Aditya KRISHNA

in https://www.linkedin.com/in/adi413

@ aditya.krishna413@gmail.com

☐ +49(0)15125515425

📍 Heidelberg, Germany

Click or Scan for an interactive version of this resume

Acoustic Physicist and Data Scientist working on NDT and SHM using ultrasonics and machine learning.

Background and Experience

Acoustics, NDT Specialist and Data Scientist at Senseven GmbH

Oct '22 - Present, Vienna, Austria (Remote)

- Led the development of interpretable ML models to estimate valve leak rates from Acoustic Emission data, including signal processing, feature engineering, training and deployment; models are actively used for leak rate estimation.
- Optimized models for production with custom processing pipelines to ensure seamless integration on a smart mobile inspection device.
- Developed custom signal processing techniques to denoise transient AE signals, enabling reliable model predictions.
- Planned and conducted 15+ lab and on-site measurements at customer and partner locations to collect ground-truth data as well as validate and refine ML models.
- Evaluated and implemented production-ready algorithms for steam trap inspection, enabling automated failure detection and monetary loss estimation; currently in active use.
- Investigated the feasibility of detecting cavitation under high-noise conditions using acoustic emission techniques, contributing to future diagnostic capabilities.

Data Scientist, NDT Engineer at Baker Hughes

May '19 - Sep '22, Stutensee, Germany

- Developed algorithms and models to detect, classify, and size damages using active ultrasound, achieving a sizing accuracy of 85%.
- Led the acquisition, processing, and analysis of structured and unstructured ultrasonic data from inline inspection tools.
- Engineered automated algorithms for rapid extraction and classification of acoustic data, reducing manual effort and speeding up analysis workflows by several weeks.
- Planned and executed experimental measurements to develop a Phased Array inspection tool with enhanced reliability and performance.
- Designed a simulation tool to mitigate acoustic crosstalk in phased array measurements, improving the tool speed by 20%.
- Contributed as an Acoustics specialist in the development of machine learning models, improving predictive capabilities in ultrasonic inspections.

Doctoral Researcher, University of Bordeaux and CEA

Mar '16 - Mar '19, Bordeaux, France

- Developed a numerical simulation tool on Python for guided wave propagation in tubular structures, reducing computation times by 10-20× compared to FEM.
- Implemented parallel processing across multiple threads for enhanced computational efficiency.
- Designed and constructed an experimental setup with calibrated transducer arrays to validate simulation results through high-quality measurements.
- Formulated an Imaging algorithm to accurately detect and localize defects as small as 1/40th of the wavelength.
- Created experimental baseline subtraction techniques for Structural Health Monitoring applications, enabling detection of minute defects and those concealed behind structural obstacles.

Acoustic resonance based de-icing : Master's thesis, TU Braunschweig and DLR

Apr - Oct '15, Braunschweig, Germany

- Conducted comprehensive FEM simulations with ANSYS to predict resonance frequencies, mode shapes, and critical shear stresses at ice-structure interfaces.
- Designed and optimized positioning of piezoelectric actuators to maximize delamination effectiveness across multiple vibration modes.
- Successfully demonstrated ice delamination from aluminum and carbon fiber plates at resonance frequencies, validating simulation predictions in a specialized wind tunnel.
- Developed a methodology for implementing piezoelectric elements in ANSYS Harmonic Analysis using APDL command snippets.

Education

PhD Acoustic Physics	2016-2019	
University of Bordeaux and CEA Tech	Bordeaux, France	
MSc Aerospace Mechanics and Avionics (Specialization Structures)	2013-2015	
ISAE-SUPAERO	Toulouse, France	
BEng Aeronautical Engineering	2009-2013	
Manipal Institute of Technology	Manipal, India	

Software and Tools

Python, Git (SourceTree), Docker, Neptune.ai, ANSYS Workbench and APDL, Nastran, Patran, CATIA, ANSYS, SQL, MATLAB, LS-Dyna, Fusion 360, SketchUp

Languages

English (Fluent), German(B1), French (B1), Tamil (Native), Kannada, Hindi