# Evolutionary Computation Theory and Application (ECTA) – Assignment 3: Shape Matching

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# Assignment 3: Shape Matching

The Task

- Compare a GA and CMA-ES and solve the shape matching problem
- Match three NACA airfoil shapes (0012, 5522, 9735)
- NURBS representation. The x values of the **32** control points are fixed and you need to optimize the y values.

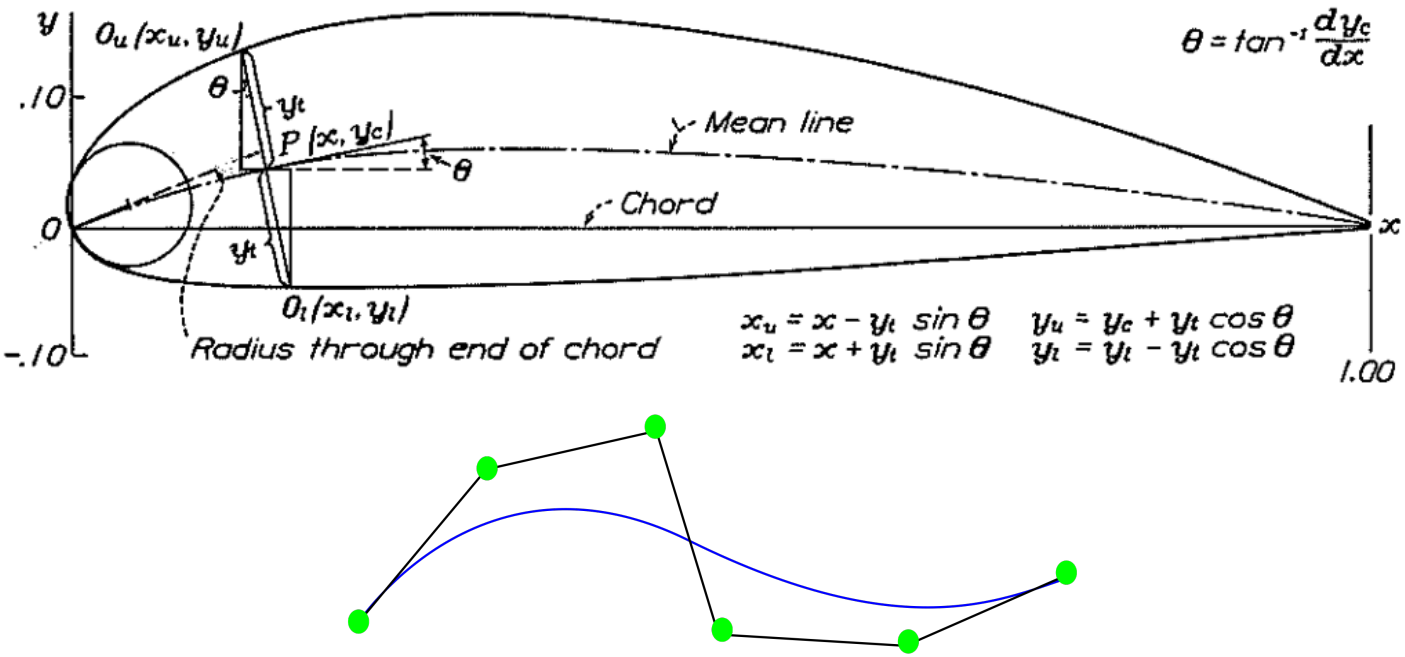


Figure: NACA air foil and NURBS representation

# Assignment 3: Shape Matching

- Code snippets provided!
- Genotype is 32 real values numbers, we provide code to turn this into a wing profile.
- Use Mean Square Error as your fitness function.

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The Report

- Describe how you used a GA to solve this real valued problem (especially representation)
- Compare (with significance tests!) performance on all three tasks
  - Be sure it is a fair comparison! (Performance vs. Function Evaluations, not generations)
- On June 7th we will review (2 weeks). The assignment is due on June 14th (3 weeks).