

**Mohammed Awwad Alanazi, Ph.D.**

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**Professional Summary:**

Assistant Professor of the Mechanical Engineering Department, focusing on thermal science, thermal management, and thermal energy control systems.

**Education:**

**PhD Degree in Mechanical Engineering.** May, 2022

**Virginia Polytechnic Institute and State University, Blacksburg, VA, USA**

**Focus:** Thermal Science and Energy Control Systems

**Dissertation:** “Intelligent Non-Invasive Thermal Energy Flow Rate Sensor for Laminar and Turbulent Pipe Flows”

**Faculty Advisor:** Prof. Thomas E. Diller

**Master of Science Degree in Mechanical Engineering.** December, 2018

**Virginia Polytechnic Institute and State University, Blacksburg, VA, USA**

**Focus:** Thermal Science and Energy Control Systems

**Thesis:** “Noninvasive Method to Measure Thermal Energy Flow Rate in a Pipe”

**Faculty Advisor:** Prof. Thomas E. Diller

**Bachelor of Science Degree in Mechanical Engineering.** May, 2014

**Majmaa University, Majmaa, Saudi Arabia**

**Focus:** Mechanical Engineering

**Thesis:** “Optimizing the performance of a combined cycle power plant”

**Faculty Advisor:** Prof. Mohammed N. Khan

**Professional Certificates:**

- Nuclear Science and Engineering Certificate (focusing on the fundamental of the nuclear science, design of the Pressurized Water Reactor (PWR), PWR thermal hydraulics, and two-phase flow in PWR), Virginia Tech, 2020

- Future Professoriate Certificate, Virginia Tech, 2020
- Experience Certificate from **Worley Parsons Arabia Limited (WPAL) Company** – Combined Cycle Power Plant 13&14 EPCM project for the **Saudi Electricity Company**, Saudi Arabia, 2015
- Experience Certificate from **Saudi Electricity Company**, Saudi Arabia, 2015
- Engineering Accreditation Certificate from **Saudi Council Engineer**- September 2014.

### Awards Received:

- Supervising a graduation project that was awarded the first place as the best graduation project in the mechanical engineering department, 2023.
- An award of Majmaa University President for the quality and excellence for a class of students for the academic year 2013-2014, Saudi Arabia
- An award of Scientific Excellence as the best student in the Department of Mechanical Engineering for the academic year 2012-2013, Saudi Arabia

### Membership:

- Membership at Saudi Council Engineers.
- American Society of Mechanical Engineers (ASME).

### Funding Sources:

- FluxTeq LLC- Development of Thin-Film Heat Flux Sensors for Energy Control Systems.

### Services:

- LEAP (Tech Event), Riyadh, Saudi Arabia, 2023.
- Sustainable Partnerships Conference, Ministry of Education, Riyadh, Saudi Arabia, 2023.
- Global AI Summit, Riyadh, Saudi Arabia, 2022.
- Consultant and Developer thermal energy control instrumentations and systems at FluxTeq LLC, Blacksburg, VA, USA
- ASME 2018 Power and Energy Conference: Participation a poster presentation under the topic “Non-invasive Method to Measure Energy Flow Rate in a Pipe”

in ASME 2018 Power and Energy Conference at Disney's Contemporary Resort in Lake Buena Vista, Orlando, Florida.

- International Street Fair, Blacksburg, VA, USA, 2016
- Saudi Students Club at Virginia Tech, Blacksburg, VA, USA, 2021-2022

### **Teaching Experience:**

- King Saud University
  - Instructor for Heat Transfer class and Mechanical Measurements class.
  - TA for Mechanical Engineering Laboratories (Thermo-fluid lab I) and Mechanical Engineering Design I class.
- Virginia Polytechnic Institute and State University, Virginia Tech
  - TA for Heat Transfer and Mass Transfer class (Lectures and Experiments), May 2020- July 2020.

### **Software Experience:**

- MATLAB, EES, C++, Mathematica, LabView, AutoCAD, SolidWorks, Ansys, Overleaf

### **Work Experience:**

- King Saud University, Assistant Professor, Since June 2022
- Virginia Polytechnic Institute and State University, Graduate Research Assistant at experimental heat transfer measurements center, Jan 2017-May 2022
- King Saud University, TA, September 2015-May 2022
- Saudi Electricity Company, Energy Generation Engineer-project department at Head Office with partnership Worley Parsons Consultant Company, 2014-2015
- Manens Tifs S.P.A, HVAC Engineer, Security Forces Hospital in Riyadh and Jeddah, 2014

### Professional Development Courses:

- Certificate Completion courses at Worley Parsons Company in Design Change Management, Safe Sustainable Engineering for Asset Lifecycle, Progress and Budget Management, and Schedule Management, Riyadh, Jun 2015
- Certificate Completion courses at Worley Parsons Company in Effective Communications, Time management, Task Management Vision, mission, objective, and goals, Riyadh, April 2015
- Certificate Completion courses at STF Spa Company in Design of Heat Recovery Steam Generation for 11 HRSG, Italy, Magenta, March 2015
- Certificate Completion courses at Worley Parsons Company in Feed Water System, Pipe Lines, and Power Plant Chemical System NALCO, Riyadh, Jan 2015
- Certificate Completion courses at Worley Parsons Company in Load List, Piping and Piping Components, and Control Valves, Riyadh, December 2014
- Certificate Completion courses at **Worley Parsons Company** in Pump Session, Closed Cooling Water System Design, Power Plant Thermodynamics, and Over view of Valve Types, Riyadh, November 2014
- Internship at Saudi Electricity Company Power Plant #7- Simply Cycle gas turbine in the Maintenance Department, Riyadh, 2012.

### Research Interests:

- Renewable and sustainability energy.
- Lithium-ion battery thermal management systems for electrical vehicles.
- Steady state and transient heat transfer measurements.
- Intelligent thermal systems for two-phase flow and multiphase flows in pipelines.
- Energy control systems and Energy efficiency.
- Optimization of heat flux and thermal instruments.
- Non-invasive sensor solutions.
- Developing non-invasive thermal energy flow rate meters in pipelines.
- Continuing to transition the research results to industrial and laboratory applications.

## **Peer Review Scientific Paper:**

My ORCID (0009-0006-8045-1208)

- 1- Game theory-based deployment of star-wireless sensor network for building energy management system. "Energy and Buildings Journal", ENB-D-23-01813. 2023.
- 2- Experimental investigation of the thermal performance of high-temperature flat heat pipe with a single heat source and a multi heat source. "Thermal Science and Engineering Progress Journal", TSEP-D-23-00007. 2023.

## **Publications:**

- Journal and Conference Papers:

- 1- **Alanazi, Mohammed A.**, and Thomas E. Diller. "Non-invasive thermal energy flow rate sensor for turbulent pipe flows." *Flow Measurement and Instrumentation* (2022):102236.  
<https://doi.org/10.1016/j.flowmeasinst.2022.102236>
- 2- **Alanazi, Mohammed A.**, and Thomas E. Diller. "New non-invasive thermal sensor design for a pipe flow." *Thermal Science and Engineering Progress* 29 (2022): 101238. <https://doi.org/10.1016/j.tsep.2022.101238>
- 3- **Alanazi, Mohammed A.**, and Thomas E. Diller. "Noninvasive Method to Measure Thermal Energy Flow Rate in a Pipe." *ASME Journal of Thermal Science and Engineering Applications* 13, no. 3 (2021).  
<https://doi.org/10.1115/1.4048676>