

# CURRICULUM VITAE

Mahmoud Afshar



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## ADDRESSES

### Academic

Faculty of Petroleum Engineering  
Petroleum University of Technology  
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### Residence

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## PERSONAL DATA

**Date of Birth** 28 March 1960  
**Marital Status** Married  
**Language Facility** Persian (mother tongue), English (fluent), French (partially), Arabic (little)

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## EDUCATION

**Ph.D** McGill University, Department of Mechanical Engineering.  
**Thesis:** Numerical Prediction of Fully-Developed, Turbulent, Single-Phase and Bubbly Two-Phase Flows in Straight Ducts.  
May 1998  
**M.Eng.** McGill University, Department of Mechanical Engineering.  
**Thesis** Investigation and Improvement of Some Recent FVM and CVFEM Practices for Two-Dimensional, Incompressible Viscous Fluid Flow  
Feb. 1993.  
**B.Sc.** Abadan Institute of Technology, Department of Mechanical Engineering.  
**Major** Thermo-Fluid-Heat Transfer.

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## AWARDS

<b>Major Fellowship:</b>	HydroQuebec award in form of the McGill major fellowship.	1994
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<b>Tuition Fee Wavier</b>	Full tuition fee waivers for Ph.D. studies	1993
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<b>Scholarship</b>	National Iranian Oil Company for M.Eng. and Ph.D. studies	6 years, 1990-1996

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## COMPUTER SKILLS

**Operating System:** Main Frame, Unix, Windows  
**Languages** FORTRAN, Visual C++ (OOP), V- BASIC and HTML.  
**Application** Office, TecPlot, Latex, AutoCAD, PowerPoint, CorelDraw and Photoshop.  
**Internet** www, intranet, WAN, LAN, VPN and VISP.  
**Workshops** Management and IT, Introduction to ICT, IT and culture

## WORKING EXPERIENCES

<b>Faculty Member and Head of Energy Engineering Dept.</b>	2000- Present Petroleum University of Technology
Duties:	Conducting graduate level courses such as thermodynamics, fluid mechanics, heat transfer, mathematics, modelling and simulation, conducting research and supervising more than 20 M.Sc. thesis's in drilling, reservoir engineering and energy engineering and management.
<b>Education Deputy</b>	2002- Present Petroleum University of Technology
Duties:	Persuading undergraduate and graduate programs educational affairs.
<b>Head of Reservoir Simulation Group</b>	1998-2000 Research Institute Petroleum Industry, Tehran, Iran
Duties:	Development of new software for hydrocarbon reservoir studies, upgrading available hydrocarbon reservoir software and performing reservoir simulation studies.
<b>Invited Lecturer</b>	1998-2006. Amir Kabir, K.N. Tousi and Chahbahar Universities, Iran
Duties:	Teaching introduction to computer and internet, database systems, turbulence modelling, thermo-fluids and control to graduate and under graduate students.
<b>Invited Lecturer (Workshops)</b>	1998-present
Duties:	Presenting workshops on energy management, information technology and management, computer and internet, in NIOC, NIGC, NIOPDC, Foreign affairs ministry, Agriculture ministry and welfare organization
<b>Head of Research Office, (Tehran)</b>	1998-2000 National Iranian South-fields Oil Company
Duties:	Planning and executing related research projects in cooperation with universities and related research centres.
<b>Research Assistance</b>	1991-1998. McGill University, Department of Mechanical Engineering.
Duties:	Development and testing of numerical procedures for the solution of fluid flow and heat transfer problems in the context of Finite Volume Methods and Control-Volume Finite Element Methods. In particular, these procedures were implemented for the solution of the turbulent, single-phase and bubbly two-phase flows using linear and nonlinear eddy viscosity and Reynolds stress turbulence models.
<b>Teaching Assistance</b>	1991-1998. McGill University, Department of Mechanical Engineering.
Duties:	Holding and supervising tutorials and laboratory sessions; marking assignments, tests, and exams; preparation and delivery of lecture material and examinations.
courses:	Thermodynamic, heat transfer and applied mathematics
labs:	Heat exchanger, air conditioning unit, and forced convection heat transfer
<b>Head of Computer Simulation Systems</b>	1988-1990. National Iranian oil company, Ahwaz, Iran.
Duties:	Supervising a team of engineers to upgrade engineering software for the oil-reservoirs and other applications; and to service engg. departments.

**Engineer:** 1984-1988  
National Iranian oil company, Ahwaz, Iran.  
**Duties:** Study and approve the consultant proposals, and supervision of activities

### **Thesis Supervised (selected)**

N. Firirouzi,	2008	Model Order Reduction Method for Large-Scale Dynamical System
A. Ahmadi,	2008	Software Development for Wellbore Stability Analysis
H. Hashemi,	2008	Geostatistical Modeling and Spatial Distribution Analysis of Porosity and Permeability in the Shurijeh_B Reservoir in the Khangiran Gas Field
F. Shirkavand,	2006	Volumetric requirements in foam drilling
R. Miri,	2006	Application of artificial neural networks in prediction of differential pipe sticking in offshore fields of Persian golf
M. Yousefi,	2006	Designing a soft sensor for polymerization reactor using artificial neural network
M. Seyfi,	2006	Compositional modelling of two-dimensional and three-phase hydrocarbon reservoir with emphasis on the mass balance method
M. Naamani,	2005	Study of water coning in carbonate fractured reservoirs
M> Bakhteiari,	2005	Criteria for selection of UBD in Iranian oil and gas reservoirs: case study of Dehluran field
M. Farahani,	2005	Investigation of the common causes of dullness of roller cone bits
M. Heidari,	2005	Full field reservoir simulation Modelling of a low permeable Iranian oil reservoir to solve the production problems
M. Ghasemi,	2005	Simulating study of miscible displacement in fractured reservoir(laboratory and field scale
S. Amini,	2005	Simulation study of gas injection in a gas-condensate reservoir
I. Hossaini	2005	Hydraulic optimization in roller cone bits

## **Publications**

### **Books**

Afshar, M. World-wide Strategies for Energy Consumption Reduction, in Persian, 500 pp, Sent to Iran Fuel Consumption Organization for Publication, 2008

Afshar, M. World Best Practice Energy Values for Selected Industrial Sectors, (translation into Persian), 100 pp. Sent to Iran Fuel Consumption Organization for Publication, 2008

### **Papers**

Afshar, M., Afshar, Energy Consumption Reduction Strategies in Developing Countries, proceedings of the 7<sup>th</sup> Sustainable Energy Technologies, Seoul, Korea, Aug. 2008.

Afshar, M., Abbasi, M., Flare Gas Recovery of Olefin Unit: Flare Gas Flowrate Soft-Sensing, Proceedings of the 7<sup>th</sup> Sustainable Energy Technologies, Seoul, Korea, Aug 2008.

Afshar, M., Abbasi, M., Investigation of Recovery or Reduction of Flare Gases, Proceedings of the 1<sup>st</sup> Petrochemical Industry Congress, Tehran, Iran, May 2008.

Afshar, M., Afshar, A. Ashrafnia, M. Steam Boiler Energy Consumption Optimization Through Control System Improvement, Proceedings of the 12<sup>th</sup> int. Congress of Energy, Tehran, Iran, May 2007.

Afshar, M., Trigeneration Selction Criteria, Proceedings of the 5<sup>th</sup> int. Conf. On Sustainable Energy, Vicenza, Italy, Aug. 2006.

Afshar, M., Numerical Simulations of Turbulent, Two-Phase Flow in Complex Geometries, IASME Transactions, Issue 8, Vol. 2, pp. 1419-1424, Oct. 2005

Afshar, M., Amirdehi. A., Energy Auditing of Kangan Gas Refinery, proceedings of the 5th National Energy Congress, Tehran, May 7-9, 2005.

Afshar, M., Amirdehi. A., Power, Steam and Cooling Tri-generation Systems, proceedings of the 1<sup>st</sup> Conference on Fuel Conservation in Industry, June 18-19, 2004.

Afshar, M., Heating, Cooling and Air Conditioning (HVAC) for the Year 1400, Proceedings of the 3<sup>rd</sup> Int. Conference on Fuel Conservation in Buildings, , Feb 18-19, 2004.

Afshar, M., Kangan Gas Refinery Energy Auditing, Report Submitted to Research Department of National Iranian Gas Company Tehran, 2003.

Afshar, M., Afshar, A., Reduction of Fuel Consumption and Waste Reduction in Tabriz Petrochemical Complex, Report Submitted to International Energy Studies Institute, Tehran, 2003.

Afshar, M., Shahrestani, s. M., Key Parameters in Energy Auditing of Building Cooling Systems, Proceedings of the 2nd Int. Conference on Fuel Conservation in Buildings, , Feb 18-19, 2003.

Afshar, M., Comparative Evaluation of Four Turbulence Models For Fully-Developed, Turbulent Flows in Straight Ducts of Arbitrary Cross-Sections, Proceedings of the 8th CFD conference of Canada, Montreal, Canada, June 11-13, 2000.

Afshar, M., Research for Policy Making, Proceedings of the 2nd Int. conf. of Government, university and Industry, Tehran, Iran, May 20-22, 2000.

Afshar, M., Industrail Research and Development Centers: the Dual Role, proceedings of the 2nd symp. of research and development centers, Tehran, Iran, Jan 20-22, 2000.

Afshar, M., Baliga, B.R., Numerical Simulations of Fully-Developed, Turbulent, Bubbly Two-Phase Flows in Straight Ducts of Triangular Cross-Section, Proceedings of 2nd Int. Symposium on Two-Phase Modeling and Experimentation, Pisa, Italy, May 23-26, 1999.

Afshar, M., Baliga, B.R., A Logarithmic Law of the Wall for Upward, Turbulent, Bubbly Two-Phase Flow, Proceedings of the 2nd Int. Symposium on Turbulence, Heat and Mass Transfer, Delft, the Netherlands, June 9-12, 1997.

Afshar, M., Baliga, B.R., Prediction of Natural Convection Using an Enhanced Sequential Algorithm, Proceedings of the 3<sup>rd</sup> Conf. of CFD society of Canada (CFD95), Vol. 2, pp. 237-244, Banff, Canada, June 1995.

Afshar, M., Baliga, B.R., A Sequential Algorithm for the Solution of the Discretized Momentum and Continuity Equations, Proceedings of the 8th Int. Conference on Numerical Methods in Laminar and Turbulent Flow, Vol. 1, pp. 668-679, Swansea, UK, 1993.

Afshar, M., Baliga, B.R., Comparative Evaluation of Six Interpolation Schemes Used in Finite-Volume Discretization of the Convection-Diffusion Equation, Proceedings of the Conf. of the CFD Society of Canada, pp. 301-312, Montreal, 1993.

### **Projects Reports**

Afshar, M., Reduction or Recovery of Olefin Unit of AmirKabir Petrochemical Complex main flare 2 vol.umes, 800 pages, 2008.

Afshar, M., Amirdehi, M., Investigation of the strategic program for decreasing energy consumption in industrial sector of 18 countries, prepared for the Iran Fuel Consumption Organization, 4 vol.umes, 1700 pages, 2007.

Afshar, M., Energy auditing soft tools, 2 volumes, 500 pages, prepared for the Iran Scientific and Industrial Research Organization. 2006.

Afshar, M., Amirdehi, M. Development of professional energy engineering program, 2 volumes, 750 pages, prepared for the Iran Fuel Consumption Organization, 2 volumes, 2005..

Afshar, M., Zaman, A., Shahrestani, H., Oskooei, M., Energy auditing of Kangan Gas refinery. 3 volumes, 1500 pages, prepared for the National Iranian Gas Company,. 2003

Afshar, M., Afshar, A., Decreasing fuel consumption and energy waste in Tabriz petrochemical complex,. 3 volumes, 1300 pages, prepared for the Internationa Energy Studies Organization, 2002