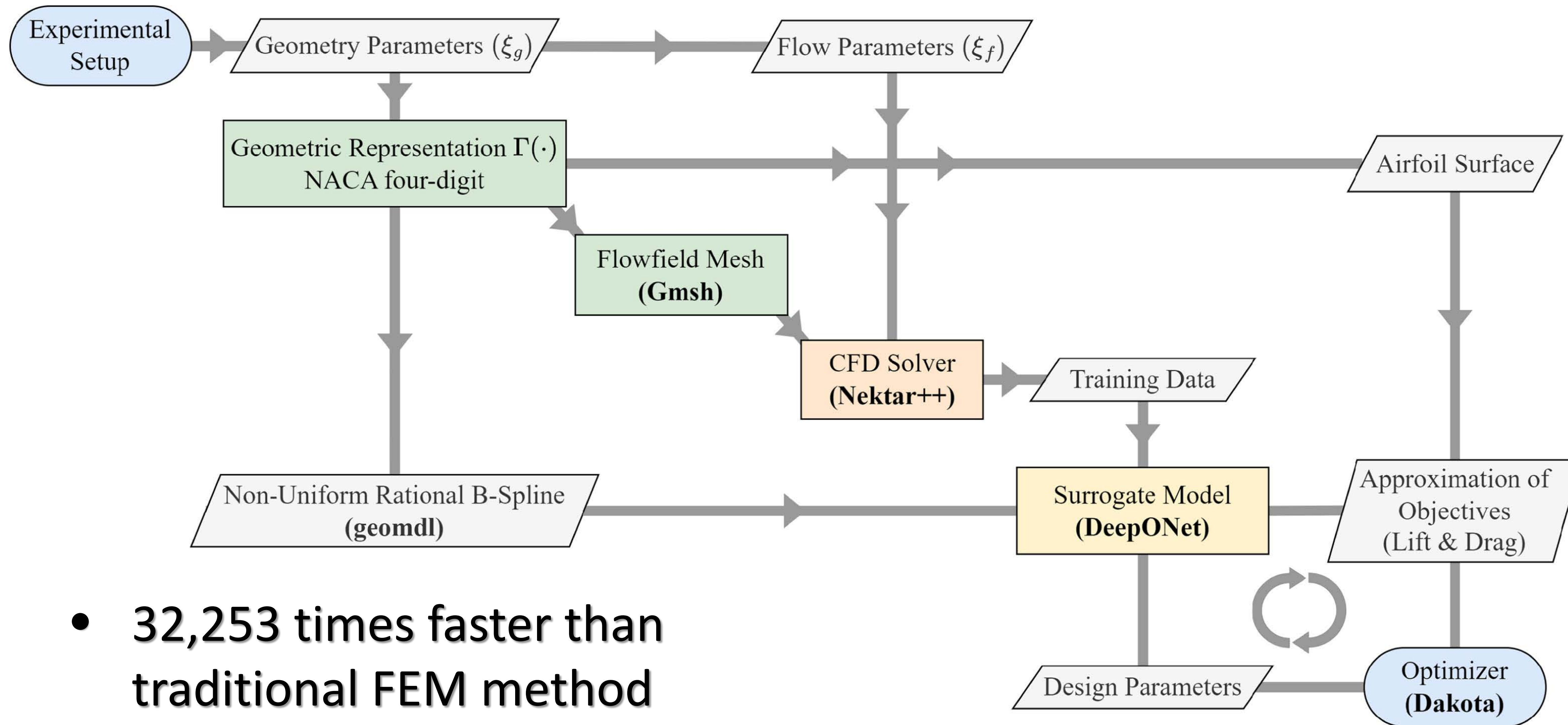


# AI for Optimal Hypersonic Vehicle Design

AI<sup>2</sup>: Artificial Intelligence, Adaptation, and Innovation Group

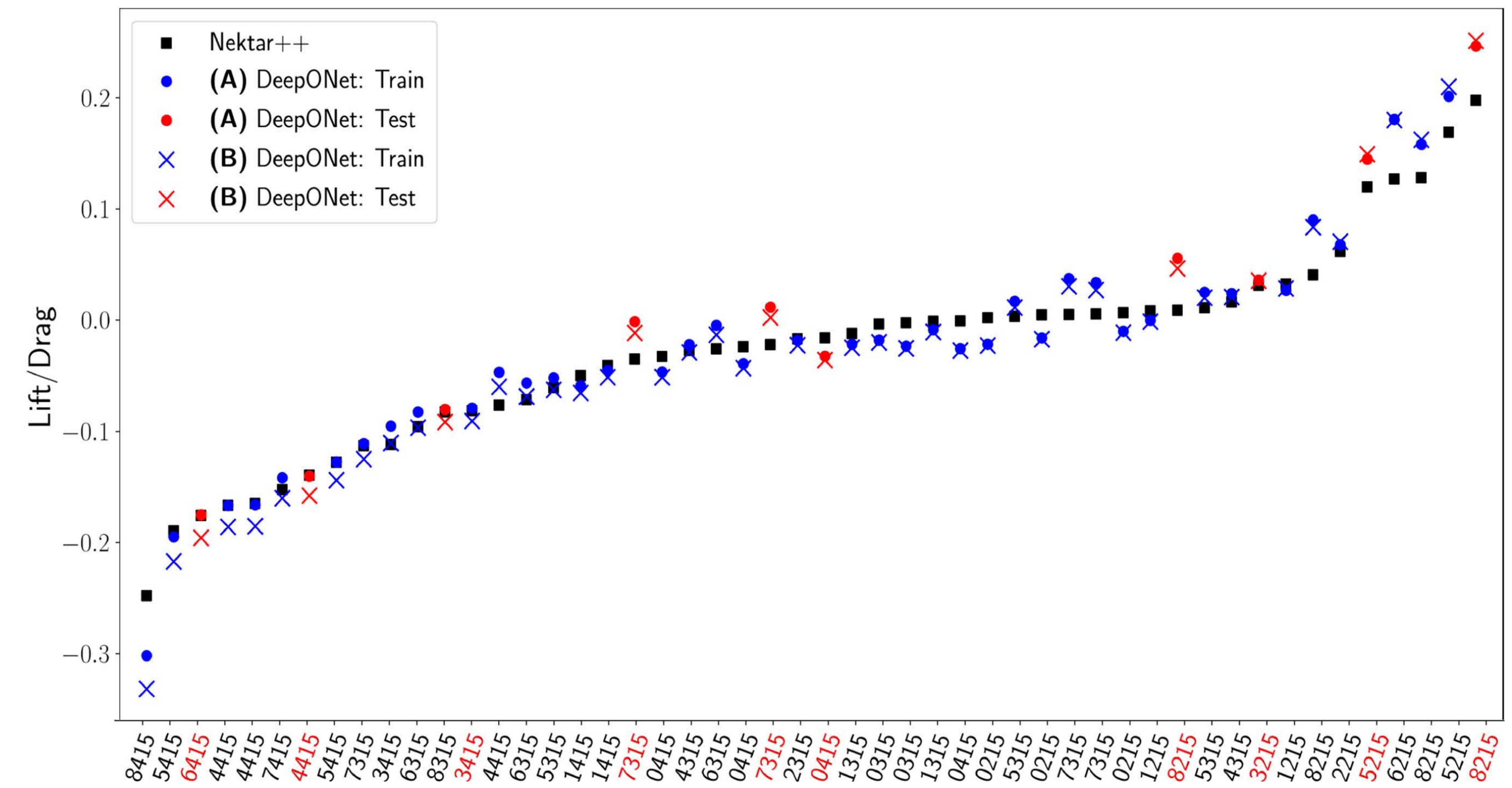


## Flow Chart of AI-Powered Vehicle Shape Optimization

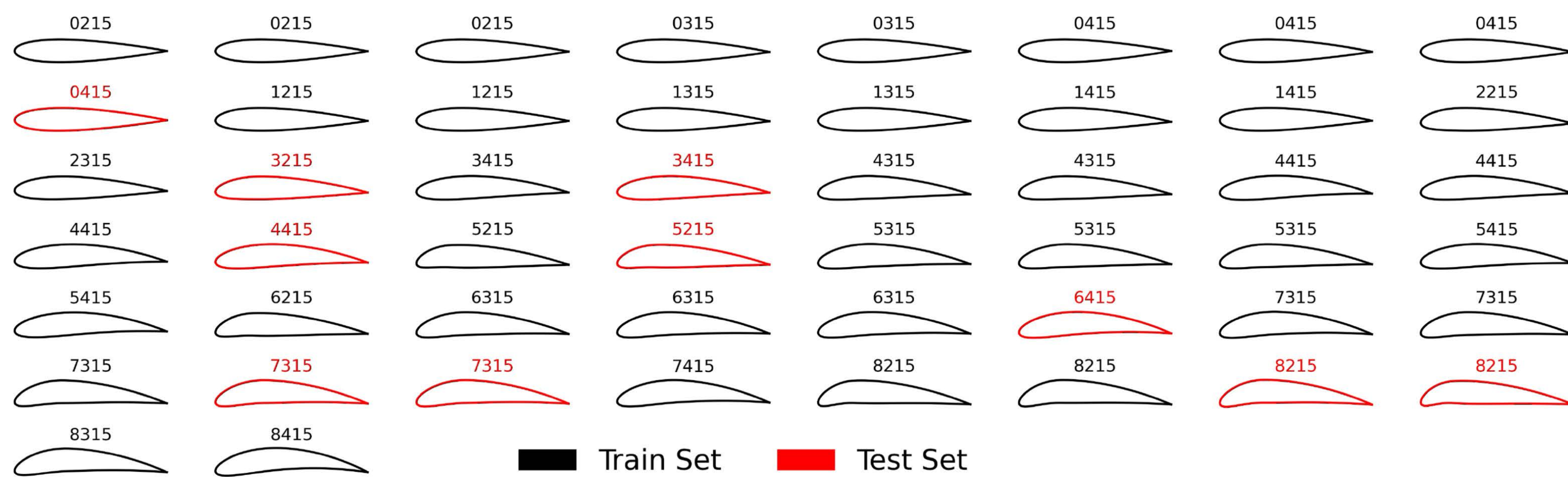


- 32,253 times faster than traditional FEM method

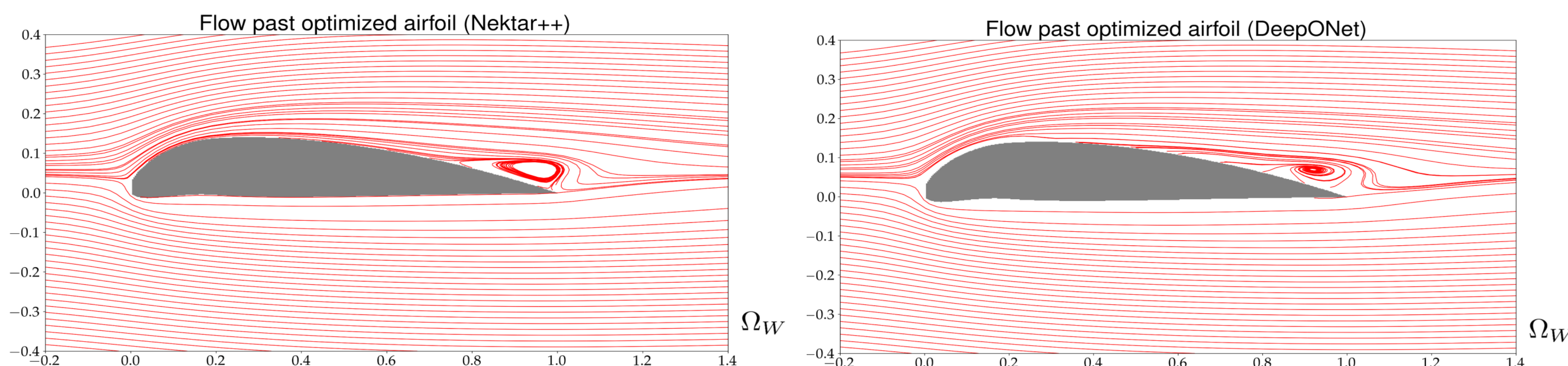
## Learning the Physics of Different Airfoil Shapes



## Finding the Optimal Airfoil Design (Lift/Drag)



Optimal design:  $L/D = 0.27 \leftarrow \{ \text{Position of maximum camber } (p) = 0.2, \text{ Maximum camber } (m) = 0.067 \}$



## Hypersonic Waverider (Mach 7+)

