M O H A M M A D H A S A N I

A BRIEF REPORT OF PROJECTS
2011 - 2016

SUMMARY

Born in 1990, Iran

Education:

Mechanical engineering BS in Iran

Master of engineering ME City College of New York

SKILLS

Mechanical engineering design

Product design and development

Visualization and rendering

Fluid and solid engineering analysis

Freehand sketching

EXPERIENCES & PROJECTS

Generating power in tesla-s with aerodynamic approach-numerical and experimental analysis (2015-2016)

Residential Dome Construction-MSH company (2015-current)

Generating electricity with piezoelectric material in fluids using system coupling method at CCNY (2015)

Mechanical engineer and product designer at Wraith&Winston, NY (2016-current)

Designer of “Ferrari Forte Concept” (2015)

Optimizing the design of Koenigsegg Regera-style and aerodynamics (2016-current)

Encryption code with MATLAB for personal use (2015)

Internship at SAPCO company in Iran-Rapid Prototyping and SLA printing (2014)

Mechanical design engineer and product designer at Havenlabs, NY (2016-current)

Making a customized drone with Arduino (2016-current)

Automotive design workshop-Tehran, Iran (2013)

Automotive clay modeling (2013)

Mechanical engineer intern at MSH company (2012-2014)

BMW design for mid-level Families-Exterior design and 2D aerodynamic analysis (2012)

Interior and exterior design of a residential building, Iran (2014)

Mechanical design engineer and product designer at Rosa Design, Iran (2013)

Product design intern at C1 Design, Iran (2011)

Visualizer at Setayesh Animation Studio (2012)

SOFTWARE

ENGINEERING

Solidworks

Ansys workbench: Fluent, Static Structure, Transient Structure, System Coupling, Post CFD,

Geometry, Mesh Generation

ABAQUS

MATLAB

Arduino

Pointwise

DESIGN

Autodesk 3Ds Max

Adobe Photoshop

Adobe Aftereffects

VRay

SKILLS

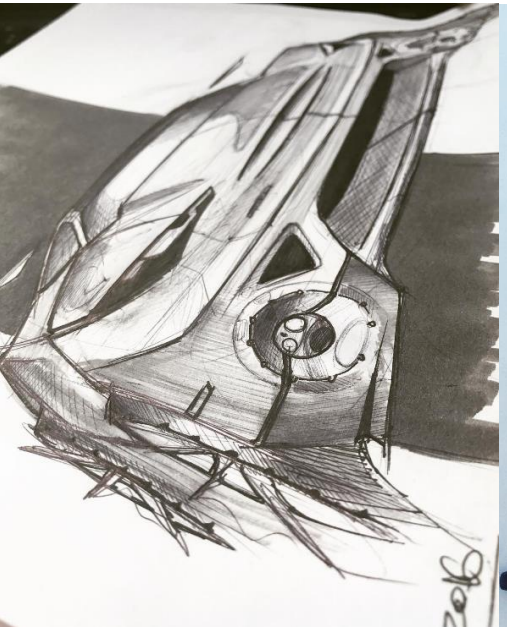
SKILLS

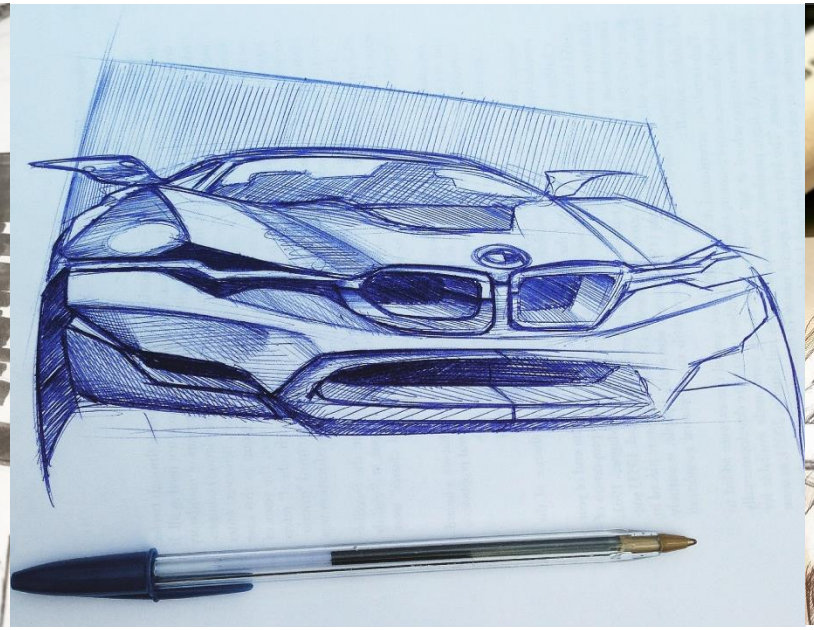
Freehand Sketching

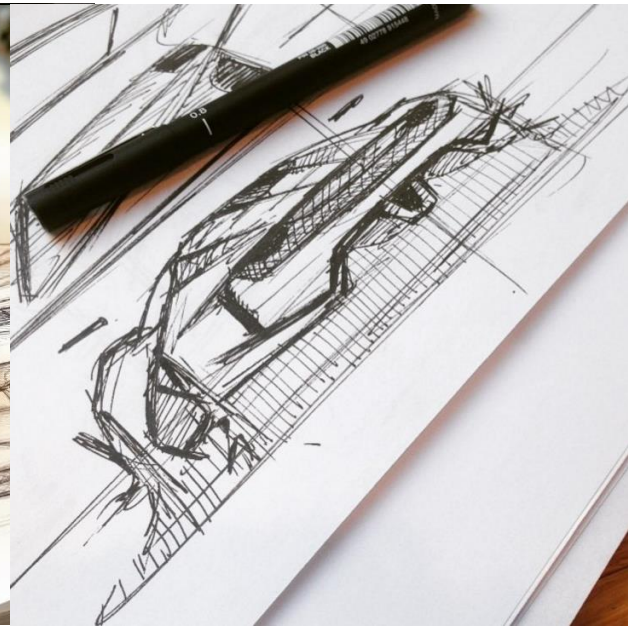
Sketching ideas on paper

Developing ideas quickly and easily

Sketching ideas on Wacom in order to have more visual tools to render





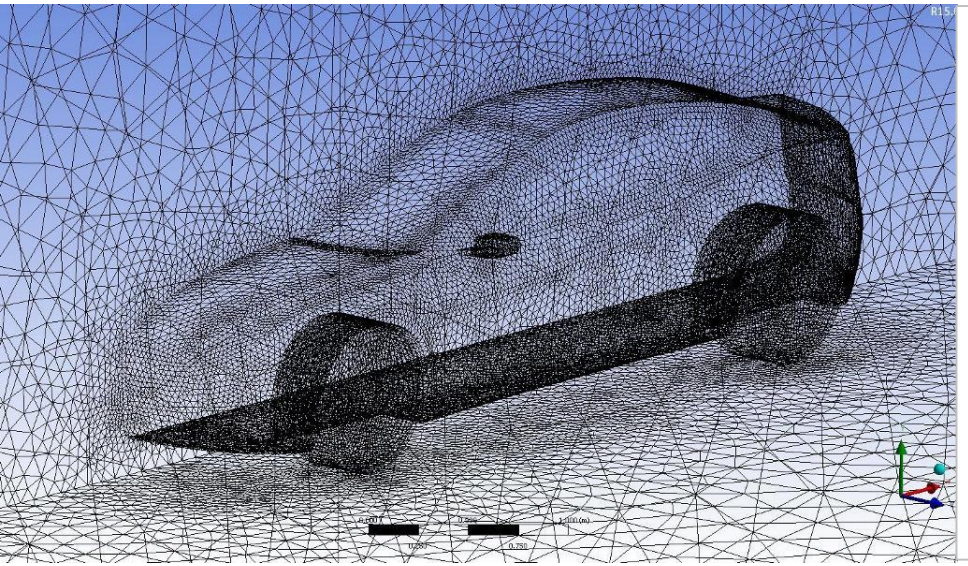


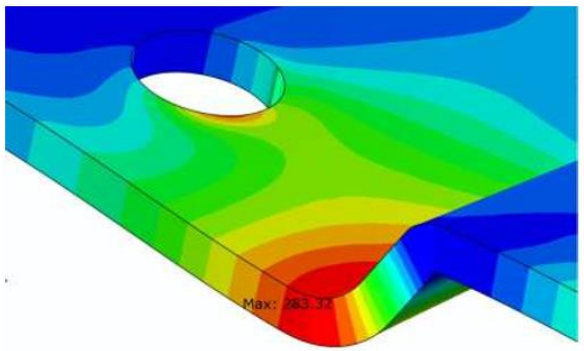
SKILLS

Finite Element Analysis

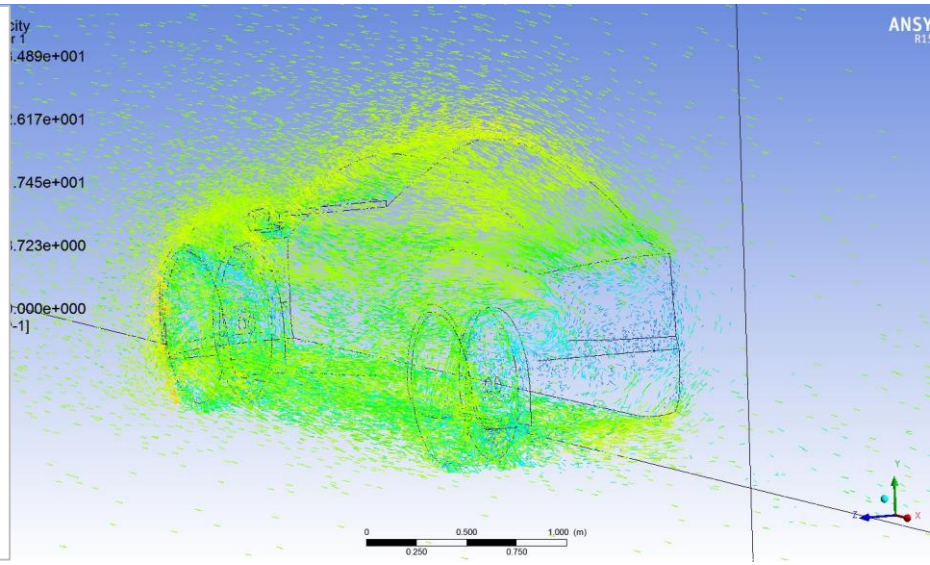
Aerodynamic, static structure, transient structure and fluid solid interaction analysis

Modeling in Solidworks with Ansys or ABAQUS for analysis





Result of stress under critical pressure loading (magnification=20)



SKILLS

Product Design

From sketching to renderings and 3D modeling

Using 3D printing to see the actual model

Static structure analysis to find weak spots

Developing and refining an available product

SKILLS

2D Render

Rendering sketches fast

Realistic looking renders

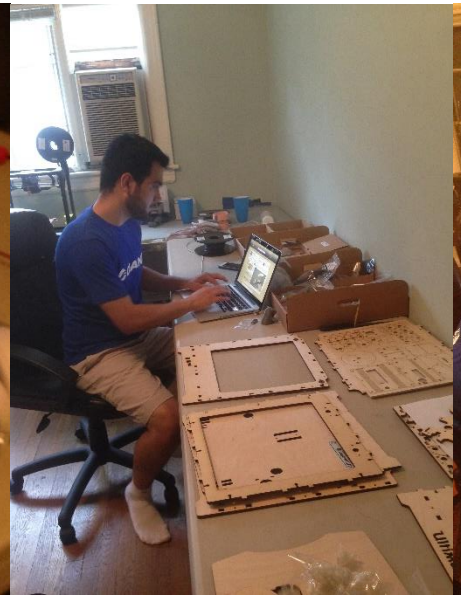
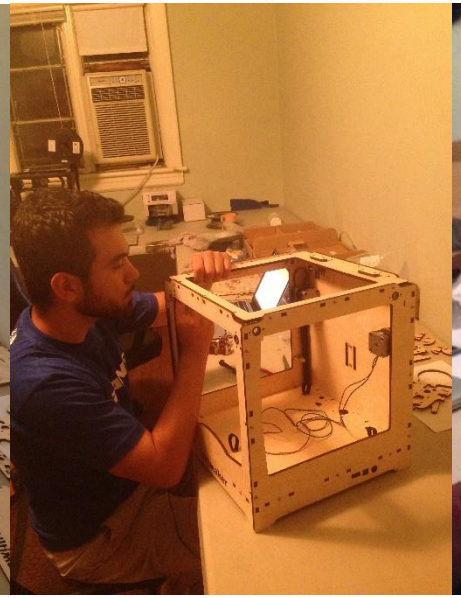
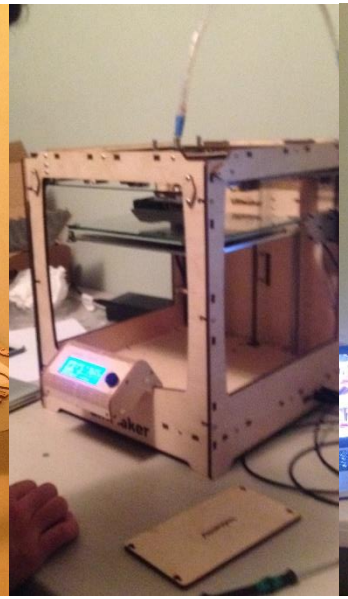
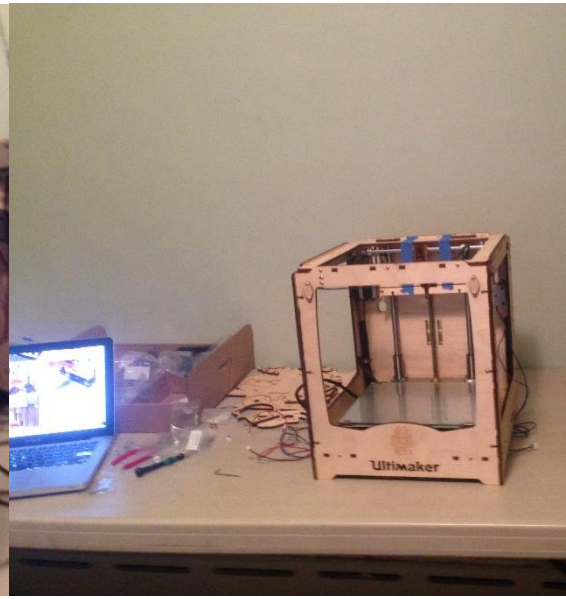
SKILLS

3D Printing

CAD modeling for 3D printers

A strong tool to refine the design

Cheap and fast to develop a product or idea

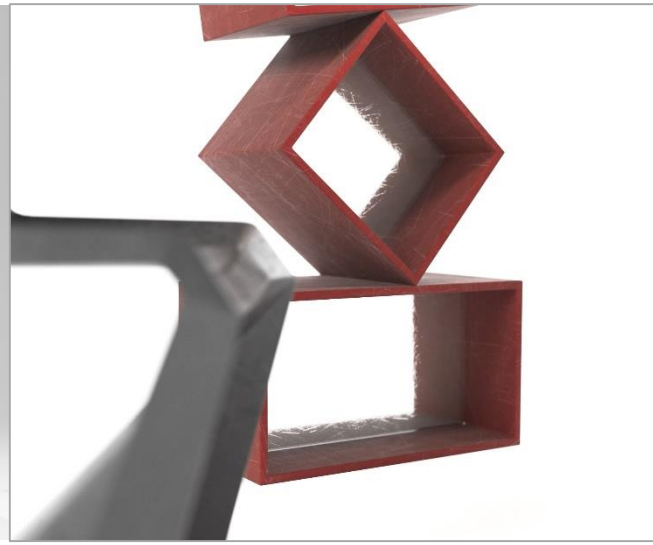
SKILLS

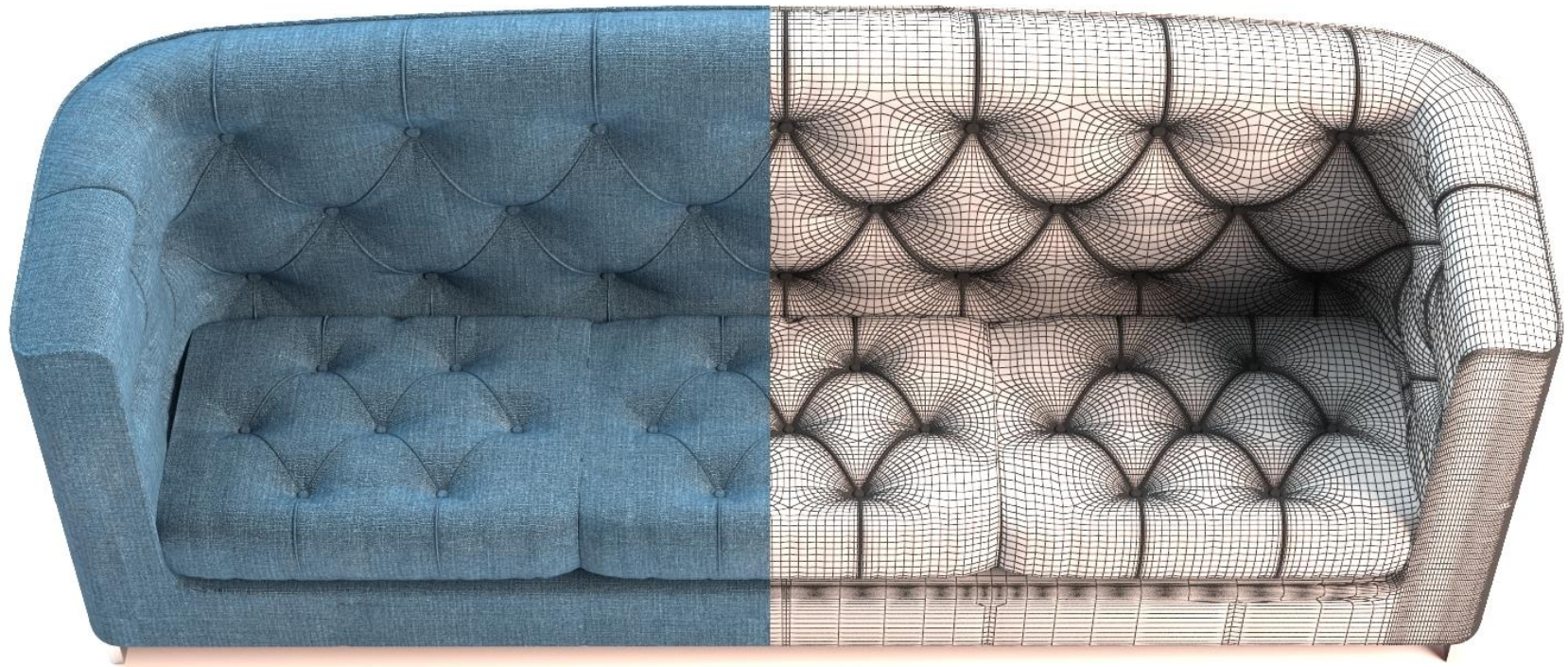
Visualization & Animation

To present the idea or product

Architectural and product rendering

Making videos to present the product





SKILLS

Rapid Prototyping

Duplicating high detailed models

Faster and cheaper than SLA printing

Very sensitive to small details like the thickness of a hair




SKILLS

Clay Modeling

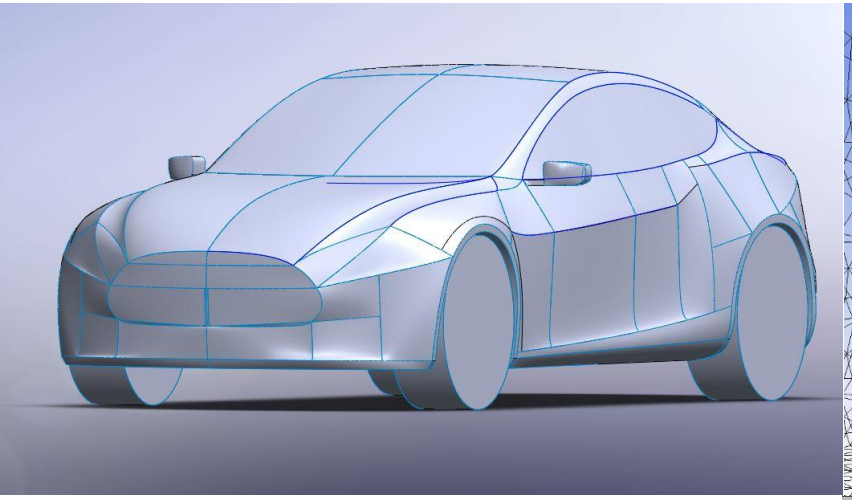
It is common to model cars with clay material in the automotive industry

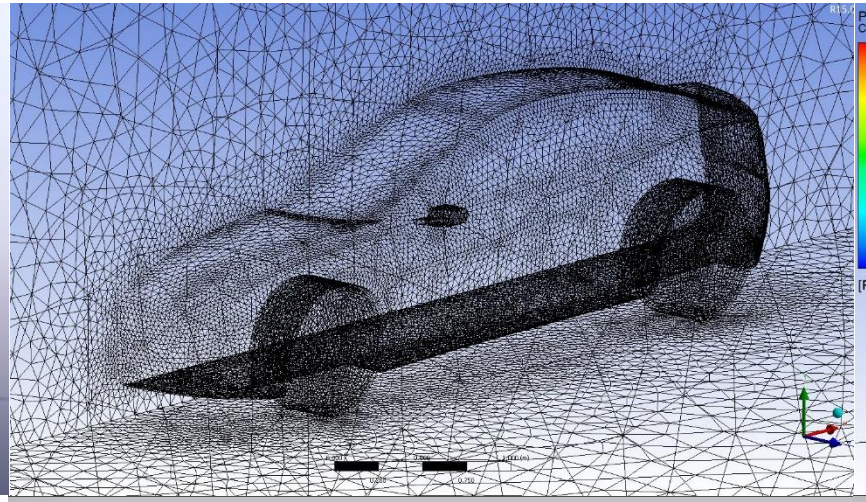
This helps to better understand the design

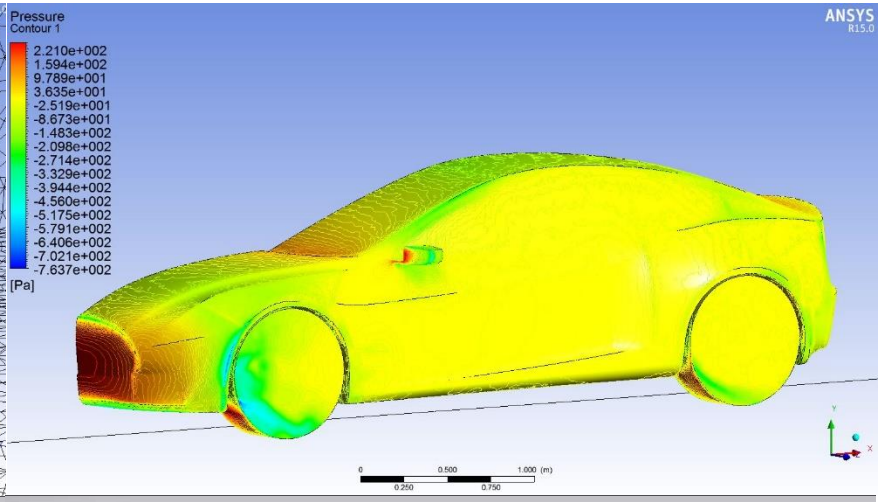
PROJECTS

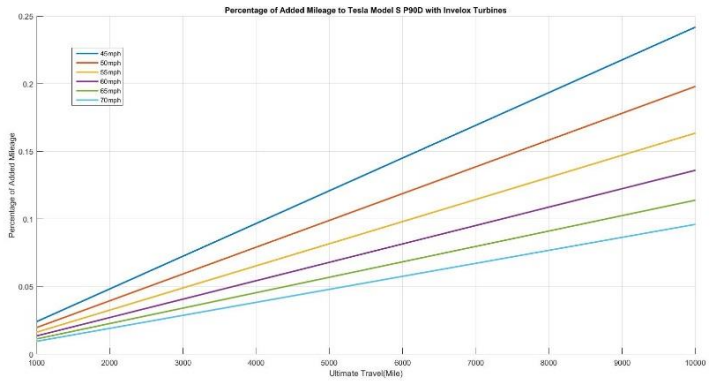
PROJECT

Generating Electricity in Tesla Model S







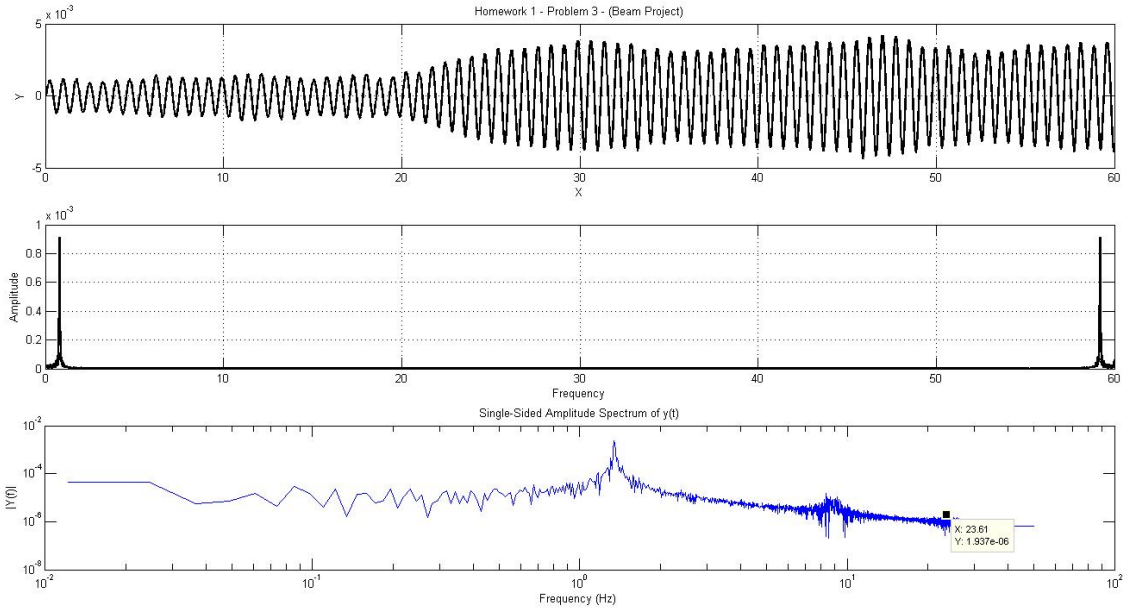


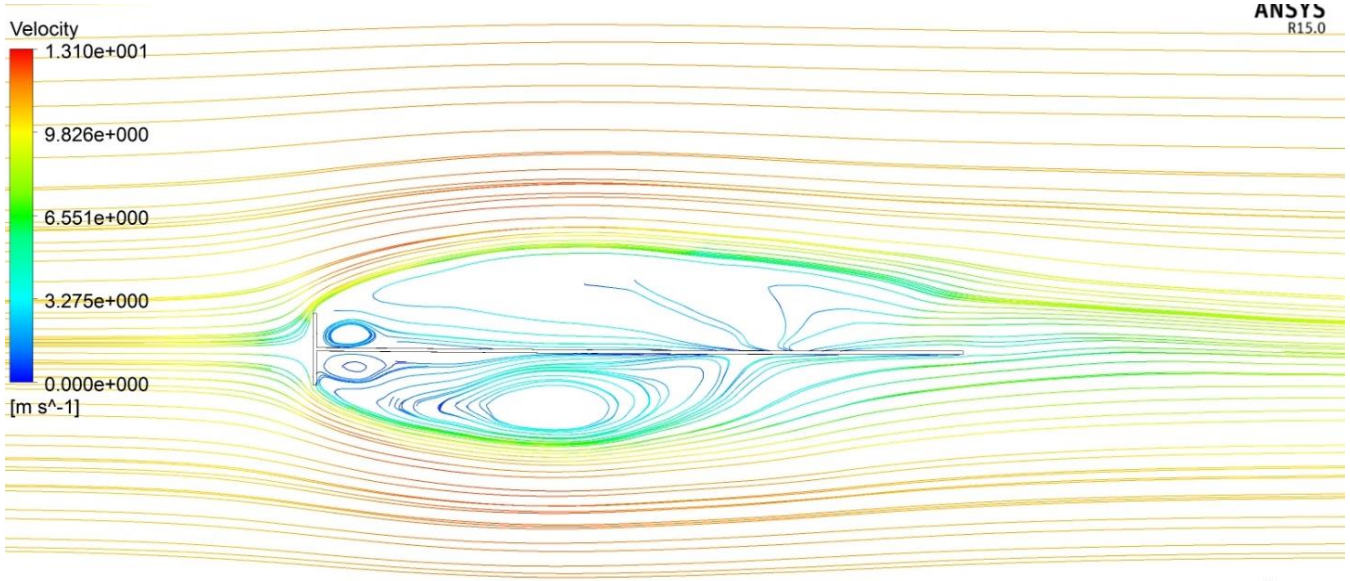
Adding 2%-10% more power to Tesla Model S battery as it travels a full tank trip. The project is with aerodynamic approaches and all the modeling and analysis is done. Details are confidential. Bottom right is original model and bottom middle is the modified model. This project is applicable to other electric cars. The project is prepared to be discussed with Tesla company.

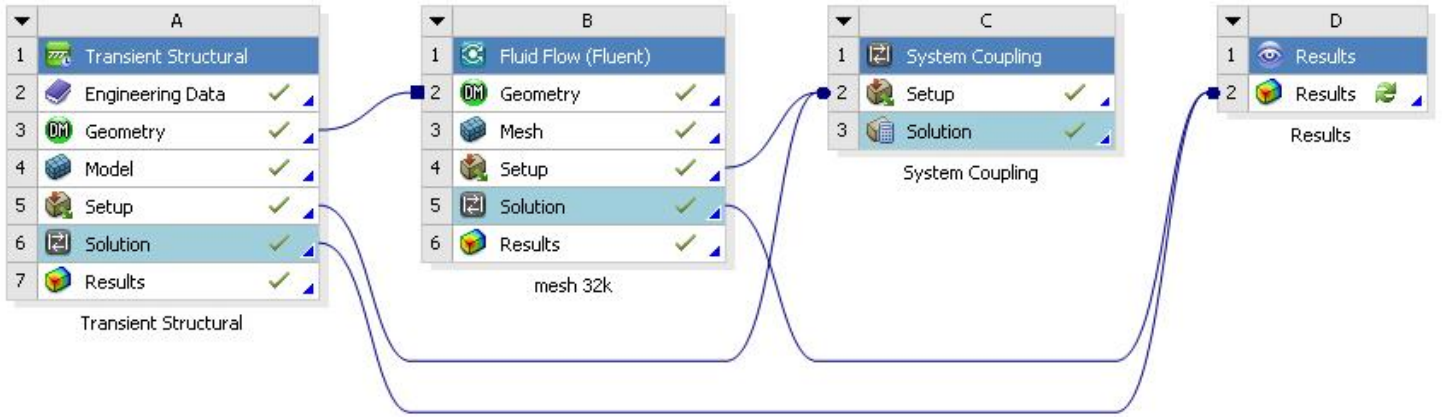
- Solidworks
- Ansys Fluent
- Photoshop
- MATLAB
- Freehand Sketching
- 2D Rendering
- Aerodynamic Analysis
- Facelift

PROJECT

Generating Electricity with Flow around buildings, ships, airplanes etc.





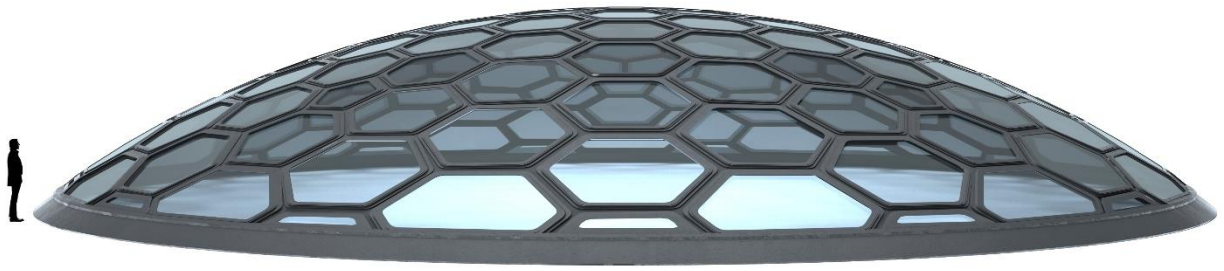


Generating electricity with piezoelectric material attached to a metal plate. This project was at CCNY during my Master program. The results were reliable and correct but the project was passed to PHD students to analyze the project in wind tunnel. I was in charge of computational analysis.

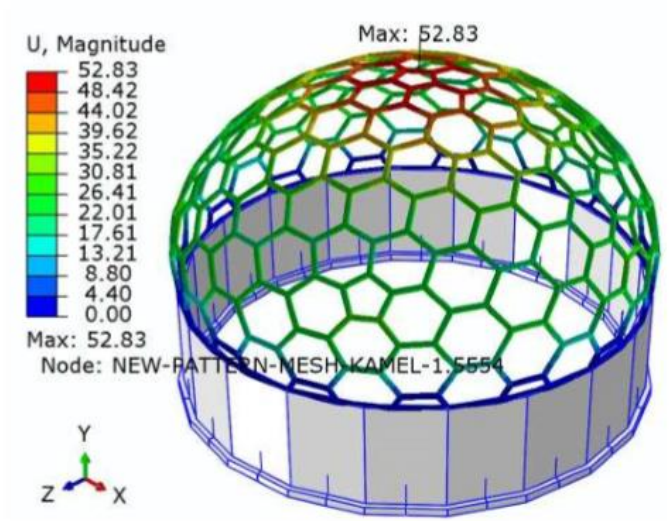
- Solidworks
- Ansys Fluent
- MATLAB
- FEA
- Aerodynamic Analysis
- Structural Analysis
- System Coupling

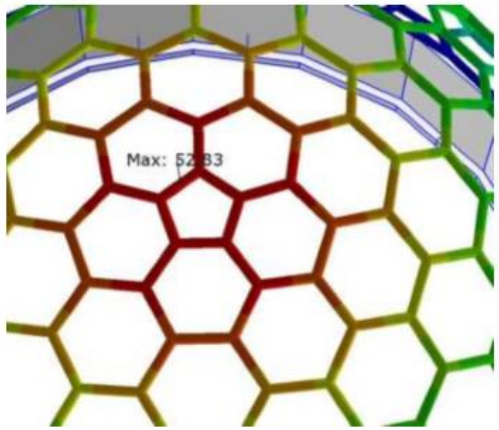
PROJECT

The Hexidome: Dome Structure for Residential and Commercial Use



Note: In all sections of this report the stress dimension is MPa and the displacement dimension is millimeter.





Result of displacement (magnification=10)

Combination Load Cases	Max. Mises Stress (MPa)	Safety Factor $=\frac{Maximum\ stress}{yield\ strees}$
Case I: Self Weight	94.74	2.3
Case II: Imposed Load	1.646	130.0
Case III: Wind load	35.19	6.1
Case IV: Snow load	63.79	3.4
Combination I	129.63	1.7
Combination II	156.02	1.4
Combination III	166.08	1.3
Combination IV	194.88	1.1
Combination V	**212.69**	1.01

The result of displacement components is according to the below Table.

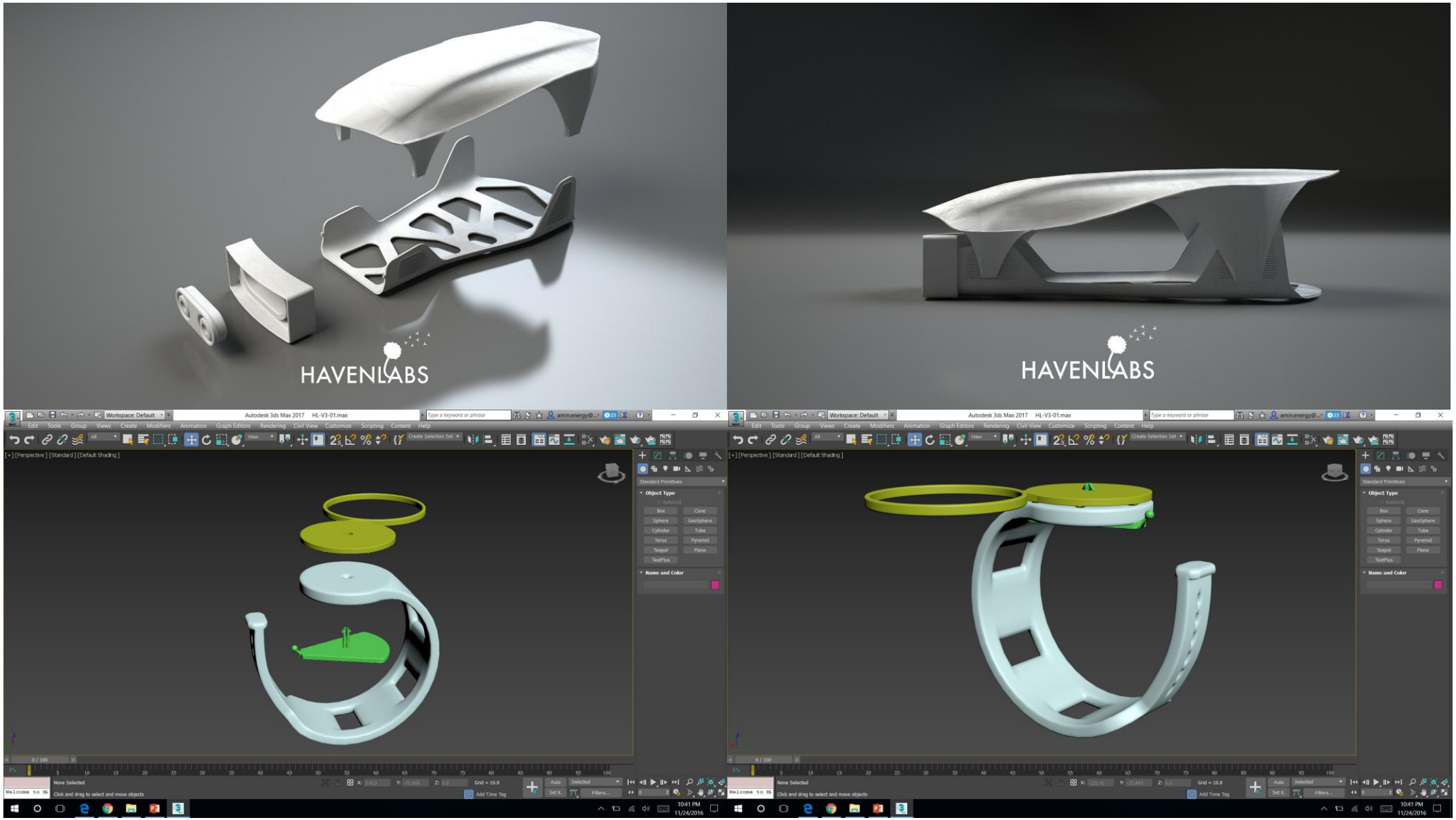
Combination Load Cases	Max. U_x (mm)	Max. U_y (mm)
Case I: Self Weight	-0.026	-52.576
Case II: Imposed Load	0.001	-1.533
Case III: Wind load	18.769	5.668
Case IV: Snow load	0.022	-42.374
Combination I	-0.033	-72.586

The project is called Hexidome. A dome with hexagonal panels. Panels are customizable. Different materials could be used. Panels have two sides, i.e. the inside can be plaster and outside a solar panel. Assembly method of Hexidome is unique and any information about that is confidential. Hexidome can be assembled with the lowest costs and fastest time compared to other dome structures available in the market. Engineering analysis was done following the BSI Eurocode (British Standards Institution). All the information is available at www.Hexidome.com

- Solidworks
- ABAQUS
- MATLAB
- FEA
- Structural Analysis
- Autodesk 3Ds Max
- Photoshop
- VRay
- Product Design
- Interior design
- Rendering
- Visualization

PROJECT

Prosthetic Hand Design At Havenlabs


HAVENLABS
HAVENLABS
Autodesk 3ds Max 2017 HL-V3-01.max
[+] [Perspective] [Standard] [Default Shading]
Autodesk 3ds Max 2017 HL-V3-01.max
[+] [Perspective] [Standard] [Default Shading]

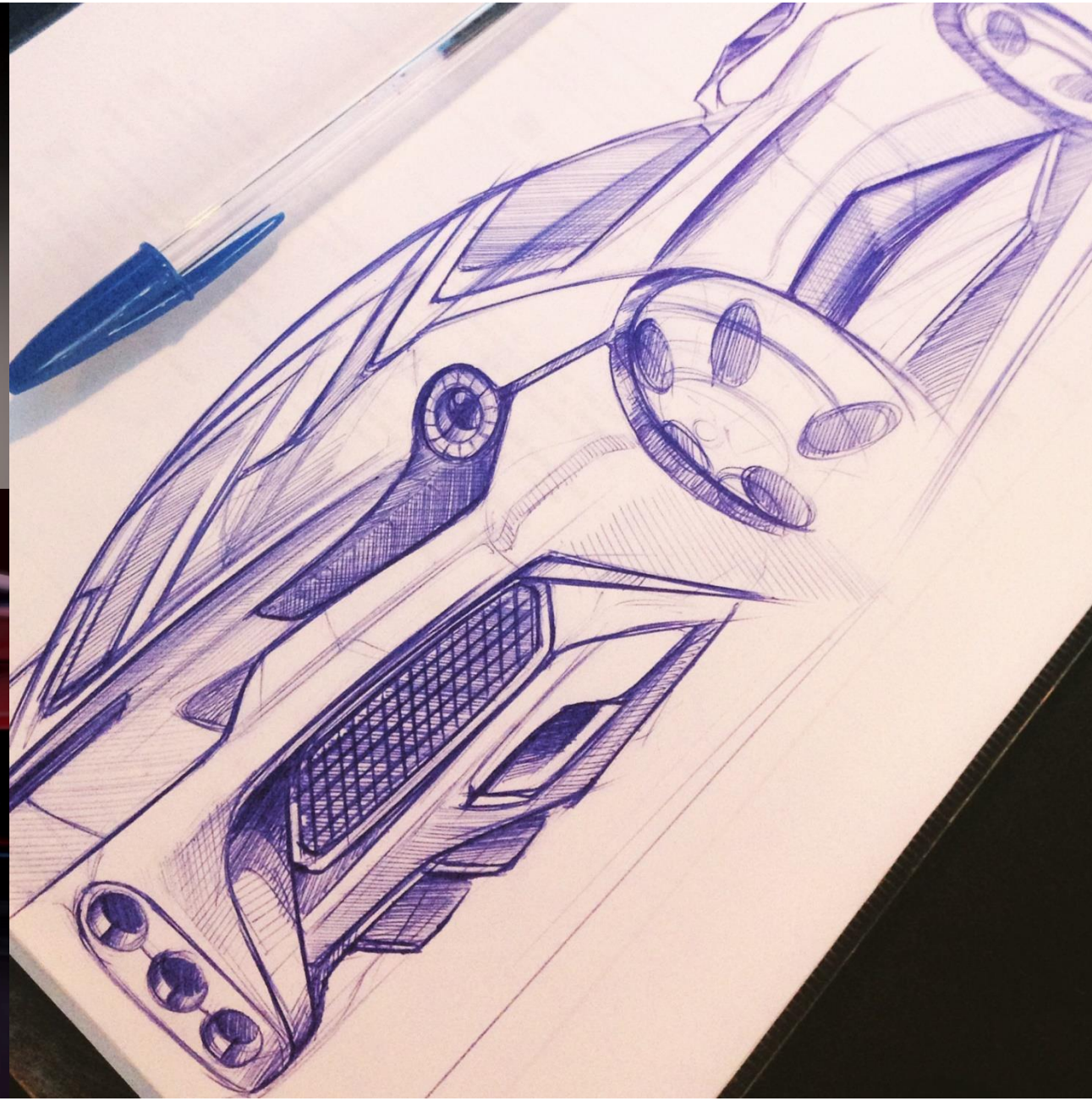
I am the head of mechanical engineering and design at Havenlabs company. It is a nonprofit company based in NY that designs free 3D printable prosthetic hands for veterans and amputees all around the world. We participated in conference with Makerbots, Tedtalk and radio interviews. In addition, many articles written about us on various international websites. There is an article about me by the Havenlabs group on our website:

www.Haven-labs.org

- Solidworks
- Product Design
- Engineering Design
- Structural Analysis
- Autodesk 3Ds Max
- Freehand Sketching
- 3D Printing
- CAD Modeling

PROJECT

Ferrari Forte



Designing a Ferrari supercar with a vertical exhaust system. After this project I had an interview with

www.lovecars.com

Sadly due to a lack of time, the aerodynamic analysis was not done.

- Autodesk 3Ds Max
- Photoshop
- VRay
- Freehand Sketching
- Product Design
- Rendering

PROJECT

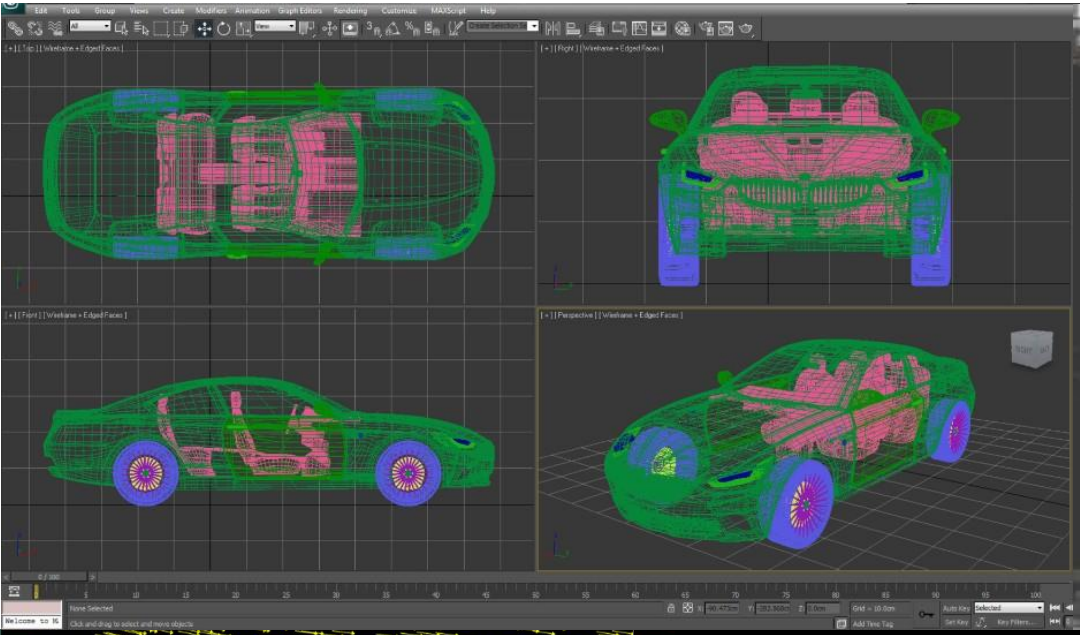
0.39

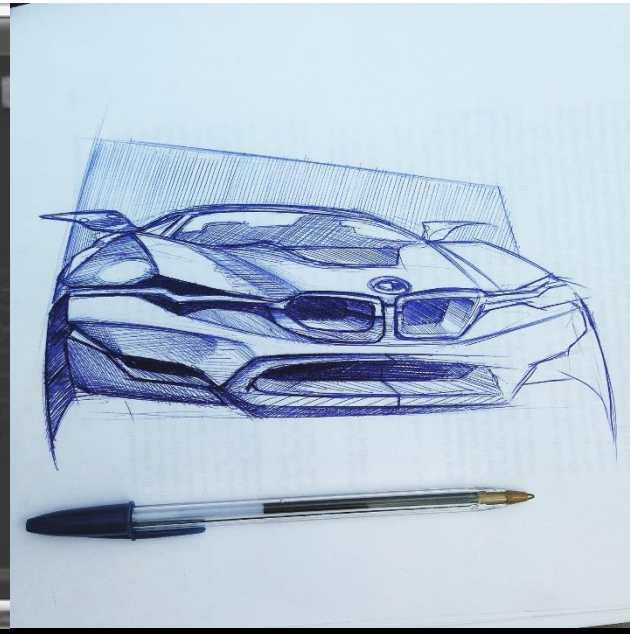
A MATLAB code named 0.39. It is a personal project for documenting and encrypting my messages. The encryption system exports a text file with brackets only []. The code cannot be shown for confidentiality.

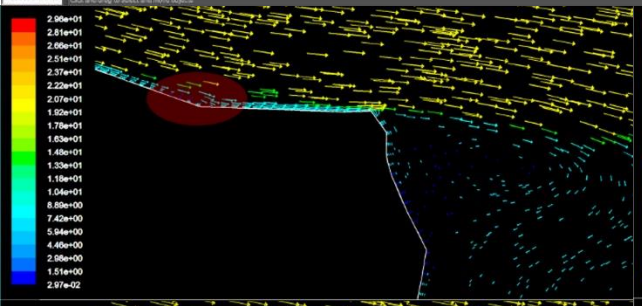
- MATLAB
- Engineering Coding
- Software Design

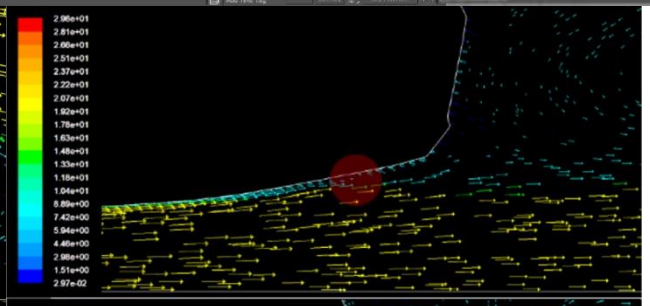
PROJECT

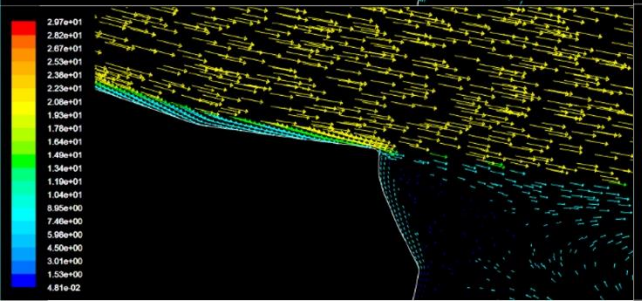
BMW 4 Series

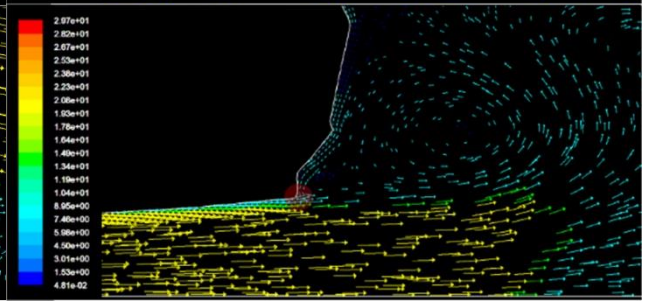


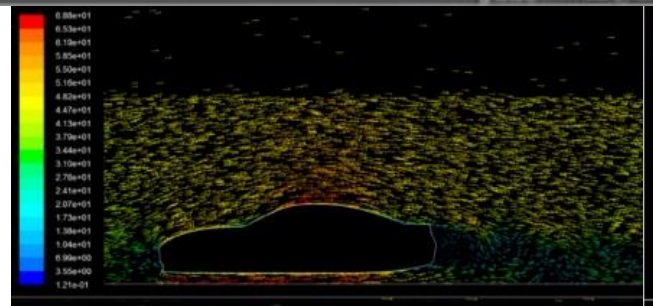


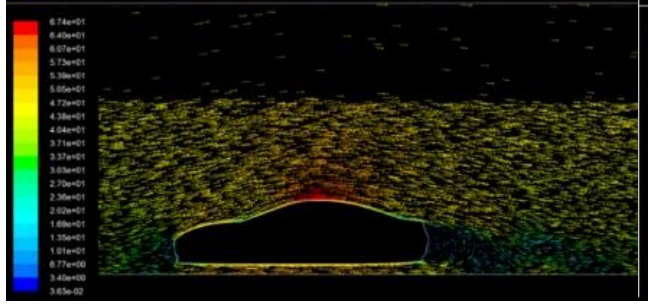


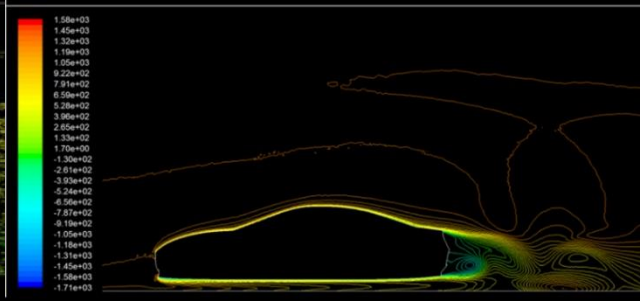













BMW 4SERIES

Designing a 4 door sports car for BMW 6 series class with a bit of BMWi style. The aerodynamic analysis is done in 2D as the project was in 2012 and it was my undergraduate thesis.

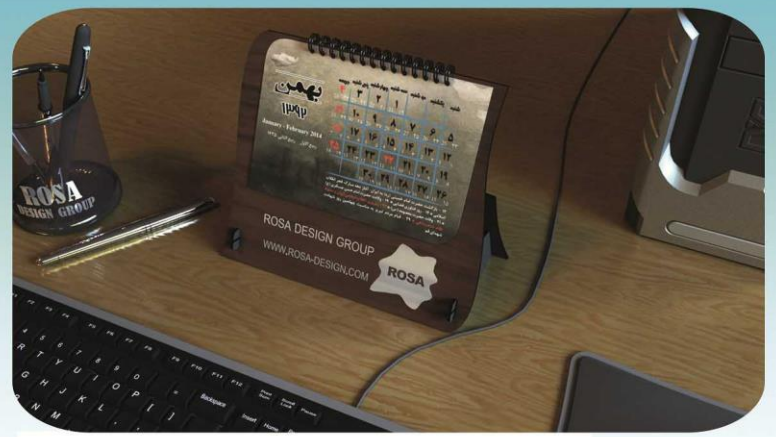
- Product Design
- FEA
- Engineering Design
- Autodesk 3Ds Max
- Freehand Sketching
- Aerodynamics
- Animation
- VRay
- Rendering

PROJECT

Wooden Calendar at Rosa Design Group

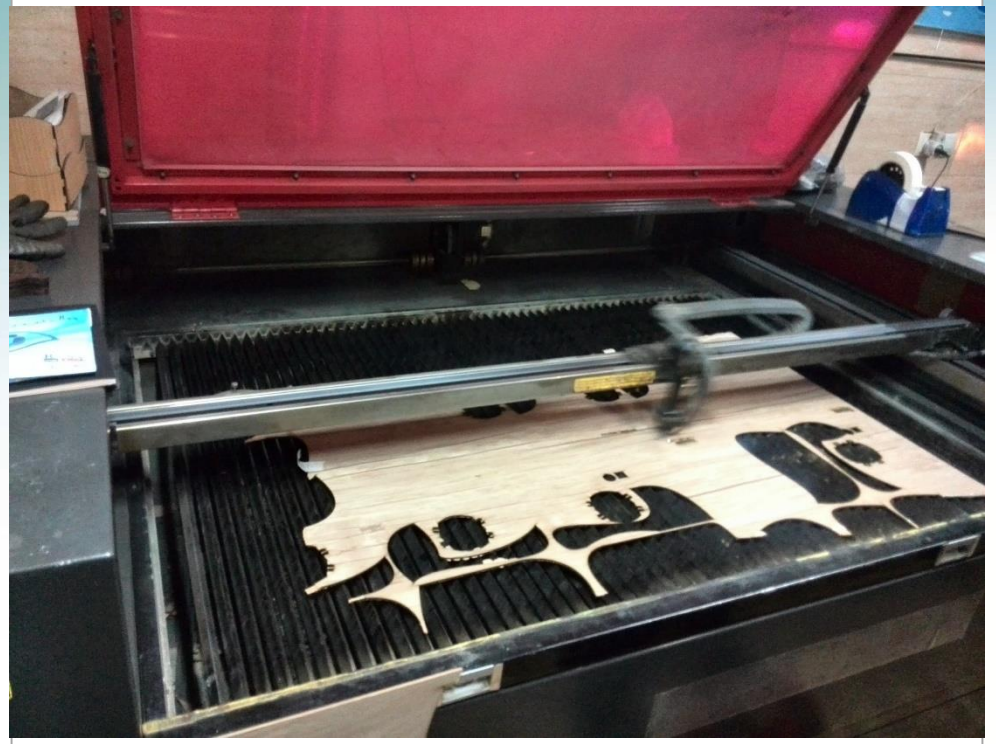
ROSA DESIGN GROUP
www.Rosa-Design.com

Calendar



Model code : RG 202

L x W x H : 24 x 9 x 10.5



ROSA DESIGN GROUP
www.Rosa-Design.com

Calendar

Model code : RG 102

L x W x H : 16 x 9 x 17

The head of design and engineering of Rosa Design group between 2012 to 2014. Helped to design calendars and different advertising accessories for companies. Custom made wooden calendar was one of our successful designs.

- Solidworks
- Product Design
- Engineering Design
- Autodesk 3Ds Max
- Freehand Sketching
- CNC Laser
- Animation
- VRay
- Rendering

PROJECT

Interior/Exterior Design

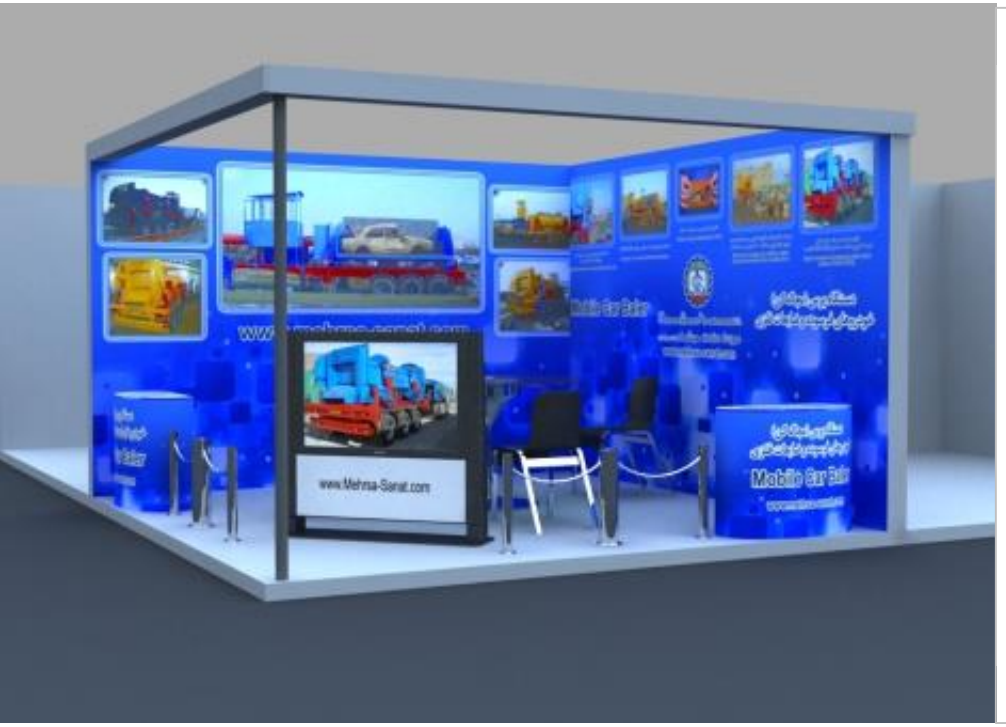
Designing a 4 story building with a rooftop, store and basement. The owner of the property and project was my dad and it was a great chance to experience working in construction and getting familiarized with architecture. The elements used to design this building include:

- ✓ Lighter interior
- ✓ Smooth edge shapes on the ceiling
- ✓ Emotional forms to relax the mind
- ✓ Connecting to nature

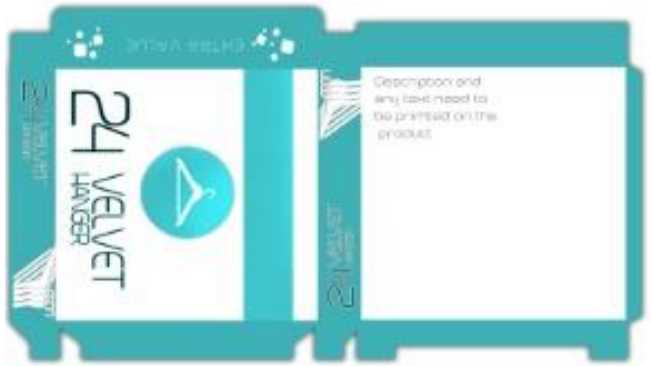
- Architecture
- Product Design
- Freehand Sketching
- Autodesk 3Ds Max
- Construction

PROJECT

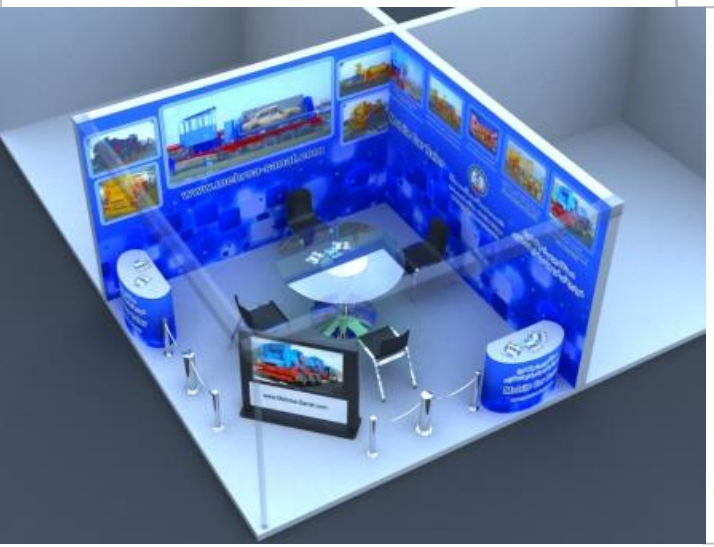
Other Projects



LUMINS DESIGN ™ LLC


24 VELVET HANGER
Description and any text need to be printed on the product

SPASTAC




حاج علی
Haj Ali

Different projects over the years such as package design, logo, exhibition decor etc.

- Solidworks
- Product Design
- Package Design
- Autodesk 3Ds Max
- CNC Laser
- Graphic Design
- Animation
- VRay
- Rendering

M O H A M M A D H A S A N I

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