PORTFOLIO

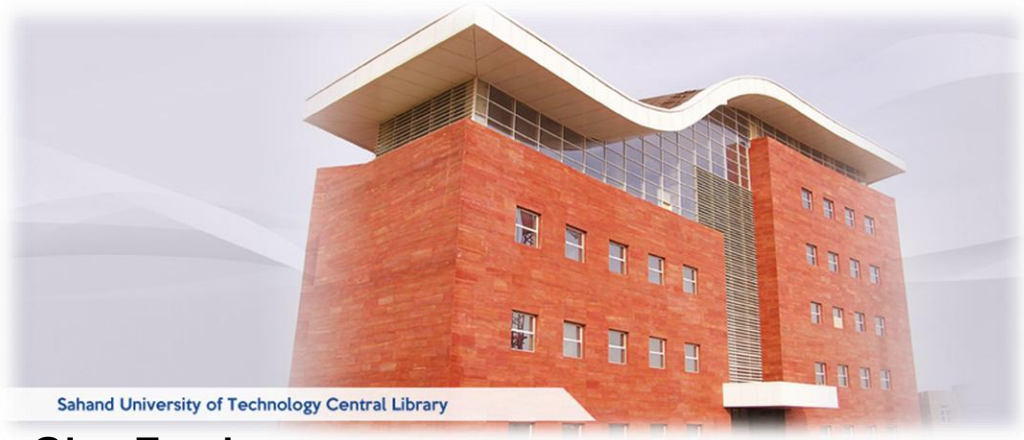
Sina Safari

PhD in Engineering

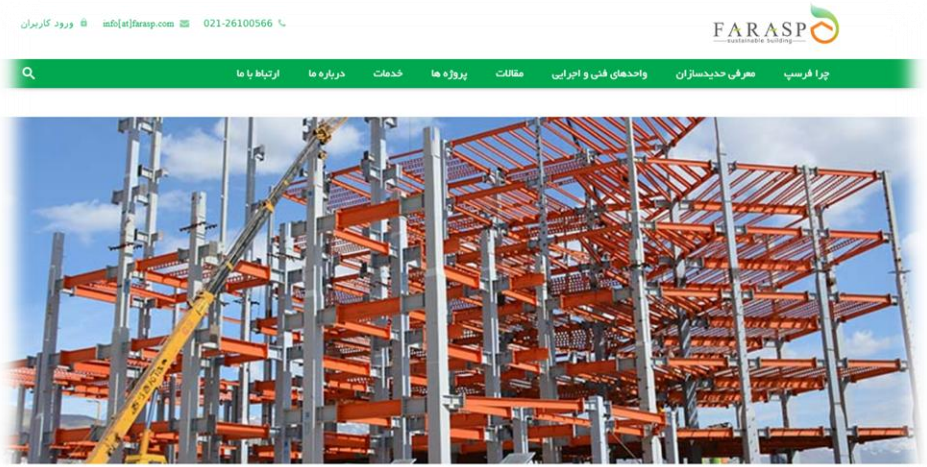
References can be found in my CV.



Site Engineer, Designer and Consultant

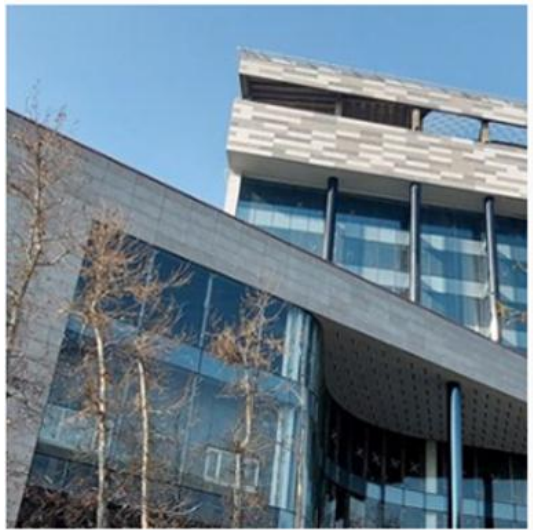


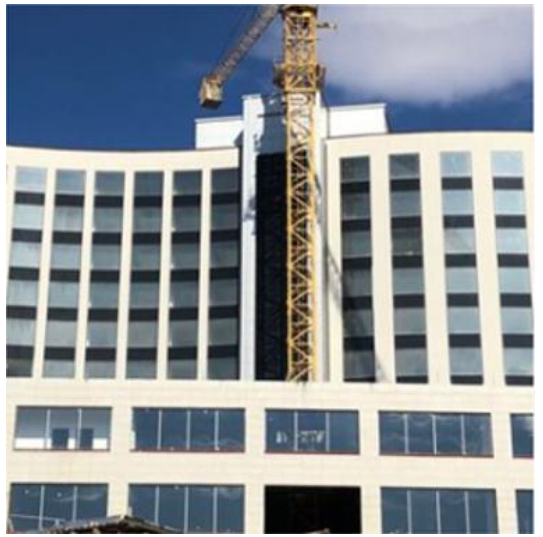
Site Engineer



Steel structures consultancy

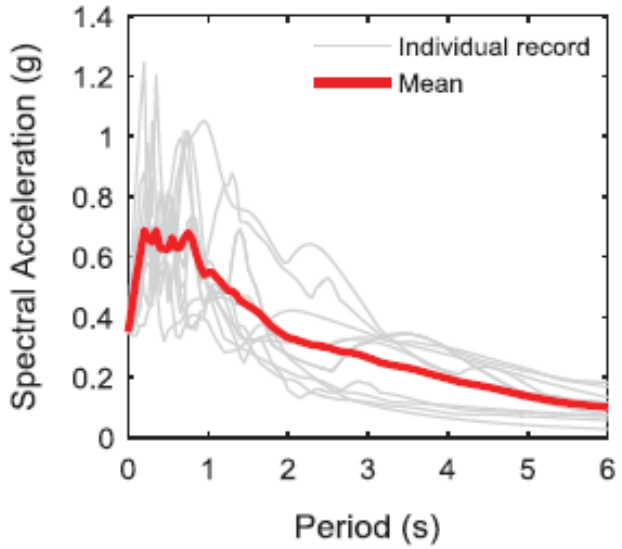


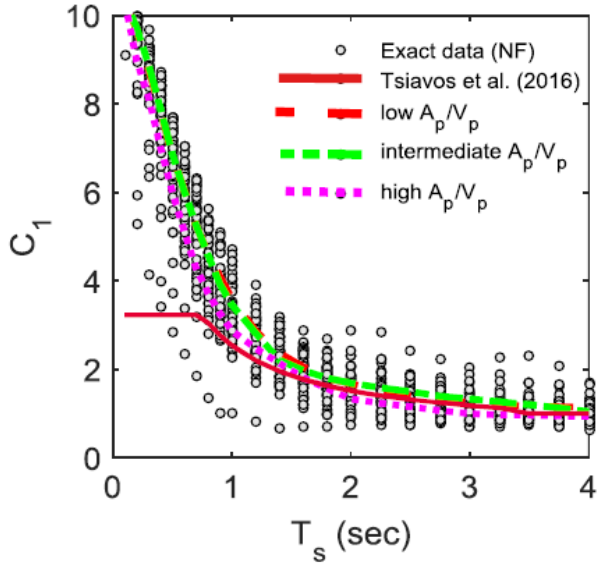




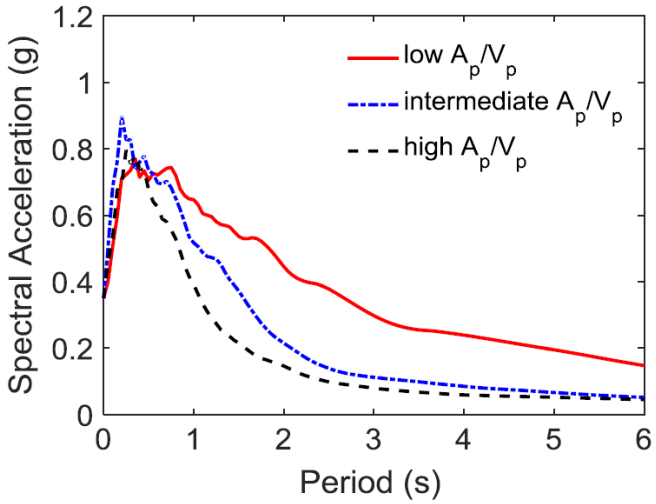
Façade support steelwork designer, Alum Art Co.

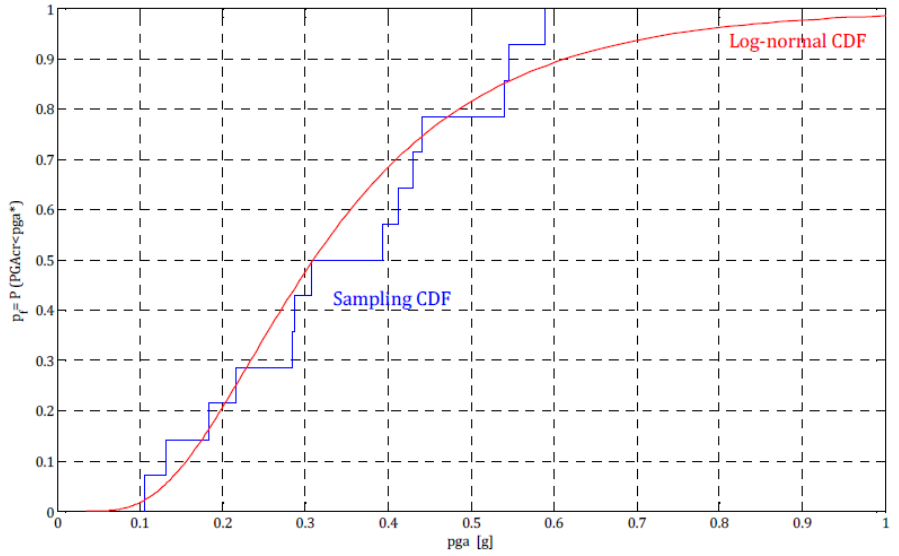
Seismic qualification and risk assessment





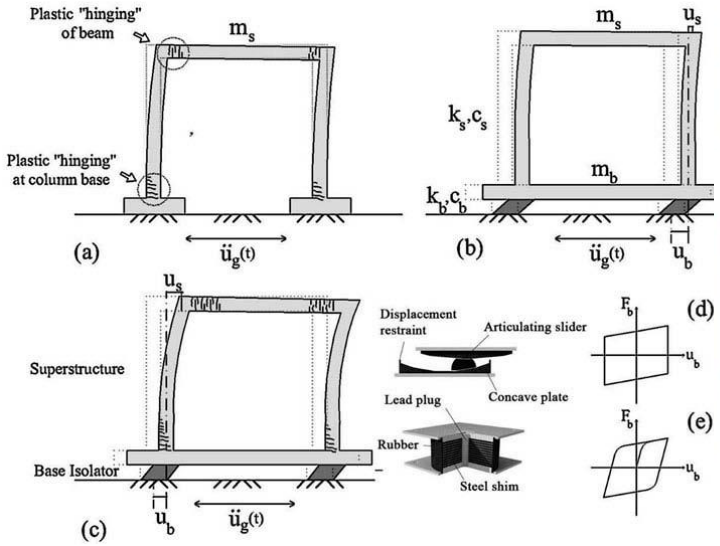
Inelastic displacement ratio (C1)

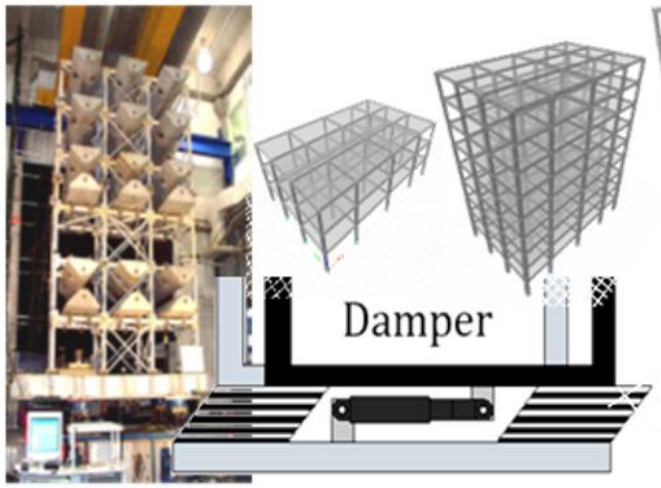


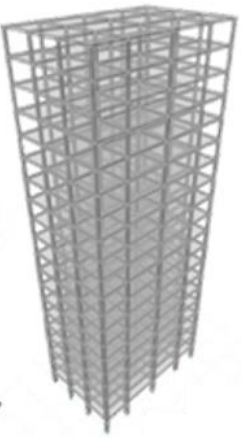


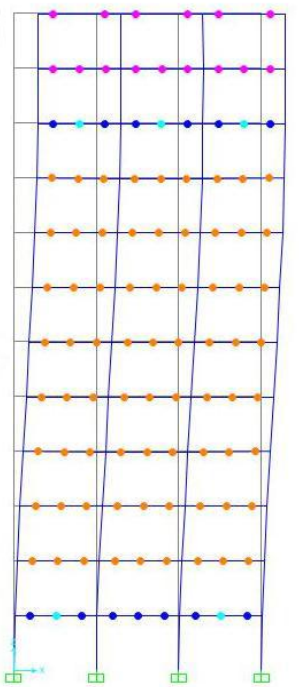
Probability of Failure

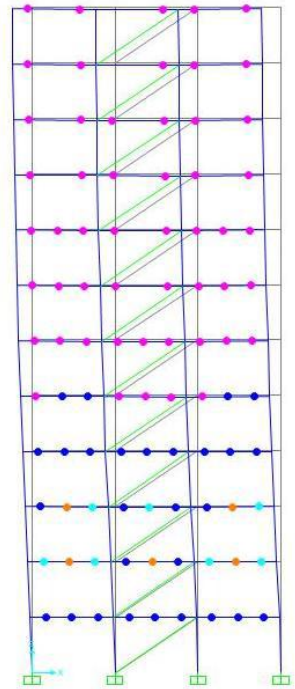
Performance-based Engineering

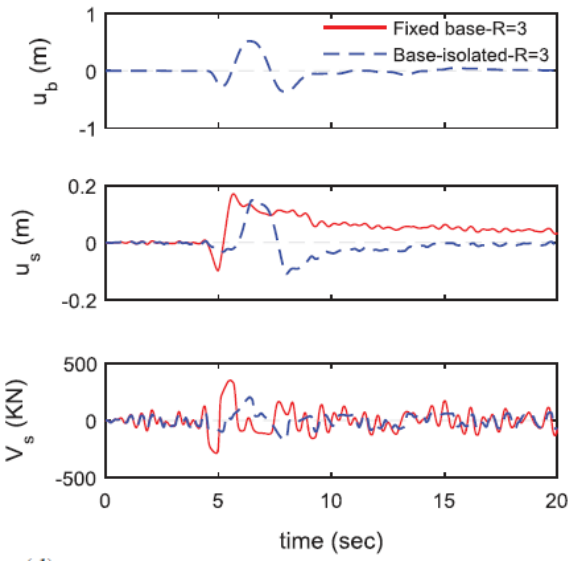


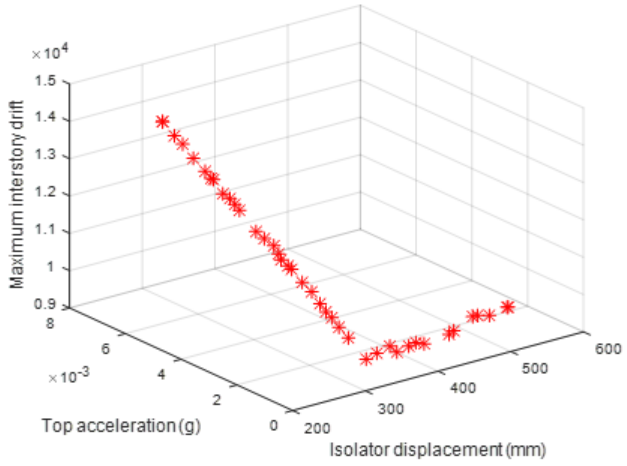




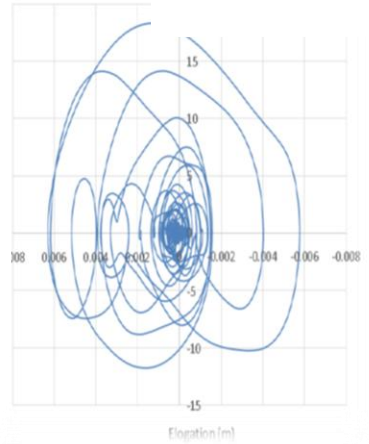


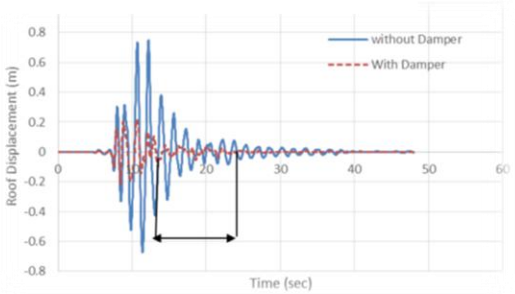




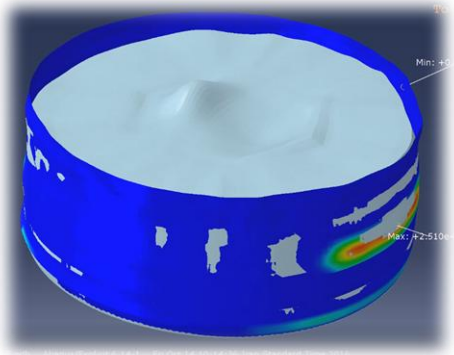


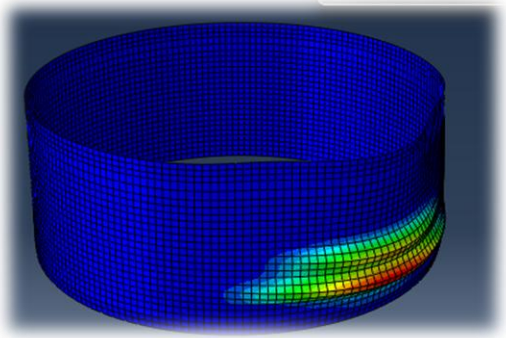
Design optimisation



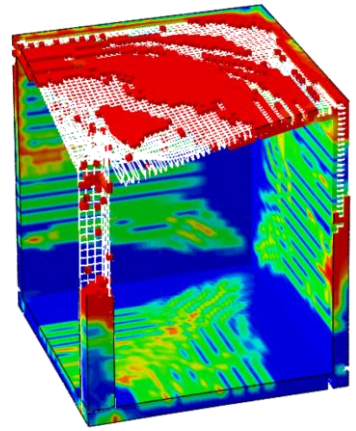


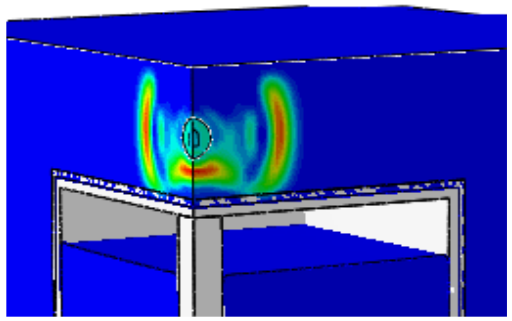
Computational Modelling





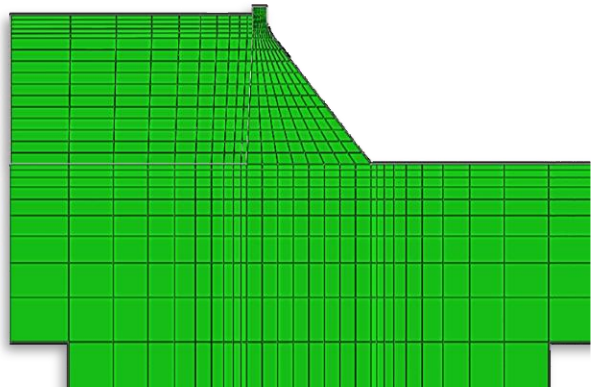
FSI and buckling

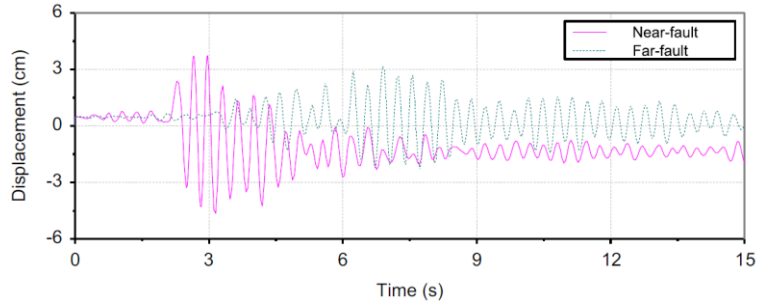


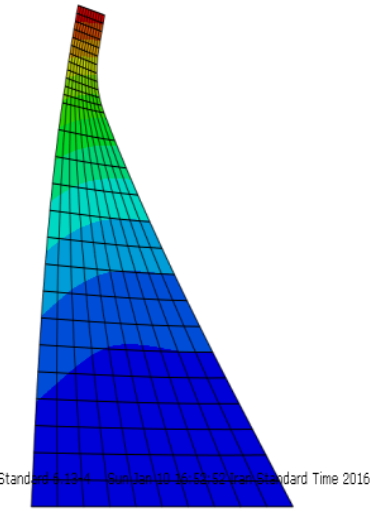


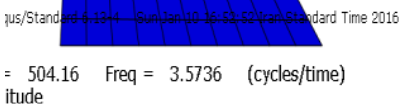
Multiphysics blast simulation

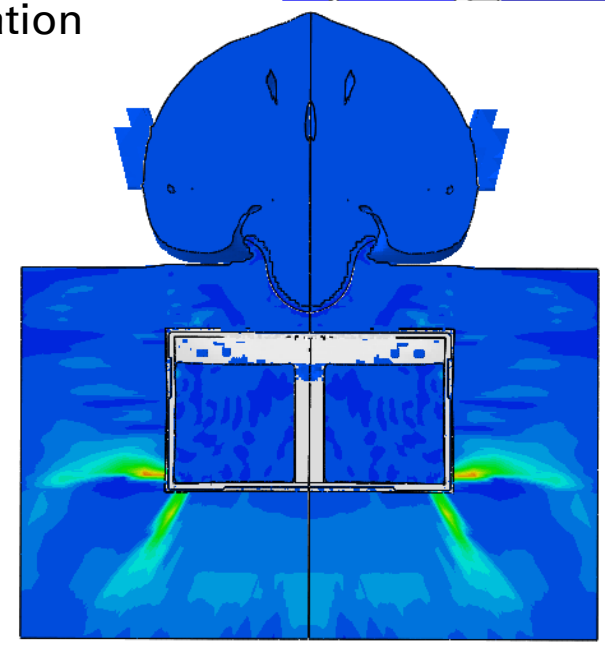
Dam-soil-fluid interaction



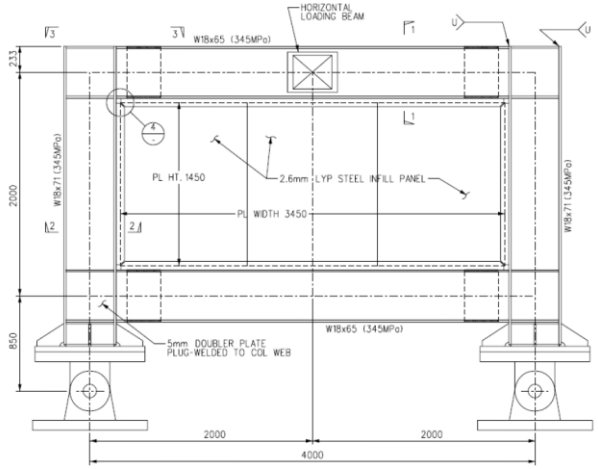


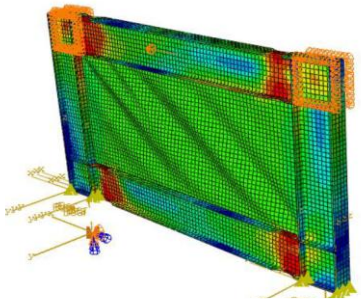


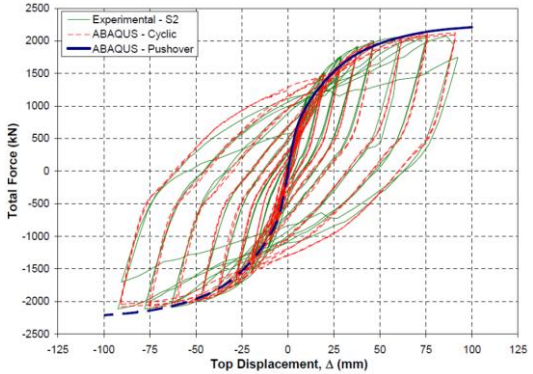


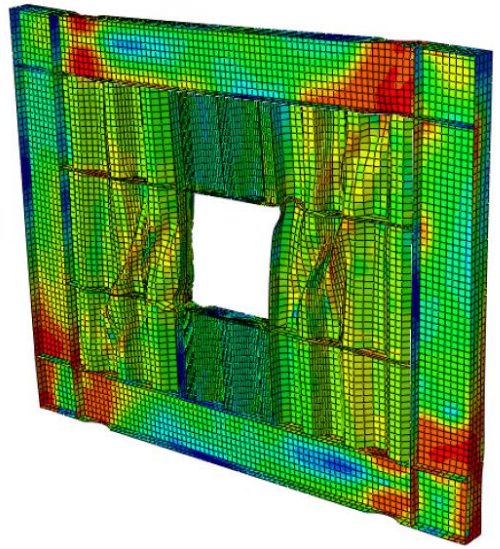


Computational Modelling

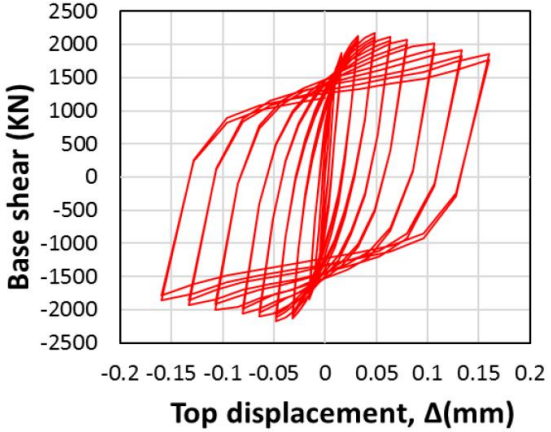




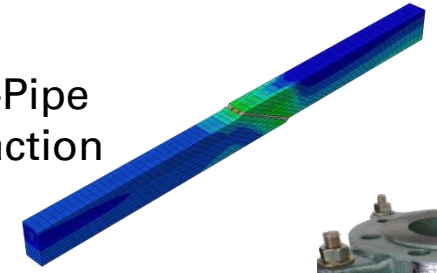


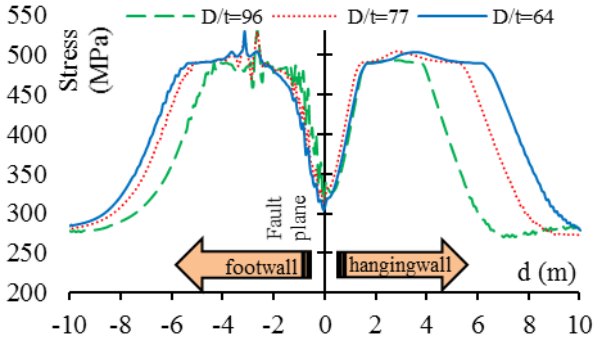


Metal shear wall opening

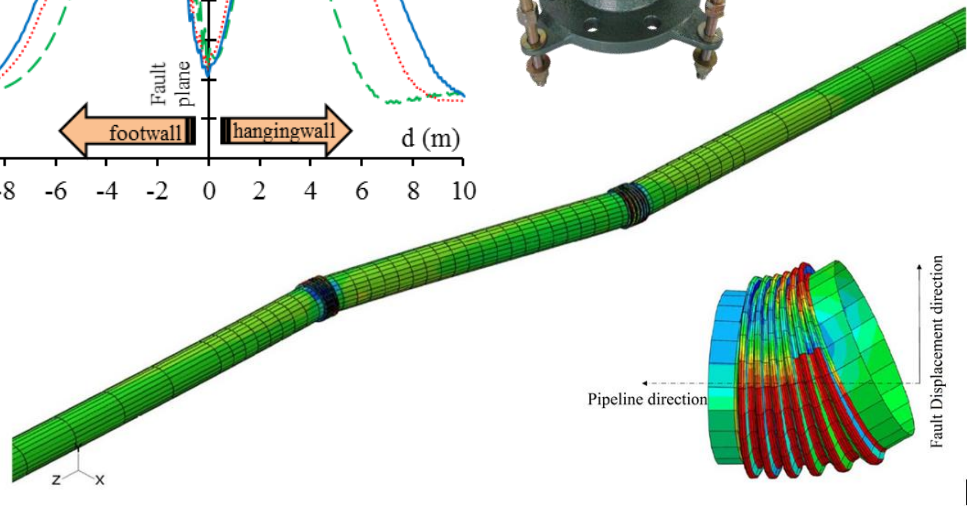


Fault-Pipe interaction

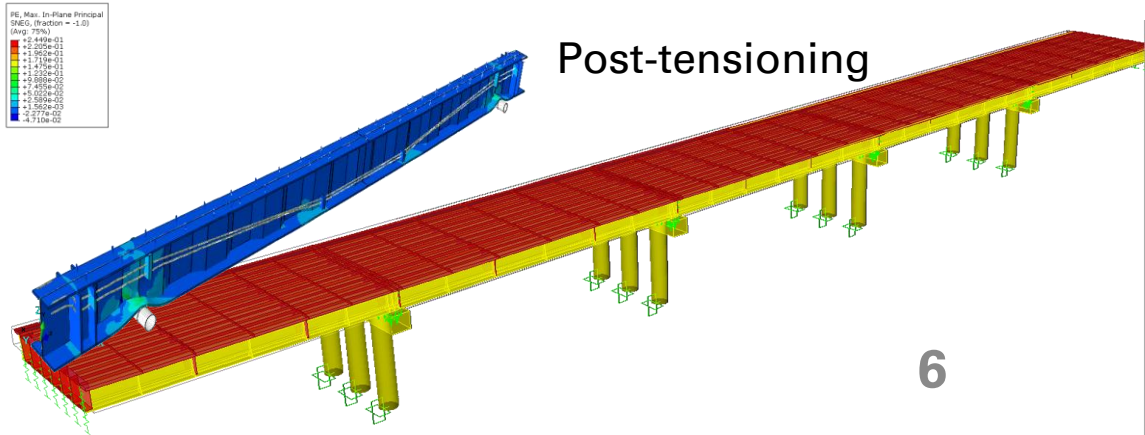






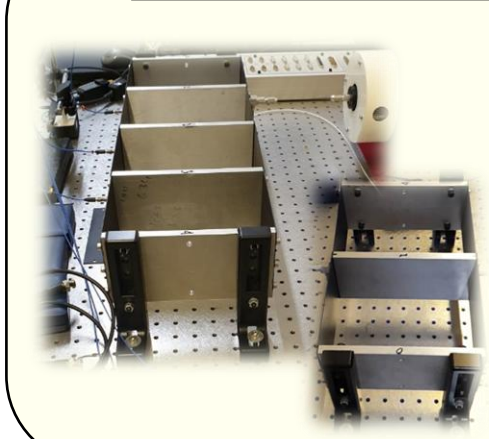


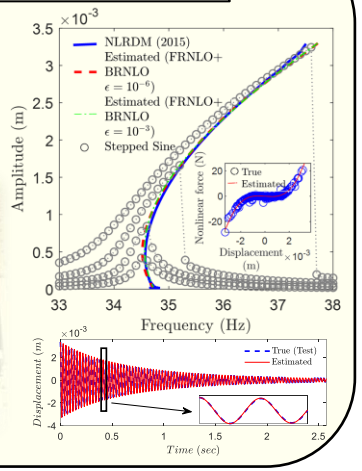
Post-tensioning



Experimental nonlinear dynamics

Geometric Nonlinearity + Friction at joints



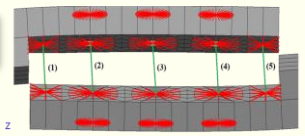


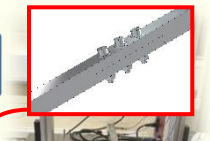
Frictional joints - Virtual Sensing

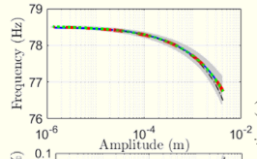
12492 DOF

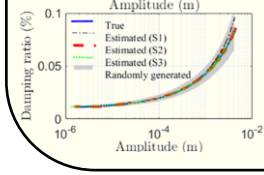
Reduced

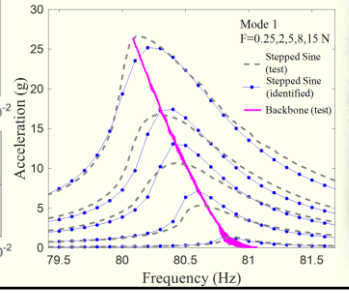
10 mode



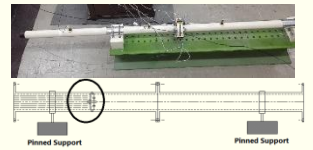


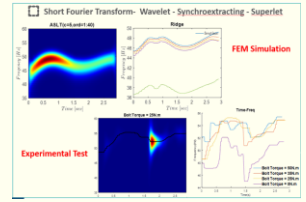






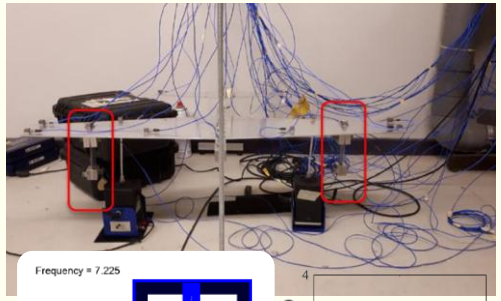
Collaborations

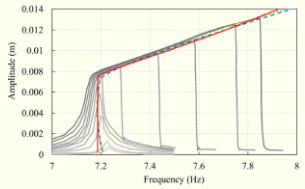


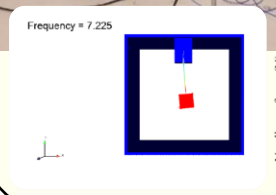


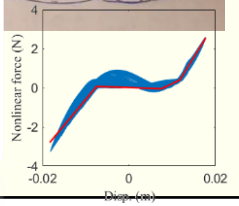
Pipeline health monitoring with University of Tabriz

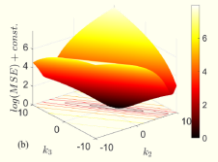
Asymmetric Nonlinearity





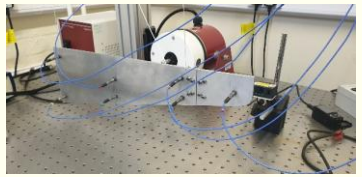


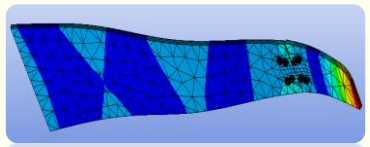




Flexible Joint







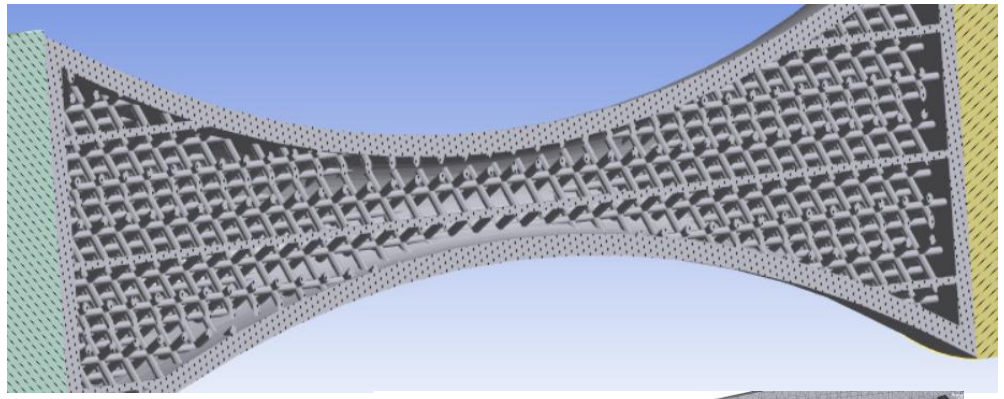
MATLAB & SIMULINK

LabVIEW

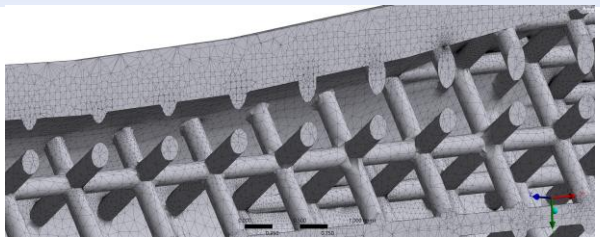
dSPACE Ansys

Additive Manufacturing

Size optimisation for ultrasonic fatigue testing specimen with internal lattice structure.

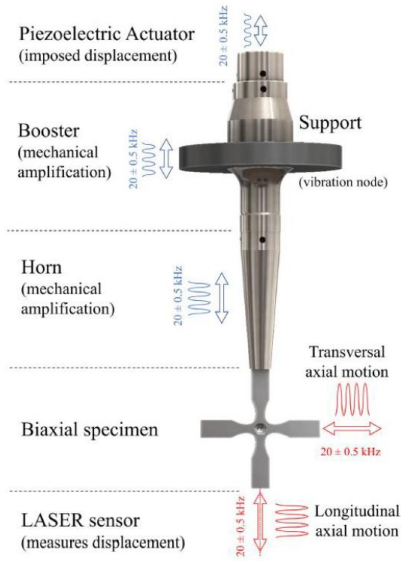


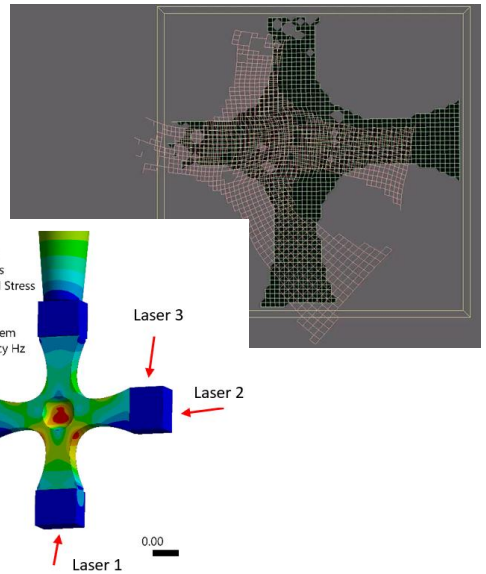


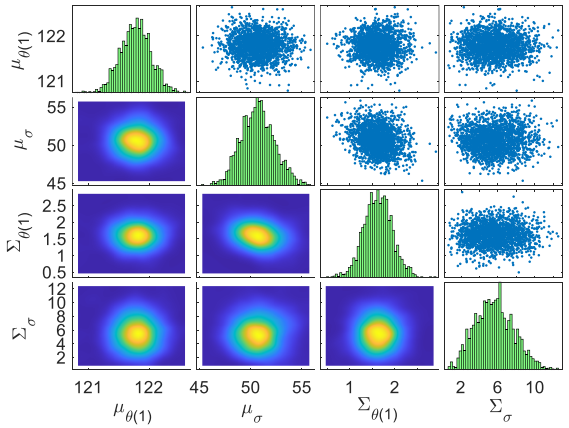


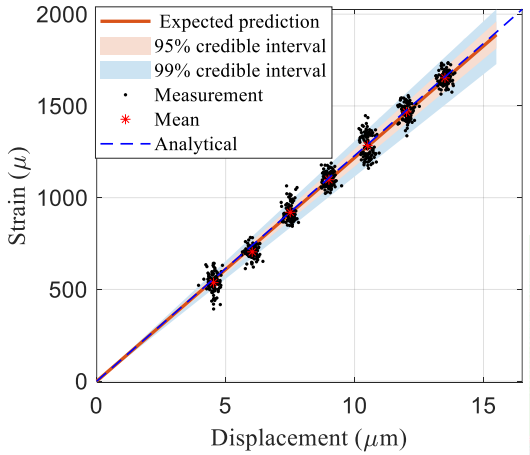


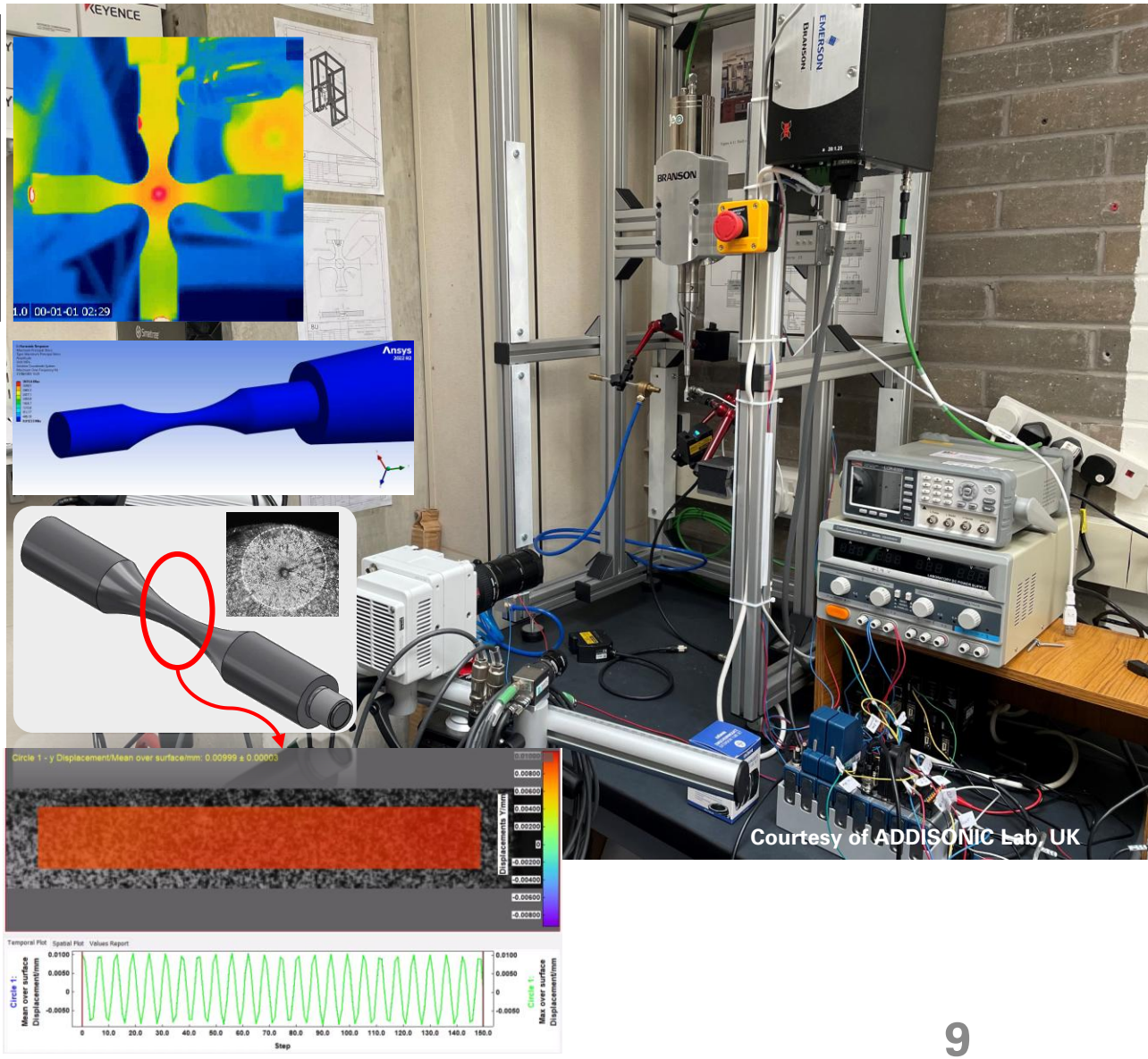
Ultrasonic Fatigue Testing









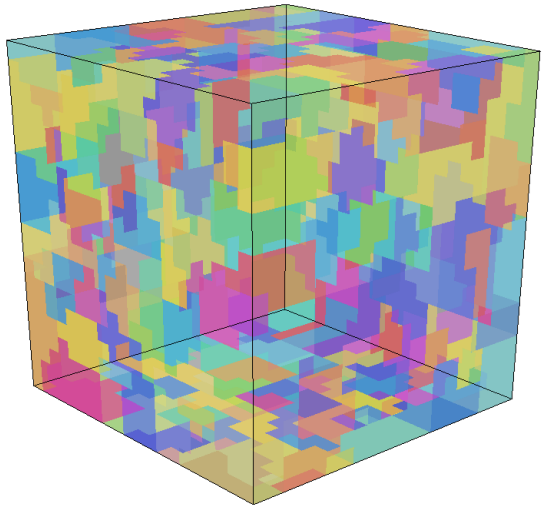


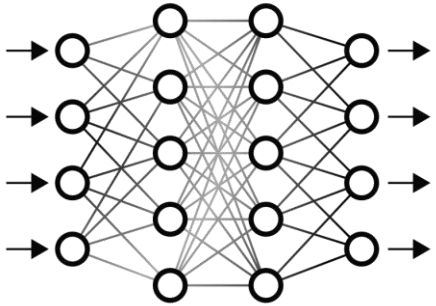
Another layer of Hierarchy is Bayesian S-N curve!

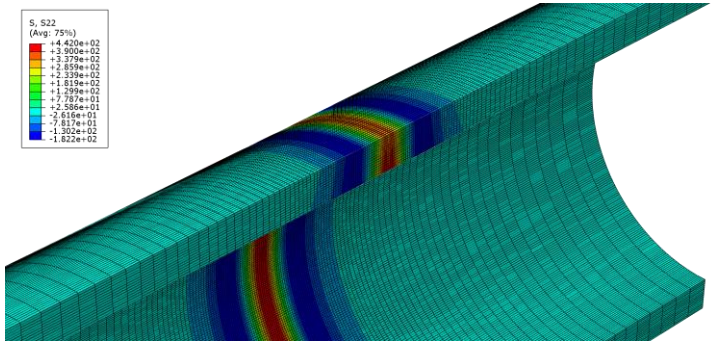
Universal AI model for Materials

Homogenised stress-strain data

Deployment







High – fidelity mesoscale model (e. g. CPFE)

Surrogate model

Macroscale structural model

A novel surrogate model (directly learns Jacobian!) proposed within the SINDRI project for material behaviour. It can be scaled up for modelling deformation (plasticity, creep, etc.), damage, and microstructural variations. The model trained in Python and deployed within FE in Fortran and C++.

Management and Teaching

Teaching Overview

Structural Dynamics

Solid Mechanics

Additive Manufacturing and Robotics

Conceptual Design of Buildings

Introduction to Earthquake Engineering

Active and Passive Control

Engineering Desing with Practice

AdvanceHE

This is to certify that

Sina Safari

has achieved the status of Associate Fellow (AFHEA)

- Organising Open days
- Interactive scripts for students
- Education videos
- Lab sessions





ADDISONIC

Bournemouth University

PI: Dr Diogo Montalvão — Project Start:

PDRA: Sina Safari — Display Week:

	TASK	ASSIGNED	PRIORITY	PROGRESS
	Project Planning	Sina	Normal	93%
1	Cleaning, organising and recording office and lab	Sina	Normal	100%
2	Installing the TV on the wall	Sina	Normal	100%
2	Initialising important applications	Sina	Normal	100%
3	Meeting for project planning	Sina	Normal	100%
4	Training on 3D printer	Diogo	Normal	100%
5	Ethics form for addisonic	Diogo	Normal	100%
6	Risk assessment	Sina	Normal	50%
	Calibration and learning			
1	Desing different spacemen in Solidwork		Normal	70%
2	Mount the spacemen on the UFT in solidwork		Normal	100%
3	Steel En8 (AISI 1040)		Normal	
4			Normal	
	Calibration for 3D camera and sync		Normal	
5	Calibration Journal paper		Normal	
	Numerical modelling and Analysis			
1	Optimisation of the Biaxial spacemen		Normal	
2	Analysis with different biaxility ratio		Normal	
3	Cracked biaxial specimen (notch in middle) --> collabration with Kostas		Normal	
4	Torsional specimen analysis		Normal	
5	Welded specimen		Normal	
	Design and Manufacturing			
1	Design and manufacture with different biaxility ratio		Normal	
2	Torsional specimen		Normal	
3	Cracked Biaxial specimen design		Normal	
4	Welded specimen		Normal	
5	Task 5		Normal	
	Testing plans			
1	S-N curves for **EN8**, **Al**, and **copper** after calibration and compare with litretures		Normal	
2	Test and show that modal interaction is not happening in TT specimen		Normal	
3	Testing torsional specimens		Normal	

Preparing application for a professional membership:

Institution of MECHANICAL ENGINEERS