DR. SHATHA AMMOURAH

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PROFILE:

I am an associate professor at Philadelphia University in Jordan. I am a highly motivated individual with ten years experience applying CFD to model and analyze single and multi-phase flows together with flow visualization using laser techniques. I also have excellent communication skills, capable of using own initiative or working as a part of a team. I also have ten years of teaching experience with excellent communication and presentation skills. I was classified as the youngest doctor in 2006 when I came back to Jordan at age of twenty seven which gave me the chance to keep learning and to interact with students in a good way. I have a good social reputation among all students I taught and I have the capability to reach them and control them in a good modern way.

EDUCATION AND QUALIFICATIONS:

- **Ph.D.** in Mechanical Engineering (Thermofluids), 2005, University of Nottingham, Nottingham, UK. Title of PhD. Thesis " *Numerical and Experimental study of the cerebrospinal fluid dynamics in the human ventricular system* ".
- **M.Phil.** in Mechanical Engineering (Thermofluids), 2001, University of Nottingham, Nottingham, UK.
- **B.Eng.** in Mechanical Engineering (agricultural machines and internal combustion engines), 2000, Jordan University of Science & Technology, Jordan.

KEY EXPERIENCE:

- Ten years experience in teaching Mechanical engineering courses.
- Ten years CFD experience using commercial code Fluent.
- Thorough knowledge in gas turbine transmission systems.
- Extensive experience in modeling and understanding the complex flow behavior within aero engine transmission system.
- Broad experience in the interpretation of experimental data.
- Heat transfer modeling of single and multi-phase flows.
- Thorough knowledge in non intrusive flow visualization techniques; Particle Imaging Velocimetery (PIV) and Particle Tracking Velocimetery (PTV).
- Experience in redrawing different human organs from structural MRI data, using developed softwares as "mimics & magic" and export it to different drawing packages and CFD codes.
- Supervising undergraduate projects.
- Reviewing technical papers and undergraduate projects.
- Organizing social events in the University.
- Conference organization.
- Authoring technical reports and academic papers.
- Commencing training workshops with the private sector.

SKILLS:

- Excellent administrative and communication skills.
- Good lecturing and presentation skills.
- Capability of working closely with the industrial partner.
- International Projects Management and Planning.
- Excellent computer skills.
- Excellent English skills (*Reading, Writing and Speaking*)

- Modeling and understanding **solar systems**.
- **Waste to Energy** Utilization.
- Utilizing **Renewable Energy Resources**.

CAREER HISTORY:

January 2013-Present: **Associate Professor**
Mechanical Engineering Department, Philadelphia University, Jordan.
Key roles during this period:

1. Teaching undergraduate courses in Mechanical Engineering.
2. Supervising of undergraduate final year projects.
3. Authoring journal publications.

September 2012- September 2015: **head of mechanical engineering department, Philadelphia University, Jordan.**
Key roles during this period:

1. Teaching undergraduate courses in Mechanical Engineering.
2. Supervising undergraduate final year projects.
3. Organizing the department modules schedule.
4. Preparing the accreditation files for the department
5. Recruiting staff.
6. Responsible about the QA work of the department
7. Attending college meetings
8. Authoring journal publications.

September 2006- January 2013 **Assistant Professor**
Mechanical Engineering Department, Philadelphia University, Jordan.
Key roles during this period:

- Teaching undergraduate courses in Mechanical Engineering.
- Supervising of undergraduate final year projects.
- Authoring journal publications.

April 2005-September 2006: **Research Fellow (PT)**
School of Mechanical, Material and Manufacturing Engineering, University of Nottingham, UK.
Key roles during this period:

- Investigating the complex multi-phase gas/liquid flow and heat transfer in aero-engine bearing components at real engine operating conditions.
- Interpretation of available experimental data.
- Authoring journal and conference papers.
- Writing technical and Industrial reports.
- Running fluid and air conditioning labs for undergraduate students.

August 2005-September 2006: **Research group manager (PT)**
School of Computer science, University of Nottingham, UK
Key roles during this period:

- Managing the financial issues related to MRL group>
- Using an advanced management and accounting software (Agresso)
- Reconciliation.
- Organizing conferences and social events both in UK and abroad.
- Responsible about all managerial issues related to the MRL group.

November 2000- April 2005: **Postgraduate Researcher,**
School of Mechanical, Material and Manufacturing Engineering, University of Nottingham, UK.
Key roles during this period:

- Applying CFD techniques to model the complex flow of cerebrospinal fluid (CSF) within the human ventricular system.
- Using Particle Imaging Velocimetery to map the CSF flow in a representative physical rig of the human ventricular system.
- Drug delivery simulation via CSF in the human brain.

- Interpretation of available experimental data.
- Authoring technical papers.
- Giving professional and conference presentations.
- Running fluid and Solid Mechanics courses and labs for undergraduate students.

AWARDS:

- First prize in fifth national technology parade, 2012, Project “Geothermal heating and air-conditioning simulation in Amman”.
- Second place in the engineering association award for graduation projects, 2009, Project” feasibility of utilizing wind energy at Philadelphia University”.
- Best mechanical design award in Cyprus Solar car challenge, 2013.
- Second place in Cyprus solar car challenge race, Jun-2014.
- The engineering association award for best renewable project, 2014.
- Third place in mechanical design in students formula race, Northampton, silver stone, UK, August 2014.
- Third place prize in the technoprenurshipe work shop in Malaysia 6\9\2016

RESEARCH INTERESTS:

- Renewable energy, particularly wind and solar energies
- Thermal modeling and design.
- Micro fluidics.
- Automotives design and competitions.

TEACHING SUBJECTS:

In general, I can teach all subjects related to thermal power modules that can be listed as the following:

- Thermodynamics 1&2
- Air-conditioning 1&2
- Power plants
- Fluid mechanics 1&2
- Heat transfer
- Thermal systems design
- Refrigeration systems design.
- Hydraulic power.
- Dynamics.

REFERENCES:

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PUBLICATIONS

1- Abdullah H. AlEssa1, Ayman M. Maqableh and **S. Ammourah**, 2009, Enhancement of natural convection heat transfer from a fin by rectangular perforations with aspect ratio of two, International Journal of Physical Sciences Vol. 4 (10), pp. 540-547.

2- A. Maqableh, **S. Ammourah** & et.al., Heat Transfer Characteristics of Parallel and Counter Flow Microchannel Heat Exchangers with Varying Wall Resistance, Progress in Computational Fluid Dynamics :An International Journal.

3- M.A. Al-Nimr, A. M. Maqableh, A.F. Khadrawi , **S.A. Ammourah** , 2009, Fully developed thermal behaviors for parallel flow microchannel heat exchanger. *International Communications in Heat and Mass Transfer* **36** pp. 385–390.

4- **Ammourah, S**., Aroussi, A. and Vloeberghs, M., 2005, Cerebrospinal Fluid Mapping Within a Simplified Ventricular System Using PIV. *Proceedings of the 5th Pacific Symposium on Flow Visualisation and Image Processing*, Australia, September.

5- **Ammourah, S**., Aroussi, A. and Vloeberghs, M., 2004, A 2-D simulation of hydrocephalus in the Foramens of Monro of the human ventricular system, *The12th CFD conference,* Ottawa, Canada, May.

6- **Ammourah, S**., Aroussi, A. and Vloeberghs, M., 2004, Hydrodynamics of Cerebrospinal Fluid and Drug delivery in a model of the Human Ventricular system. *ODE Journal.*

7**- Ammourah, S**., Aroussi, A. and Vloeberghs, M., 2003, Cerebrospinal fluid dynamics in a simplified model of the human ventricular system, *The Eleventh annual Conference of CFD 2003,* Vancouver BC, Canada, 28-30 May.

8- **Ammourah, S.**, Aroussi, A. and Vloeberghs, M., 2003, Visualisation of drug delivery to the human brain, *The 7th international symposium on fluid control, measurements and visualisations*, Sorrento, Italy, July.

9- **Ammourah, S**., Aroussi, A. and Vloeberghs, M., 2003, A PIV study of the Cerebrospinal fluid dynamics in a model of the human ventricular system, *The 12th international symposium,* Lisbon, Portugal, July.

10- **S. A. Ammourah**, A.C. Benim, A. M. Maqableh, A.F. Khadrawi & M.A. Al-Nimr. Flow Characteristics of a Micro-Orifice, JP Journal of Heat and Mass Transfer, Vol.7, No. 1, pp. 17 – 34, 2013.

11- M.A. Al-Nimr, A. M. Maqableh, A.F. Khadrawi, **S.A. Ammourah**, 2009, Fully developed thermal behaviors for parallel flow microchannel heat exchanger. *International Communications in Heat and Mass Transfer* **36** pp. 385–390.

12- **S. A. Ammourah**, A. M. Maqableh, A.C. Benim, K. Bataineh and K. Chatterjee. A CFD Simulation of Cerebrospinal Fluid Pulsatile Motion and Drug Delivery in the Human Ventricular System, Australian Journal of Basic and Applied Sciences>

13- A.M. Maqableh, **S.A. Ammourah**, A.F. Khadrawi, M.A. Al-Nimr, A.C. Benim. Hydrodynamics Behaviour of Fluid Flow in Micro-Venturi, Canadian Journal of Physics, Vol. 90, No. 1, pp. 83-89, 2012.

14- A.M. Maqableh, A.F. Khadrawi, M.A. Al-Nimr, **S. Ammourah** & A.C. Benim,"Heat Transfer Characteristics of Parallel and Counter Flow Microchannel Heat Exchangers with Varying Wall Resistance", *Progress in Computational Fluid Dynamics :An International Journal*, Vol. 11, No. 5, pp. 318-328, 2011.

15- M.A. Al-Nimr, A. M. Maqableh, A.F. Khadrawi , **S.A. Ammourah** , "Fully developed thermal behaviors for parallel flow microchannel heat exchanger" *International Communications in Heat and Mass Transfer*, Vol. **36**, No. 4, pp. 385–390, 2009.