

Structural Optimization 2025

Project #3 Report

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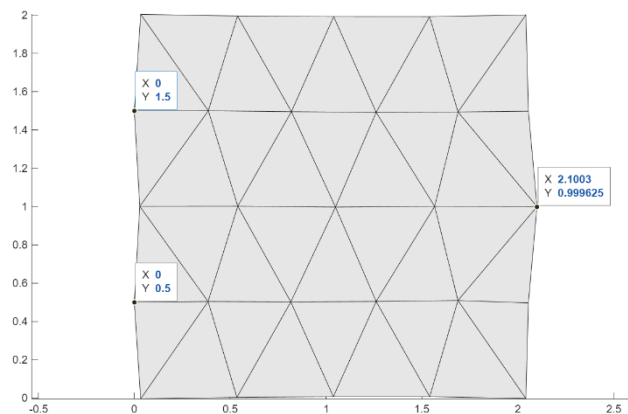
ID Number: 21-953-294

Task 1:

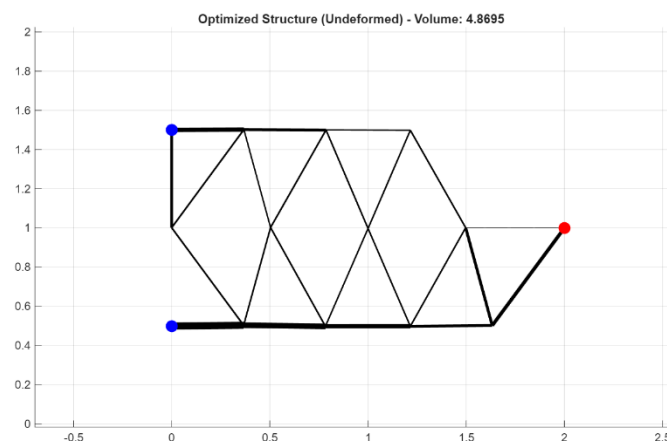
Number of nodes: 27, Number of bars: 62, Total bar volume: 3.2056

Task 2:

Displacement at loaded node: 0.1



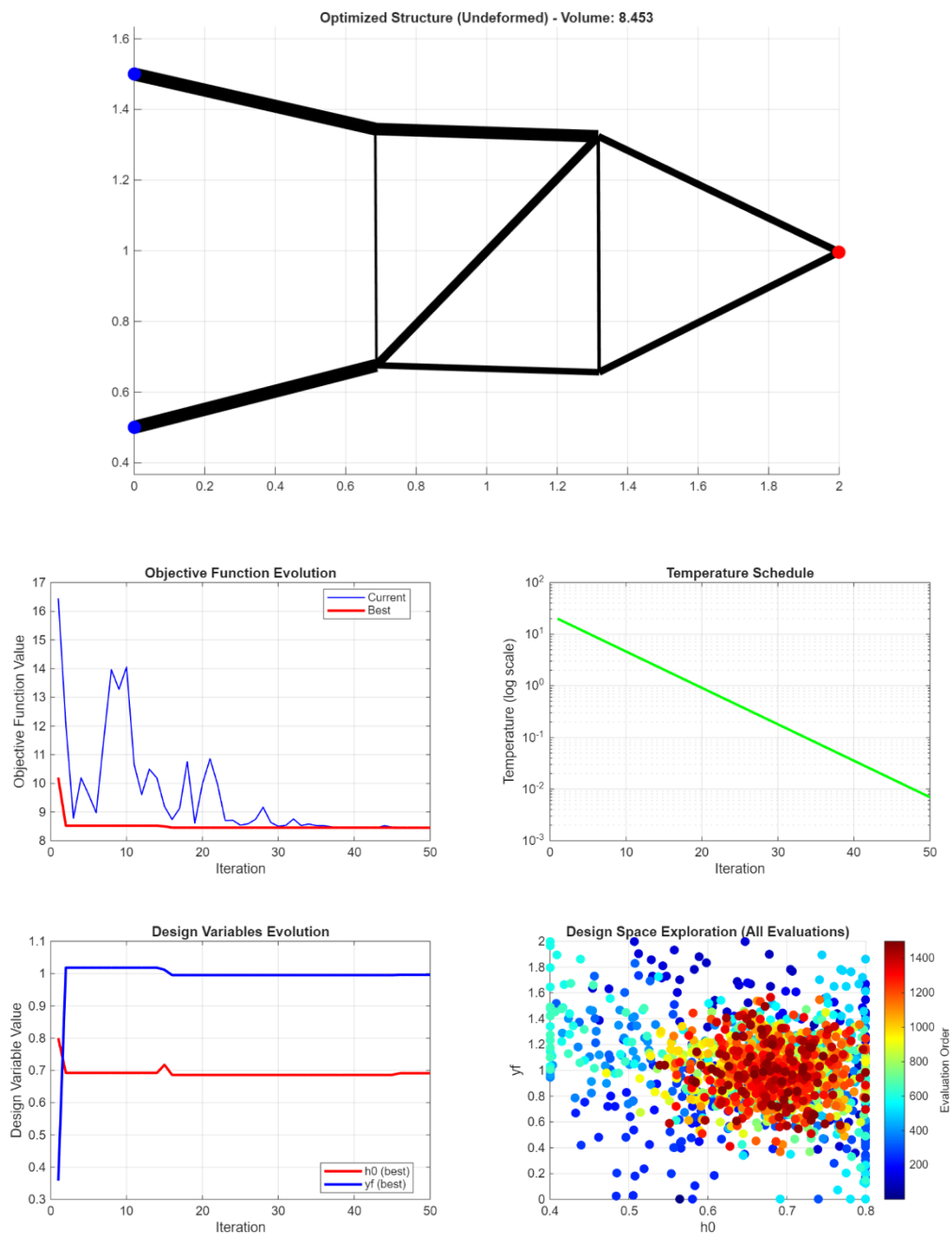
Task 3:



Fmincon optimised minimum volume: 4.869527 (Fully Stressed Design used for cross-validation)

Task 4:

Best solution: $h_0=0.691139$, $y_f=0.996184$; Best Objective function value (min Volume): 8.452985



(Plots from an optimisation run with 0.4 as a lower h_0 bound, as when using 0.2, it takes hours to solve. Still had 30 min solve time with 0.4 as lower bound. Final best solution was found using 0.2 as bounds, as per the assignment.)

See Bonus Task folder for Bonus Task