# *Dr. Ali Al-Witry*

**Assistant Professor, College of Engineering, King Saud University**

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## DEGREES

1999 **PhD** Mechanical Engineering, The University of Nottingham, UK

1994 **MPhil** Mechanical Engineering, The University of Nottingham, UK

1990 **BSc (Eng)** Mechanical Air Conditioning & Refrigeration Engineering,

University of Technology, Baghdad, Iraq.

**WORK EXPERIENCE**

*Teaching Experience in Canada, UK and Saudi Arabia*

College of Engineering Al-Faisal University

**Adjunct Professor of Mechanical Engineering**

Oct 2010 – Jan 2011

* + - * Member of Faculty
      * Collaboration with Dean and Faculty
      * Curriculum Development
      * Lecturing in thermo-fluid sciences

College of Engineering King Saud University

**Assistant Professor**

Sep 2009 – To Date

* Lecturing of Various Courses:
  + Statics [GE201]
  + Railway Systems Engineering [ME493]
  + Automotive Systems Engineering [ME469]
  + Introduction to Engineering Design [GE105]
  + Mechanical Measurements [ME302]
  + Fluid Mechanics [ME381]
  + Thermodynamics [ME228]
  + Fluid Mechanics Laboratory [ME382]
  + Thermo-fluid Laboratory [ME322]
  + Railway Systems Engineering [ME493]
  + Final Year Projects [ME496/ME497]
* Chairing the Following Committees:
  + Ex-Laboratories and Equipment Committee Coordinator
    - Auditing, Safety and Booklets Writing
    - Purchasing and Delivery
    - Laboratory Sheets Modifications
  + Post-Graduate Certificate Program Coordinator
  + IT Committee Coordinator
* Supervision of Graduating Student Projects
* Miscellaneous Research Activities

Automotive Research and Development Centre CHRYSLER CANADA INC., Canada Design Engineering Department

**Senior Automotive Systems and CFD Analyst**

Feb 2006 – Sep 2009

* CFD Group Senior Analyst: Responsible for work flow, job allocation, quality, hiring, training and liaison with the University of Windsor.
* Issuance of jobs orders and job logs. Reviews of intermediate and final analyses along with designer works and reports.
* University of Windsor BEng, MSc and PhD Students Supervisor.
* Approved Govt. of Canada SR&ED Scientific Tax Credits Coordinator.
* *Plus normal everyday CFD analyst duties*.

**Automotive Systems and CFD Analyst**

May 2000 – Jan 2006

* Design of various engines, water jackets, intake/exhaust manifolds, oil lubrication, thermo-fluid and HVAC systems.
* 3D CFD analyses/design modification of Power-train / Underhood / Interior / Cooling Components:
* Phoenix (3.3/3.8L), Phantom (4.0L), Eagle (5.7/6.1L) , DC-U8(4.7L) and Hybrid (5.7L) Engines Design and Analyses Works
* Initial Analyses Setup(s) and Discussions
* Intake & Exhaust Manifolds: Air + EGR + PCV + throttle blades (Fluent/Star)
* Catalytic Converter Face Flow Distribution Enhancement for Durability.
* Complete Automotive Cooling Systems and Water-jackets and their development for flow/thermal issues (Fluent)
* Underhoods / underbodies with fans and radiation (CFD-ACE)
* IC Engine Combustion and Deforming Mesh Analyses (Moving-Deforming Meshes in Star/Fluent/Fire)
* Passenger Cabin Flow, HVAC Air Distribution and De-Mist/De-Fog Analyses
* Oil Pans Sloshing. (VOF in Fluent)
* Sensors Positioning Analyses. Etc…(Mainly Fluent).
* PCV valves, Oil flow, Diesel Charged Air Coolers (CAC)
* 1D CFD Modeling of Cooling, Oil Lubrication and Automotive HVAC:
* Engine Performance (WAVE)
* Emissions (WAVE)
* Systems Performance (Oil, Cooling and HVAC). Etc…(Normally using Flowmaster)

Responsibility for various Intake, Exhaust & Cooling system Components

Contact Person for Various Industrial Suppliers

Engineering Calculations: Strength of Materials, Noise and Fluid Flow

Preparing, Revising and Assessment of Supplier(s) Offers

Automotive Performance Testing and Data Collection

Mechanical Engineering Department THE UNIVERISTY OF WINDSOR, Canada

**Visiting Professor**

Sep 2002 – Jan 2003

Teaching *Applied Thermodynamics II*

Mechanical Engineering Department THE UNIVERISTY OF NOTTINGHAM, UK

**Lecturer (P/T)**

Sep 1997 – Jun 1998

Teaching *Applied Thermodynamics II, Engineer in Society*

*Setup of the Air-Conditioning Laboratory*

**CEGELC INDUSTRIAL CONTROLS (*GEC-ALSTOM*) Kidsgrove, Stoke-on-Trent, UK**

External Consultant External Consultant

Jan 1997 – Dec 1997

Thermal Performance Enhancement of Power Plants Water Cooled Electronic Control Modules

* CFD Analyses and Design Optimization of Alpha and Delta Heat Sinks
* Testing of Pressure Losses Inside Various Heat Sinks
* Design of a 206% Extra Heat Release Liquid Cooled Delta Thermal Sink Modules for Power Plant and Seismic Control Boards. Plus Added Strength for Delta Liquid Beyond the 100% Required By Cegelec Using own Ideas/Methodology through Pin-Fins' Published Performance and Confirming the Performance Using Analytical and CFD Approaches for Electrical Inverters (Used in Power-Plants Control /Seismology). Total 306% Higher Heat Transfer Using Ethylene Glycol.

## SOFTWARE EXPERIENCE

**3D CFD :** FLUENT 14+, CFD-ACE 6, Star-CCM+, Star-CD 3.6, CFX 5.6, FIRE 8.2

1D CFD: Flowmaster 6.3, Ricardo WAVE, Simulink 2, AMESim

**FEA:** CATIA v5r16, CATIA v4.2, Opti-Struct

**Meshing:** ICEM-CFD 10+(Tetra/Hexa/Prism/Surfacing/IC3M), HyperMESH 6.0, ANSA 12.0.6, Vis-CART, Harpoon 1.2, Tgrid 3.1.5, Gambit 1.2

**CAD:** CATIA 5.16/4.2, AutoCAD 2000, Pro-Surf. Some Solid-Works

**Programming:** Visual Basic 6, Visual C++

**Systems:** Linux, Unix, Windows Vista, 2000/XP/98/95/3.1, MS-Dos 6.2, Z-80

**Communications :** *Lotus Notes* / Telnet / FTP / Abaqus Email

**General:***Ensight 8, iSIGHT,* MS-Office (Word / Excel / PowerPoint / Project / Access), Acrobat Pro, Origin 6, MATLAB.

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**HARDWARE EXPERIENCE**

Dynamometers LDA (Dantec) Thermal Imaging Heat Flux Gauges

Data Loggers Pressure Gauges Psychrometers PIV

Thermocouples Venturi/Orifice Meters Calorimeters Pitot Tubes

Kistler Probes Pumps (incl. positive) Fans

## RECOGNITIONS

Jan 2014 **Best Graduation Student Project**. BAE Systems Award at College of Engineering, King Saud University, Saudi Arabia.

May 2012 **Best Graduation Student Project**. BAE Systems Award at College of Engineering, King Saud University, Saudi Arabia.

June 2004 DAIMLERCHRYSLER “**Above And Beyond**” award for efforts leading to the design and development of the double crank U8 engine program

## SOME 2006+ COURSES ATTENDED

Apr 2013 **ANSYS Mechanical** King Saud University

Apr 2008 **iSIGHT**  Detroit, USA

Jan 2007 **Introduction to FEA: Post Graduate Level** Univ. of Windsor, Canada

Jan 2007 **HyperMesh (For CFD Purposes)**  Altair Engineering Inc., USA

May 2006 **Design FMEA For Systems and Components** DaimlerChrysler Course

April 2006 **SR&ED Program Best Practices** Canada Revenue Agency,

Early 2006 **Introduction to ICEM 10**  Mindware Engineering, USA

#### COURSES TAUGHT

**Al-Faisal University**

Thermo-fluid Laboratory

**King Saud University**

Statics [GE201]

Railway Systems Engineering [ME493]

Automotive Systems Engineering [ME469]

Introduction to Engineering Design [GE105]

Mechanical Measurements [ME302]

Fluid Mechanics [ME381]

Thermodynamics [ME228]

Fluid Mechanics Laboratory [ME382]

Thermo-fluid Laboratory [ME322]

Railway Systems Engineering [ME493]

Final Year Projects [ME496/ME497]

**University of Nottingham**

Engineer in Society

Thermodynamics II

#### LIST OF PUBLICATIONS

**1. Heat Exchangers For Low Grade Waste Heat**

A. Al-Witry, A. Aroussi and N. Hay

ASME Solar Engineering Conference, San Antonio, pp 159-163, 1996

**2. Thermal Performance of Roll-Bonded. Aluminium Plate Heat Exchanger Panels For Use In. Ocean Thermal Energy Conversion**

A. Al-Witry

PhD Thesis, The University of Nottingham, UK, 1999.

**3. CFD Simulations for Engine Intake Manifolds.**

A. Witry, A. Zhao.

CFD Society of Canada Conference, Windsor, Ontario, June 9 - 11, 2002.

**4. Velocity Measurements in a Rigid Ceramic Filter in a Parallel-Flow Arrangement**

M.H. Al-Hajeri, A. Aroussi, A. Witry.

CFD Society of Canada Conference, Windsor, Ontario, June 9 - 11, 2002.

**5. CFD Analyses of Fluid Flow and Heat Transfer in Patterned Roll-Bonded Aluminium Plate Radiators**

A. Witry, M. H. Al-Hajeri and Ali A. Bondok.

3rd International Conference on CFD in the Minerals and Process Industries, CSIRO, Melbourne, Australia. 10-12 December 2003.

**Link:** <http://www.cfd.com.au/cfd_conf03/papers/136Wit.pdf>

**6. Fluid Flow and Heat Transfer Investigations in Shell and Dimple Heat Exchangers**

A. Witry 1, M. H. Al-Hajeri 2 \* : 1Automotive R&D Center, Windsor, Ontario, Canada and 2Mechanical Power and Refrigeration Engineering, Technical Studies College, Kuwait : Email: M. Al-Hajeri (hajeri@paaet.edu.kw)

International Journal of Energy Research, John Wiley & Sons, Ltd. Volume 29 Issue 5, Pages 427 – 438, Dec 2003.

**7. Plate Heat Exchangers for Ocean Thermal Energy Conversion.**

M. H. Al-Hajeri, A. Witry

Journal of Flow Visulalization and Image Processing. Vol 11, pp 1-17, 2004.

**8. Thermal Performance of Automotive Aluminium Plate Radiator.**

A. Witry, M.H. Al-Hajeri and A. Bondok.

Elsevier Publishing, Applied Thermal Engineering, 25, 1207-1218, June 2005.

**9. Numerical Simulation of Flow Past Multiple Porous Cylinders.**

M. H. Al-Hajeri, A. Aroussi, A. Witry

ASME Journal of Fluid Engineering, 2009.

**10. Analyses of Plane-Strain Compression Using the Upper Bound Method.**

M Es-Saheb, A. Al-Witry and A. AlBedah. Res. Journal of Applied Sciences, Engineering and Technology. 2012.

**11. ANSYS-FLUENT k-e Model Fluid Flow and Heat Transfer Predictions for the Complex Flow Effects Around Circular Pin-Fins.**

A. Al-Witry, M. Es-Saheb. Res. Journal of Applied Sciences, Engineering and Technology. 2013.