.

• Responsible for the course of thermodynamics, heat

transfer and fluid mechanics.

Responsible for research project of solar energy for

swimming pool.

Oct. 2005 – Feb. 2008 Researcher at Christian Doppler Laboratory for the Thermodynamics of Reciprocating Engines, Graz University of

Technology, Austria.

Responsible for the section of 3-dimensional simulation of
the bound tier and instance tier and t

the hermetic reciprocating compressor.

- Responsible for creating an own 1-D software, including thermal network for engine.
- Responsible for other 3-dimensional simulation projects, such as: smoke distribution in Vienna train station of Wien-Mitte, pressure loss analysis on exhaust gas filter of the engine.

March 2008 - April 2009

Project Engineer at Thermodynamics Department, AVL LIST GmbH, Graz Austria.

 Have engaged on the engine development for heavy duty vehicle and passenger car (responsible for thermodynamic analysis using 1-D software).

August 2009 – Present

# Principal Engineer and Powertrain Analysis Manager at Southwest Research Institute, San Antonio, Texas

- Have engaged on several projects under Clean Diesel, HEDGE and AC2AT Consortia Projects as well as several stand-alone commercial and governmental projects
- Currently managing the Analysis Group under Design and Development Department

## Related Skills

#### Computer

Simulation tools : Converge, Fluent, T-Grid, AVL-Boost, GT Power

• Programming language : Visual Fortran, Visual C, Visual Basic

# Paper/Journal

- 1 Abidin Z., Hoag K., Frech, A., Primus R., Klingbeil A., *A Simplified Kinetic Auto-Ignition Model for Cycle Simulation of Gas Engines*, CIMAC, Canada, 2019
- Abidin Z., Morris A, Miwa J, Sadique J, Wang Y, FSI MRF Coupling Approach For Faster Turbocharger 3D Simulation, SAE Technical Paper, 2019-01-0007, DOI: 10.4271/2019 01-0007 Published 2019-01-15 by SAE International in United States
- Moiz A, Abidin Z, Mitchell R, Kocsis M, Development of a Natural Gas Engine with Diesel Engine-like Efficiency Using Computational Fluid Dynamics, SAE Technical Paper, 2019-01-00225
- 4 Shah B, Moiz A, Hoffmeyer M, Abidin Z, Megel A, Hoag K, A Comprehensive CFD-FEA Conjugate Heat Transfer Analysis for Diesel and Gasoline Engines, SAE Technical Paper, 2019-01-00212
- 5 Cung K, Moiz A, Shah B, Kalaskar V, Miwa J, Abidin Z, *Evaluation of Diesel Spray with Non-Circular Nozzle Part I: Inert Spray*, SAE Technical Paper, 2019-01-0007
- 6 Chase A, Miwa J, Abidin Z, Cung K, Investigation of an Advanced Combustion System for Stoichiometric Diesel to Reduce Soot Emissions, SAE Technical Paper, 2019-01-0023
- 7 Hoffmeyer M, Moiz A, Hoag K, Megel A, Shah B, Abidin Z, *Advances Toward the Goal of a Genuinely Conjugate Engine Heat Transfer Analysis*, SAE Technical Paper, 2019-01-0008
- 8 Cung K, Bitsis D, Briggs T, Kalaskar V, Abidin Z, Shah B, Miwa J, *Effect of Micro-Hole Nozzle on Diesel Spray and Combustion*, SAE Technical Paper, 2018-01-0301
- 9 Abidin Z., Hoag K., Badain N., *Dilute Combustion Assessment in Large Bore, Low Speed Engines*, SAE Technical Paper, 2017-01-0580, DOI: 10.4271/2017 01-0580 Published 2017-03-28 by SAE International in United States
- 10 Neely G., Florea R., Miwa J., Efficiency and Emissions Characteristics of Partially Premixed Dual-Fuel Combustion by Co-Direct Injection of NG and Diesel Fuel (DI2) –

- Part 2, SAE Technical Paper, 2017-01-0766, DOI: 10.4271/2017 01-0766 Published 2017-03-28 by SAE International in United States
- 11 Hoag K, Mangold B, Alger T, Abidin Z, Wray C, Walls M, Chadwell C, A Study Isolating the Effect of Bore-to-Stroke Ratio on Gasoline Engine Combustion Chamber Development, SAE Journal Paper 2016-01-2177
- 12 Abidin Z., Hoag K., Badain N., *Port Design for Charge Motion Improvement within the Cylinder*, SAE Technical Paper, 2016-01-0600,DOI: 10.4271/2016 01-0600 Published 2016-04-05 by SAE International in United States
- 13 Abidin Z., Florea R., Callahan T., *Dual Fuel Combustion Study Using 3D CFD Tool*, Technical Paper, 2016-01-0595,DOI: 10.4271/2016-01-0595, Published 2016-04-05 by SAE International in United State
- 14 Florea R., Neely G., Abidin Z., Miwa J., Efficiency and Emissions Characteristics of Partially Premixed Dual-Fuel Combustion by Co-Direct Injection of NG and Diesel Fuel (DI2), Technical Paper, 2016-01-0779, DOI: 10.4271/2016-01-0779, Published 2016-04-05 by SAE International in United States
- 15 Abidin Z. and Chadwell C., *Parametric Study and Secondary Circuit Model Calibration*, SAE World Congress, Detroit, 2015.
- 16 Abidin Z., Das K., Roberts CH., 3D-Semi 1D Coupling for a Complete Simulation of an SCR System, SAE World Congress, Detroit, 2013.
- 17 Das S., Abidin Z., Mehta D., Effects of Various Model Parameters in the Simulation of a Diesel SCR System, SAE World Congress, Detroit, 2012.
- 18 Rothbauer RJ., Stovell CH., Robert CE., Alger T., Abidin Z., Low Soot and Low Heat Loss Combustion Bowl Development for High Efficiency Diesel Engines Using CFD, JSAE Proceeding, Yokohama, 2010.
- 19 Abidin Z., Lang W., Almbauer RA., Nagy D., Burgstaller A., *Development and Validation of a One-Dimensional Simulation Model of a Hermetic Reciprocating Compressor for Household Refrigeration*, International Journal of Engineering Systems Modeling and Simulation, 2008.
- 20 Rothbauer RJ., Grasberger G., Abidin Z., Almbauer R., Reed Valve, Crankcase and Exhaust Models Coupled to 3D Fluid Domains for the Predictive CFD Simulation, Proceeding of Small Engine Technology Conference, Niigata Japan, 2007.
- 21 Abidin Z., Almbauer RA., Burgstaller A., Nagy D., Assessment Method for the Thermodynamic Quality of Parts of a Hermetic Reciprocating Compressor, Proceeding of International Conference on Compressors and their System, City University London, 2007
- 22 Almbauer RA., Nagy D., Burgstaller A., Abidin Z., *Development of Test Cases for the Experimental Quantification*, Proceeding of International Conference on Compressors and their System, City University London, 2007.
- 23 Abidin Z., Almbauer RA., Burgstaller A., Nagy D., One-Dimensional and Thermal Network Application for a Complete Thermodynamic Analysis of a Piston Compression Machine, Proceedings of the International Conference on Fluid and Thermal Energy Conversion, FTEC Jakarta, INDONESIA, ISSN 0854-9346, p.181-1, 2006.
- 24 Almbauer RA., Burgstaller A., Abidin Z., Nagy D., *3-Dimensional Simulation for Obtaining the Heat Transfer Correlations of a Thermal Network Calculation for a Hermetic Reciprocating Compressor*, Proceedings of the International Compressors Engineering Conference, Purdue USA, C079, 2006.
- 25 Abidin Z., Almbauer RA., Burgstaller Z., Nagy D., Domain Decomposition Method for 3-Dimensional Simulation of the Piston Cylinder Section of a Hermetic Reciprocating Compressor, Proceedings of the International Compressors Engineering Conference, Purdue USA, C079, 2006.
- 26 Abidin, Z., Almbauer, RA., Burgstaller, A., Simulation of the Heat Transfer between Cylinder, Piston and Gas in a Hermetic Reciprocating Compressor, Proceedings of the International Conference on Heat Transfer, Fluid Mechanics and Thermodynamics, HEFAT 2005, Cairo, Egypt: p.1-4, 2005.

- 27 Almbauer, RA., Abidin, Z., Burgstaller, A., Determination of the Thermodynamic Feedback of the Shell of a Small Hermetic Piston Compressor, International Conference on Compressors and their Systems, London, England: p.351-360, 2005.
- 28 Abidin, Z., Almbauer, RA., 2003, *Three-dimensional CFD Analysis on the Suction Section of a Piston Compressor and Its Potentiality to Improve the COP*, Proceeding of the International Conference on Fluid and Thermal Energy Conversion, Bali, Indonesia: p.1-9.

## Paper / Journal Reviewer:

- 1. CIMAC Congress: 2019
- 2. CFD- and modeling-related papers for SAE World Congress: 2010 current
- 3. Journal of Energy and Fuels: 2012 and 2013

# **Professional Society:**

Society of Automotive Engineers (SAE)

#### Awards

- 1 Southeast Asia Technology Grant from Austrian Government (2002)
- 2 Karya Siswa Grant from Higher Education Department of Indonesia (1999).

San Antonio, April 2020