CURRICULUM VITAE

PERSOLNAL DATA:

- Name: YOUSUF ALHENDAL
- **Title:** Associate Professor
- **Languages:** Arabic, English
- **Major:** Mechanical Engineering & Management
- **Fine:** Thermo-Fluid Engineering, Multiphase flow in Normal and Zero-Gravity. Computational Fluid dynamics (CFD)
- **Location**: Public Authority for Applied Education and Training, (PAAET) College of Technological Studies (CTS), Mechanical Power and Refrigeration Department Building 20, Room 29, **Phone**: 99031913, **email:** ya.alhendal@paaet.edu.kw

ACADEMIC QUALIFICATIONS:

- B.Sc. In Mechanical Engineering Tech. & minor in Mechanical Engineering, Dec. 2002, Old Dominion University, USA.
- M.Sc. In Mechanical Engineering. May 2003, Old Dominion University, USA.
- PhD In Mechanical Engineering. October 2013, The University of Manchester, UK
- Thesis entitled: Computational Two Phase Marangoni Flow in a Microgravity Environment.

CONSULTING, AWARD and ENGINEERING EXPERIENCE

- Oil field maintenance engineer. Kuwait National Petroleum Company, **KNPC**, Kuwait. (2003 – 2006)
- Kuwait Society of Engineers
- **HONORABLE MENTION CERTIFICAT**E, American Society for Engineering Education (2001), USA.
- Safety Lecturer at Kuwait petroleum company, **KNPC**, (SHEMS), Kuwait, (2006).
- Certificate of appreciation **ASHRAE** Kuwait Chapter (2021-2022)
- **WILEY Reviewer Certificate** for serving as a reviewer **for JOURNAL of ENGINEERING (2024).**
- Membership and many participations in consulting committees of the **Kuwait Society of Engineers** (2024).

COURESES ATTENDED

- On Job Training (**KNPC**) from (1/4/2005 to 27/9/2006)
- Boiler and steam generator & troubleshooting, Training Centre of National Petroleum Company. September 2004
- General refinery knowledge, Kuwait University 2004.
- Train the Trainer and Assessor Workshop, 24th – 26th September 2018, Under the **National Certification Program** of: "Kuwait Environmental Refrigerant Management". (**UN environment**)
- Attended workshop on **Web of Science and Journal Citation Reports** (2023).
- Attended **Elsevier** Training on Journal Selection, Avoiding Predatory Publishing and Research Towards SDGs (2024).
- Introductory and Level 1 **Moodle** Course.
- Microsoft **Teams** Course.
- Attended many other workshops introduced by **PAAET**.
- Many oil refinery **safety** courses, Many Microsoft office courses.

AREA OF RESEARCH

- Heat Transfer (Natural and Forced Convection).
- Multiphase flow. (Experimental and numerical).
- Computational Fluid Dynamics (CFD) - Ansys Fluent.

COURSES TAUGHT

- Control Systems
- Chemistry
- Electric Circuits
- Maintenance
- Fuels and Lubricants
- Physics
- Electrical and Magnetic
- Principles of sound science
- Fluid Mechanics
- Computers
- Heat and Mass Transfer
- Thermodynamics
- Fundamentals of Astronomy
- Industrial Safety
- Heat Exchangers

PUBLICATIONS

Published journal papers:

1. **Alhendal, Y.;** Turan, A.; Aly, W.I.A. (2010). VOF simulation of marangoni flow of gas bubbles in 2D-axisymmetric column. Procedia Computer Science, Volume 1, Issue 1, May 2010, Pages 673-680. http://dx.doi.org/10.1016/j.procs.2010.04.072
2. **Alhendal Y**, Turan A (2011). Numerical Investigation Regarding the Influence of 3-D Marangoni Flow on Bubble Behaviour in a Rotating Cylinder. Chemical Engineering Transactions. 2011 April; 24: 1381-1386, https://doi.org/10.3303/CET1124231
3. **Yousuf Alhendal,** Ali Turan, Peter Hollingsworth (2013). Thermocapillary Simulation of Single Bubble Dynamics in Zero-Gravity. Acta Astronautica. April (2013). http://dx.doi.org/10.1016/j.actaastro.2013.03.017.
4. **Alhendal, Y.** & Turan, A. 2015. Thermocapillary Bubble Dynamics in A 2d Axis Swirl Domain. Heat And Mass Transfer, 51, 529-542. https://doi.org/10.1007/s00231-014-1427-9
5. **Alhendal, Y.**, Turan, A., & Al-Mazidi, M. (2015). Interactions and Collisions of Bubbles in Thermocapillary Motion: A 3D Study. *Particulate Science and Technology*, *33*(5), 503–509. https://doi.org/10.1080/02726351.2014.1003627
6. **Alhendal, Y.,** A. Turan, et al. (2015). "Thermocapillary bubble flow and coalescence in a rotating cylinder: A 3D study." Acta Astronautica 117: 484-496. http://dx.doi.org/10.1016/j.actaastro.2015.09.009
7. **Alhendal, Y.,** A. Turan, et al. (2016). Thermocapillary migration of an isolated droplet and interaction of two droplets in zero gravity. Acta Astronautica 126: 265-274 http://dx.doi.org/10.1016/j.actaastro.2016.05.001
8. **Alhendal, Y.**, Turan, A. & Kalendar, A. Wall effects on the thermocapillary migration of single gas bubbles in stagnant liquids. *Heat Mass Transfer* 53, 1315–1326 (2017). https://doi.org/10.1007/s00231-016-1903-5
9. **Alhendal, Y.** & Turan, A. Thermocapillary Flow and Coalescences of Heterogeneous Bubble Size Diameter in a Rotating Cylinder: 3D Study. Microgravity Sci. Technol. (2016) 28: 639. https://doi.org/10.1007/s12217-016-9521-x
10. Ahmed Kalendar; Abdulrahim Kalendar; **Yousuf Alhendal**., An Evaluation of Turbulence Models For The Numerical Study of Natural And Forced Convective Heat Transfer From Vertical Plates In The Laminar And Turbulent Flow Regions. January 2016. Computational Thermal Sciences 8(6). DOI: 10.1615/ComputThermalScien.2016018660
11. **Yousuf Alhendal,** Abdalla Gomaa. Three Dimensional CFD Modeling of Turbulent Flow Through Circular Tube Using Swirl Generator Vanes at Different Positions. International Journal of Mechanical and Production Engineering, ISSN: 2320-2092, Volume- 5, Issue-6, Jun.-2017 https://www.iraj.in/journal/journal_file/journal_pdf/2-382-1504087797106-111.pdf
12. Ahmed Kalendar; Abdulrahim Kalendar**; Yousuf Alhendal** & other**,** Natural Convective Heat Transfer from Horizontal Isothermal Surface of Polygons of Octagonal and Hexagonal Shapes March 2019 Journal of Thermal Science and Engineering Applications 11(5):1 DOI:10.1115/1.4043006.

13. **Alhendal, Y.**, Turan, A., Kalendar, A. *et al.* Thermocapillary Bubble Migration at High Reynolds and Marangoni Numbers: 3D Numerical Study. *Microgravity Sci. Technol.* 30, 561–569 (2018). https://doi.org/10.1007/s12217-018-9643-4
14. Rafik El Shiaty, Swilem A. M. S, Hilal Abdelwali, **Yousuf Alhendal,** Evaluation of Energy Saving in a Package Air Conditioner with Optimum Atomized Water Spray Type Evaporative System. (Case Study: A Villa in Kuwait), American Journal of Engineering Research (AJER), E-ISSN: 2320-0847 p-ISSN: 2320-0936 Volume-7, Issue-12, pp-277-285. https://www.ajer.org/papers/Vol-7-issue-12/ZJ0712277285.pdf
15. **Yousuf Alhendal**, Aboelyazied M. Kuliab, Rafik M. El Shiaty. Feasibilities of Using Energy–Efficient Glass Walls in Air Conditioned Buildings in Kuwait, February 2019 International Journal of Engineering and Technical Research (IJETR) 9(2) DOI: 10.31873/IJETR.9.2.2019.19
16. **Yousuf Alhendal**, Ali Turan, Abdulrahim Kalendar, Hosny Abou-Ziyan. Bubble Population Balance Modeling for Stationary and Rotating Columns Under ZeroGravity: Numerical Study, Advances in Mechanical Engineering; SAGE Publishing, https://doi.org/10.1177/1687814019885259
17. **Alhendal, Y**., Gomaa, A., and Abdelmagied, M. (February 26, 2020). "Combined Enhancement Techniques on Double Tube Heat Exchanger Using Nanofluid and Helicoid Tube Shape." ASME. **J. Thermal Sci. Eng. Appl**. October 2020; 12(5): 051011. https://doi.org/10.1115/1.4046009
18. **Yousuf Alhendal**, Abdalla Gomaa, Gamal Bedair, Abdulrahim Kalendar, "Thermal Performance Analysis of Low-GWP Refrigerants in Automotive Air-Conditioning System", Advances in Materials Science and Engineering, vol. 2020, Article ID 7967812, 14 pages, 2020. https://doi.org/10.1155/2020/7967812
19. **Yousuf Alhendal,** Aboelyazied Kulaib, Shafqat Hussain, Abdulrahim Kalendar, Adel Alenzi, Rafik El Shiaty. Improving Solar Stills Productivity By Using Nanofluids Technology, February 2020, JP Journal of Heat and Mass Transfer 19(1):73-96. http://dx.doi.org/10.17654/HM019010073
20. Abdulrahim Kalendar, **Yousuf Alhendal**, Shafqat Hussain, Sayed Karar and Patrick Oosthuizen, "Natural Convective Heat Transfer from Vertical Isothermal Polygonal Cylinders", *Journal of Thermophysics and Heat Transfer*, volume = 35, 4, pages 854-868, (2021). https://doi.org/10.2514/1.T6207.
21. Abdulrahim Kalendar, **Yousuf Alhendal**, Shafqat Hussain and Patrick Oosthuizen, "Thermal Interaction of Natural Convective Heat Transfer from Two Vertically and Horizontally Separated Isothermal Elements", Computational Thermal Sciences. DOI: 10.1615/ComputThermalScien.2020034447
22. Abdulrahim Kalendar, Aboelyazied Kulaib, Shafqat Hussain and **Yousuf Alhendal**, "Case study on the effects of feed water temperature on the performance of a reverse osmosis desalination system", Desalination and Water Treatment, Vol. (205), 2020, 46-52,5004/dwt.2020.26385 DOI: https://doi.org/10.5004/dwt.2020.26385
23. Aboelyazied Kulaib, Abdulrahim Kalendar Shafqat Hussain and **Yousuf Alhendal**, "A Parametric Study of the Energy Efficiency of Existing Air-Conditioned Buildings in Kuwait", Journal of Green Building, 16(1), 2021, 163-178. https://doi.org/10.3992/jgb.16.1.163.
24. Kalendar, A., **Alhendal, Y**., Turan, A. et al. Numerical Investigation of the Effects of High Reynolds and Marangoni Numbers on Thermocapillary Droplet Migration. Microgravity Sci. Technol. 33, 23 (2021). https://doi.org/10.1007/s12217-021-09874-8.
25. Abdulrahim Kalendar, **Yousuf Alhendal**, Shafqat Hussain, Patrick Oosthuizen. Effect of Inclination on Natural Convective Heat Transfer from a Slender Cuboid. ***Processes*** **2021**, 9(9), 1668; https://doi.org/10.3390/pr9091668
26. **Alhendal**, **Y**., Touzani, S., Turan, A. et al. Thermocapillary Bubble Oscillations and Migration in a Vibrating Cylinder in a Zero-Gravity Environment. *Microgravity Sci. Technol*. 35, 22 (2023). https://doi.org/10.1007/s12217-023-10046-z
27. **Alhendal, Y**. Wall Effects on the Thermocapillary Migration of Isolated Droplet in Liquids. *Multiphase Science and Technology*. Volume 35, Issue 2, 2023, pp. 79-93 (2023). DOI: 10.1615/MultScienTechn.2023047718
28. **Alhendal, Y**., Touzani S., Effects of Sidewall Heat Flux on Thermocapillary Droplet Migration, *Interfacial Phenomena and Heat Transfer*, (2023).

DOI: 10.1615/InterfacPhenomHeatTransfer.2023049065

29. **Alhendal, Y**., Touzani, S. (2023). Influence of inclination angles on convective heat transfer in solar panels. *International Journal of Heat and Technology*, Vol. 41, No. 4, pp. 808-814. https://doi.org/10.18280/ijht.410403
30. **Alhendal, Y**. Influence of Temperature Gradients and Fluid Vibrations on the Thermocapillary Droplet Behavior in a Rotating Cylinder, *Heat Transfer Research*, Volume 55, Issue 9, 2024. **DOI:** 10.1615/HeatTransRes.2024051366
31. Alhendal, Y., Kalendar, A. Experimental and numerical studies of laminar natural convection heat transfer from an isothermally heated narrow flat plate oriented at different angles of rotation. Heat Mass Transfer 61, 18 (2025). https://doi.org/10.1007/s00231-025-03538-8
32. **Alhendal, Y.**, Touzani, S. Impact of heat flow from the cylinder sidewalls on thermocapillary droplet flow in a vibrating fluid: 3D study. *Heat Mass Transfer* (2024). https://doi.org/10.1007/s00231-024-03499-4
33. Touzani, S**., Alhendal, Y**. (2024). Forced convection over an inclined heated plate with varying aspect ratios: 3D numerical and experimental investigations. *International Journal of Heat and Technology*, Vol. 42, No. 4, pp. 1111-1119. https://doi.org/10.18280/ijht.420401
34. **Yousuf Alhendal**, Sara Touzani. Thermocapillary Bubble Movement in A Vibrating Fluid Inside a Rotating Cylinder. **Multiphase Science and Technology**. Volume 37, Issue 1, 2025, pp. 41-56. DOI: 10.1615/MultScienTechn.2024055659
35. **Alhendal**, Y., Alhamli, M. (2025). Comparing thermocapillary bubble migration in normal and zero gravity in small-scale containers. International Journal of Heat and Technology, Vol. 43, No. 5, pp. 1644-1656. https://doi.org/10.18280/ijht.430503
36. Alhamli M., **Alhendal, Y**., Al-Sairfi H., (2026). Thermocapillary droplet flow in small-scale containers: the effect of gravity, accepted for publication.
37. Alhamli M., **Alhendal, Y**., Al-Sairfi H., (2026). Thermocapillary droplet flow in small-scale containers: the effect of gravity, Microgravity Science and Technology, accepted for publication.
38. Alhamli M., **Alhendal, Y**., Al-Sairfi H., (2026). Thermocapillary migration of FC-75 droplet in silicone oil and phase reversal, Interfacial Phenomena and Heat Transfer, accepted for publication.

Conferences:

39. **Alhendal, Y.** & Turan, Bubble Population Balance Modelling for Stationary and Rotating cylinder, UKHTC 2017 4-5 September, Brunel University London 2017. https://www.uknhtc.org/ukhtc15-brunel
40. **Alhendal Yousuf**, Gomaa Abdalla, Three Dimensional CFD Modelling of Turbulent Flow Through Circular Tube Using Swirl Generator Vanes at Different Positions, International Academic Conference on Engineering, Technology and Innovations (IACETI) Cairo, Egypt 11 -12 April 2017, ISBN- 978-93-86083-34-0.
41. **Alhendal, Y.** & Turan, A. 2016. Bubble Population Balance Modelling in Zero Gravity, The Tenth International Conference on Engineering Computational Technology 4-6 September 2018, Sitges, Barcelona, Spain. http://www.wikicfp.com/cfp/servlet/event.showcfp?eventid=69424
42. **Alhendal, Y**. & Turan, Wall Effects on the Thermocapillary Migration of Single Gas Bubbles in Liquid A 3D Study, UKHTC 2017 4-5 September, Brunel University London 2017. https://www.uknhtc.org/ukhtc15-brunel
43. **Alhendal, Y. & Turan**, Wall Effects on the Thermocapillary Migration of Single Fluorinert Droplet in Silicon Oil Liquid, Proceedings of the 16th UK Heat Transfer Conference (UKHTC2019) 8-10 September 2019, UKHTC2019-03, Nottingham. https://www.nottingham.ac.uk/conference/fac-eng/ukhtc2019/index.aspx
44. **Alhendal, Y.** & Turan, Numerical Study of the Impacts of Forced Vibration on Thermocapillary Droplet Migration in Zerogravity Environment. 4th Polish Congress of Mechanics & 23rd International Conference on Computer Methods in Mechanics 20, Poland, Krakow 8-12 September 2019. https://cris.pk.edu.pl/info/conference/CUTee13d6e8f2e44e58909b30a5a706771d/
45. Alhendal, F. & **Alhendal, Y.** Numerical study of the impacts of forced vibration on thermocapillary bubble migration in a rotating cylinder, Proceedings of the 16th UK Heat Transfer Conference (UKHTC2019) 8-10 September 2019, UKHTC2019-59, Nottingham.

https://www.uknhtc.org/ukhtc16-nottingham

46. Alhendal, M. & **Alhendal, Y.** Numerical study of the impacts of forced vibration on thermocapillary bubble migration, Proceedings of the 16th UK Heat Transfer Conference (UKHTC2019) 8-10 September 2019, UKHTC2019-00, Nottingham. https://www.uknhtc.org/ukhtc16-nottingham
47. **Alhendal, Y**., et al. The Effect of Changing Surface Tension with Temperature on The Coalescence of Two Bubbles in Zerogravity Condition, Proceedings of the 17th Uk Heat Transfer Conference (Ukhtc2021) 4-6 April 2022, Ukhtc2021-00, Manchester. https://www.uknhtc.org/ukhtc17-manchester
48. **Alhendal**, **Y**. & Turan, A. Thermocapillary Droplet Flow in a Rotating Cylinder A 3D study, The Eleven International Conference on Engineering Computational Technology 23-25 August 2022, Montpellier, France. http://www.wikicfp.com/cfp/servlet/event.showcfp?eventid=115063
49. **Alhendal, Y.**, Touzani S., Turan, A., Effect of Side Wall Heat Flux on Thermocapillary Droplet Migration, 14 International Conference on Computational Heat and Mass Transfer, ICCHMT 2023, 4-8 September 2023, Düsseldorf, Germany, https://link.springer.com/collections/cibfhjhfhd
50. **Alhendal, Y.**, Touzani S., Effect of Fluid Vibrations and Temperature Gradients on the Behavior of Thermocapillary Droplet in a Rotating Cylinder, 14 International Conference on Computational Heat and Mass Transfer, ICCHMT 2023, 4-8 September 2023, Düsseldorf, Germany. https://link.springer.com/collections/cibfhjhfhd
51. **Alhendal, Y.,** Touzani S., Thermocapillary Bubble migration in very small-scale containers in Normal gravity environment, 8th Micro and Nano Flows Conference, University of Padova, IT, 18-20 September 2023. https://www.micronanoflows.com/mnf2023
52. **Yousuf Alhendal**, Sara. Touzani, "Impact of Fluid Vibration and Temperature Gradient on Thermocapillary Droplet Flow", Proceedings of 7th ASME International Conference of Micro/Nanoscale Heat and Mass Transfer MNHMT2024 August 5-7, 2024, Nottingham, UK. https://doi.org/10.1115/MNHMT2024-121929
53. **Yousuf Alhendal**, Sara Touzani, Fatimah Alqallaf, "The Effect of the Temperature Gradient on the Thermocapillary Droplet Flow in a Vibrating Fluid Inside a Rotating Cylinder", Proceedings of the 18th UK Heat Transfer Conference 9-11 September 2024. Birmingham. UKHTC-2024_abstracts_2024-09-05_1725564752-Book-of-Abstracts
54. **Alhendal, Y.,** Thermocapillary Flow and Combining of Two Bubbles Under Varying Temperature Gradients, 9th Micro and Nano Flows Conference, University of Edinburgh, Scotland - UK, 03-05 September 2025.
55. Sara Touzani, **Yousuf Alhendal**, Abdelkhalek Cheddadi, Mohammed Touhami Ouazzani, Performance enhancement of a concentric annular heat exchanger with isothermal blocks, 9th Micro and Nano Flows Conference, University of Edinburgh, Scotland - UK, 03-05 September 2025.

Book Chapter:

56. **Yousuf Alhendal**, Ali Turan (2011). Volume-of-Fluid (VOF) Simulations of Marangoni Bubbles Motion in Zero Gravity, Finite Volume Method. Finite Volume Method. CROATIA, INTEC.2012. http://dx.doi.org/10.1016/j.procs.2010.04.072
57. **Alhendal, Y**., Turan, A. (2021). Wall Effects on the Thermocapillary Migration of Single Fluorinert Droplet in Silicon Oil Liquid. In: Wen, C., Yan, Y. (eds) Advances in Heat Transfer and Thermal Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-33-4765-6_6
58. Alhendal M., **Alhendal Y.** (2021) Numerical Study of the Impacts of Forced Vibration on Thermocapillary Bubble Migration. In: Wen C., Yan Y. (eds) Advances in Heat Transfer and Thermal Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-33-4765-6_73
59. Alhendal F., **Alhendal Y**. (2021) Numerical Study of the Impacts of Forced Vibration on Thermocapillary Bubble Migration in a Rotating Cylinder. In: Wen C., Yan Y. (eds) Advances in Heat Transfer and Thermal Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-33-4765-6_62.