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Summary

Doctoral Researcher in the Marie Curie fellowship program with 3 years of experimental aerodynamics expertise. Holds Master's in Applied Mathematics and Scientific Computing, with prior experience as a junior mechanical designer. Proficient in Python, MATLAB, and C++; skilled in data/image analysis. Familiar with Autodesk Inventor and Siemens NX for CAD modeling. Seeking to contribute expertise in aerodynamics and pursue professional growth.
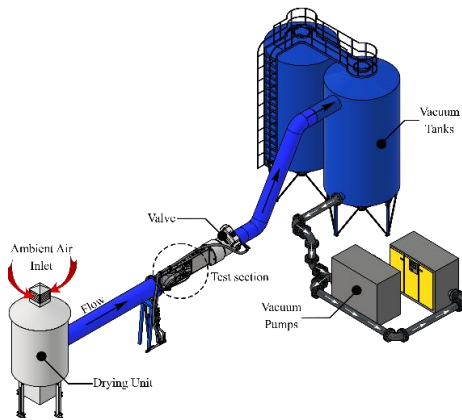
Aerodynamic specialist [2020-2023]

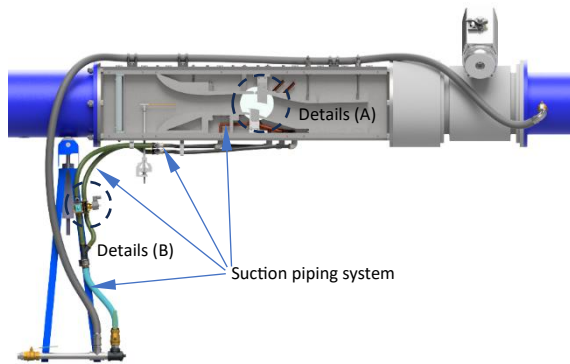*Figure 3 Full model of wind tunnel*

Figure 2 A render for the transonic test section

Figure 6 Modelled solenoid valve [Details (B)]
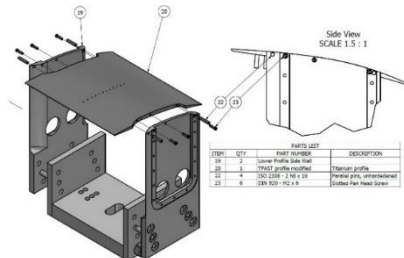

Figure 4 Lower profile with new pressure taps [Details (A)]
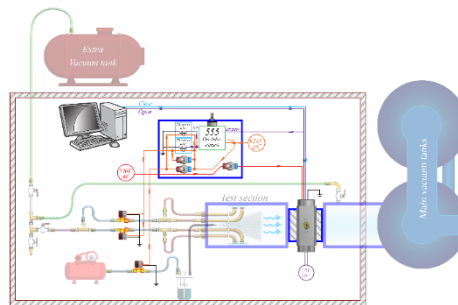

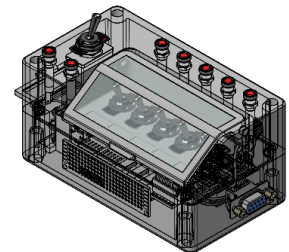
Figure 5 Wind tunnel electronics SID

Figure 1 Full control panel model

During my employment as an Aerodynamic specialist at IMP PAN in Poland, one of my responsibilities was to re-model the test section (see Figure 1 and Figure 2). Therefore, modifying the lower profile pressure taps (as in Figure 3) also improves the suction piping system. The piping system was modeled on the CAD with a very high level of detail (see Figure 4) to reflect the real world, model 3D printed holing parts to fix and organize the hoses and pipes.

Acquiring the feedback from the wind tunnel valve was crucial to synchronize the speed camera and measuring devices as shown in Figure 5, a compact model of a control panel was fully designed on the CAD with the wiring system and electronic components as shown in Figure 6.

Junior Mechanical Designer [2018]

Sheet metals design and modeling solar tanks.
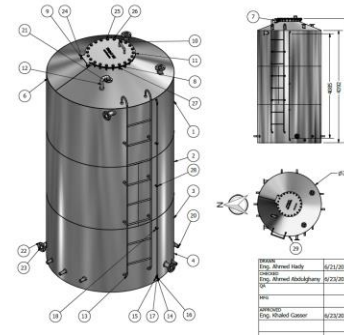Design and supervise the building of a 20k Liter water tank.

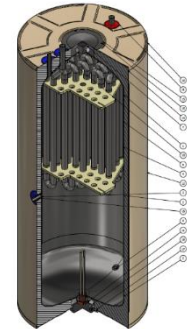

Figure 7 Clean Water tank with 20k Liters

Figure 8 Solar tank with 300 Liters

Volunteer at Torpedo robotics team [2014-2016]

Figure 9 Bismarck ROV Model, 2015 Memorial University, Canada

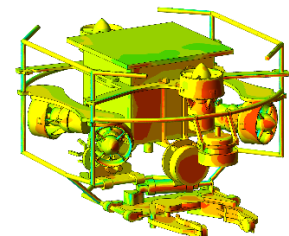*Figure 11 Triton ROV Model, 2016 Neutral Bouncy Lab (NBL), NASA, US*

Figure 10 Latro ROV CFD results, 2017 Long Beach, US
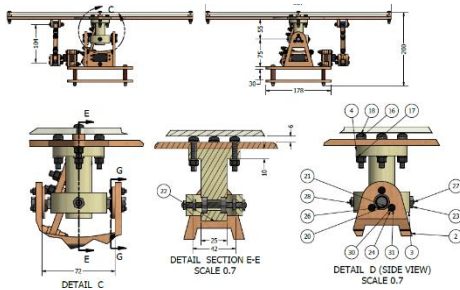
Other working Designs

Figure 14 Ball on plate (Auto-balancing system with 3 rotational degrees of freedom), 2018
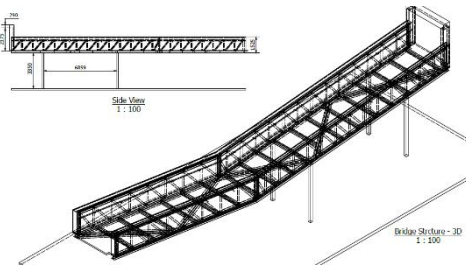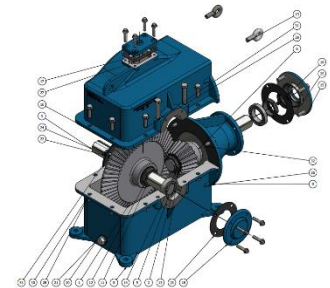

Figure 13 Bridge structure model, 2018

Figure 12 bevel gear exploded view (15kW-GR1/3-1.5krpm), 2015

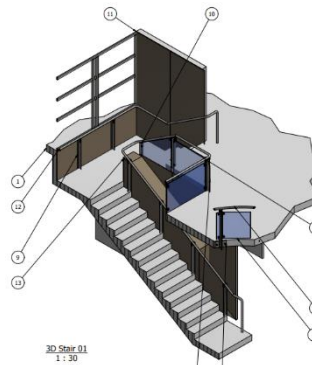*Figure 17 Detailed model of car diaphragm pump, 2016*

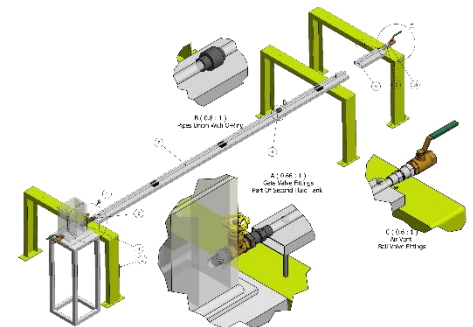*Figure 15 Full 3D model of stairs rails and glass work, 2018*

Figure 16 Full testing model of bachelor's degree experiment (for multi-product pipelines), 2016

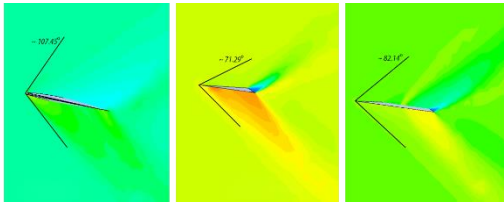# CFD works (using Ansys Fluent):

Supersonic flows:

Figure 20 Delta-wings in supersonic (M=2) regime (a-transonic profile, b-half diamond profile, c-half diamond double-delta), 2015
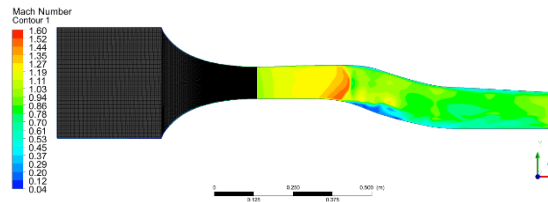
Figure 19 Nozzle transonic Flow (structured mesh with 3.7M element), 2022
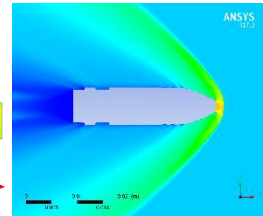
Figure 18 Bult 2D simulation, 2016

Rotating devices (Sliding meshing):

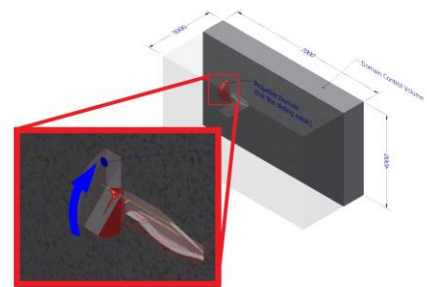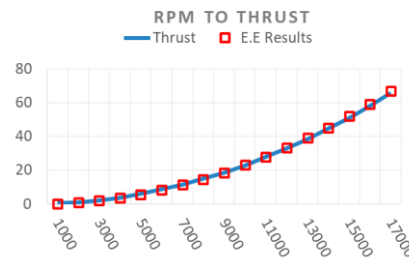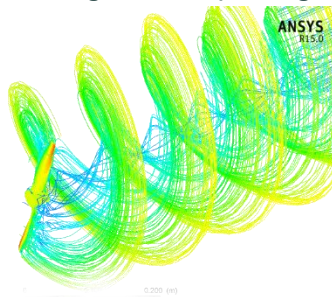*Figure 21 Propeller simulation, [2015-2020]*
(a-Free propeller, b- validate the results with empirical equations, c- fixing the propeller on a wing)

Multi-phase flows:

As a Bachelor graduation project, it was aimed to study:

1-Multiproduct pipeline:
- The focus is on the interface length and shape in relation to pipe length and inclination.
- The results were validated with a lab experiment.

2-Two-phase Horizontal and vertical separator:
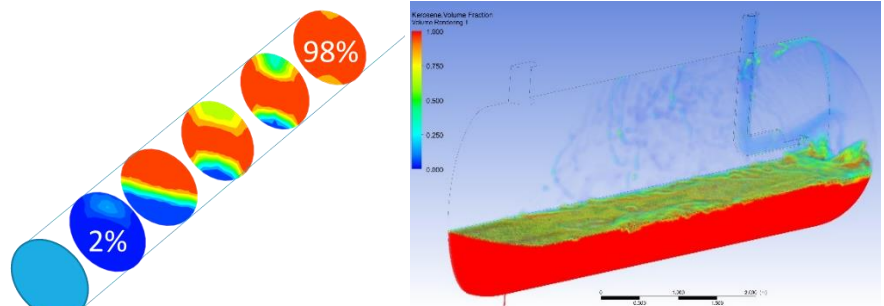- CFD simulation on both Horizontal and vertical separators.

Figure 22 CFD applications in oil and gas industry, 2016
(a-multi-product pipelines, b- Two-phase horizontal separator)
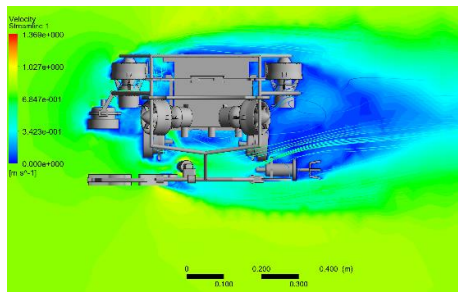
Other CFD projects:
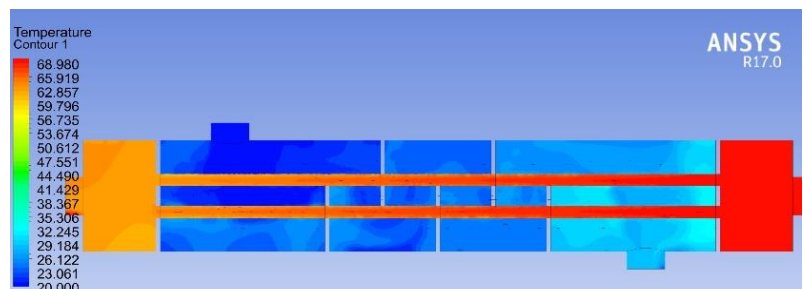

Figure 24 CFD simulation on ROV, 2017 (water flow of 1m/s)

Figure 23 Heat exchanger, Baffle arrangements study, 2018