

# Yousef Saleh

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[YousefSaleh.com](http://YousefSaleh.com) | [in/YousefSaleh](https://in/YousefSaleh)

## EDUCATION

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<b>Doctor of Philosophy, Mechanical Engineering, Summer 2024</b> Florida State University	<b>Tallahassee, FL</b>
<b>Master of Science, Mechanical Engineering, Fall 2023</b> Florida State University	<b>Tallahassee, FL</b>
<b>Bachelor of Science, Aerospace Engineering, December 2018</b> The University of Texas at Austin	<b>Austin, TX</b>

## EXPERIENCE

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**Graduate Research Engineer, Florida State University** **08/2019 – present**

- Operated a high-pressure anechoic facility with stagnation temperatures up to 1500 K, generating supersonic jets up to a fully expanded Mach number of 2.5.
- Produce flow visualizations through recognized techniques such as Shadowgraph, Schlieren, and Particle Image Velocimetry (PIV)
- Recorded and Analyzed data obtained using a variety of transducers to obtain spectral characteristics and recognize the acoustic capabilities of various types of nozzles and forms of active & passive flow control
- Exposure to high Overall Sound Pressure Level (OASPL) sounds and experience on how to mitigate and control
- Analyze continuous time signals and perform digital signal processing on discrete time signals
- Authored multiple conference and peer-reviewed journal papers and technical instructions/documentation
- Automate experimental processes to rapidly collect and process billions of data points to develop better understandings of the problems investigated
- Designed and developed a mechanism to rotate a supersonic nozzle in-situ, in increments of 0.25°, in order to map the acoustics generated by the jet

**Research Assistant, The University of Texas at Austin** **12/2016 – 12/2018**

- Initiated new process of data collection which increased efficiency from 92% to 100% through innovation of the LabVIEW software that controls the mechanical devices, instruments, and transducers, data collection units, and tanks that govern the Mach 1.8 wind tunnel
- Integrated a system of high-pressure jet streams, in conjunction with a ramp contained within the wind tunnel to introduce pressure perturbations into the flow
- Construct a PID controller to maintain the location of the shock train in the face of pressure disturbances regardless of frequency or magnitude
- Build hardware and software applications to further understand flow properties and analyze physical behaviors

## ACADEMIC & LEADERSHIP EXPERIENCES

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**Chief Engineer, Aircraft Design, The University of Texas at Austin** **01/2018 – 05/2018**

- Managed a team of 8 engineers to meet requirements, such as wing loading, payload, mass, speed, duration, risk assessment, sizing, and power, as requested by the customer in the RFI
- Evaluated control surfaces, electrical connections & wires, sensors, and autopilot systems
- Performed risk assessment and generated risk mitigation protocols
- Developed an Unmanned Air System (UAS) capable of following a flight path for assistance with fire & rescue emergency services via surveillance and payload drops

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## President, The University of Texas Water Ski Team

11/2016 – 11/2017

- Coordinated 60 members with a 10-person executive officer board to produce new forms of revenue, established a modern website, designed advertisements to accentuate the team brand across the nation
- Oversaw use of \$55,000 to lease a competition ski lake, procure new equipment, uphold and maintain a boat, cover traveling & accommodation costs, and restructured merchandise acquisition and distribution
- Refocused the team towards competitiveness and recruited a coach to accelerate individual growth
- Develop a long-term plan for the growth of the team and talent development

## SKILLS

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- Experienced with MATLAB, Python, C, SOLIDWORKS, LabVIEW, Office, HTML, CSS, JavaScript, oscilloscopes, multimeters, power supplies, lab equipment, active noise control, signal generators, anechoic chambers and their specifications
- Adept with high pressure systems, data acquisition, microphones, discrete and continuous time signal processes, labs, audio analysis, acoustic measurements using tools like B&K microphones, and digital signal processing
- Strong oral & written communication, self-motivated, team leadership, time management, test automation, attention to detail, managing large sets of data, and problem solving
- Work independently or in teams and adapt communication methods
- Proficient with engineering management, scheduling, technical discussion, room acoustics, and explanation of complex concepts, passive noise control
- Fluent in Arabic and English

## RELEVANT COURSEWORK

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- **Random Data Measurement & Analysis** – Course covered types of random data, statistical analysis, moments and characteristic functions, spectral and correlation analysis, input-output system models, and bias and random errors associated with estimating these quantities.
- **Introduction to Physical Acoustics** – Developed a working understanding of acoustics through wave theory for sound generation/radiation, propagation, and dissipation. Derived the governing wave equation. Practical situations such as reflection and transmission in duct, cavity, and architectural acoustics are discussed.
- **Electromechanical systems** – A practical/lab-based class that walked students through a variety of different sensors used to measure physical loads such as strain & pressure or electrical loads through multimeters & oscilloscopes
- **Active Flow Control** – A survey series that addressed applications of modern aerodynamic flow control techniques. Course included basic concepts, terminology, history, strategies/techniques, actuators, sensors, reduced-order modeling, and closed-loop control techniques.
- **Feedback Control Systems** – Introductory course on classical control theory and linear system models. Explored impulse response and transfer functions in addition to Single-input single-output (SISO) systems.
- **Viscous Fluid Flow** – Advanced course on forces and motions important in the dynamics of viscous flows. This includes viscous-dominated flows as well as those in which, at first glance, viscosity plays a seemingly secondary role.

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## PUBLICATIONS

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- **Saleh, Yousef**, Sellappan, P., Alvi, F.S., "Experimental Characterization of the Acoustics of a Supersonic Diamond Jet", *AIAA Journal* 61.10 (2023) pp: 4546-4555.
- Prasad, A., **Saleh, Yousef**, et al. "Effects of expansion ratio and nozzle asymmetry on the flow-field of a diamond jet," *AIAA journal*, 60.9(2022). pp: 5215 – 5231.
- Prasad A., **Saleh, Yousef**, et al. "Near-field and far-field effects of heating in an over-expanded Mach 2 diamond jet." *AIAA SCITECH 2022 Forum*. 2022.
- **Saleh, Yousef**, et al. "Experimental and Computational Study of a Mach 2 Diamond Jet." *AIAA Scitech 2021 Forum*. 2021.
- Vanstone, Leon, **Saleh, Yousef**, et al. "Closed-loop control of unstart in a Mach 1.8 isolator." *Journal of Propulsion and Power* 36.1 (2020): 153-157. 2020.