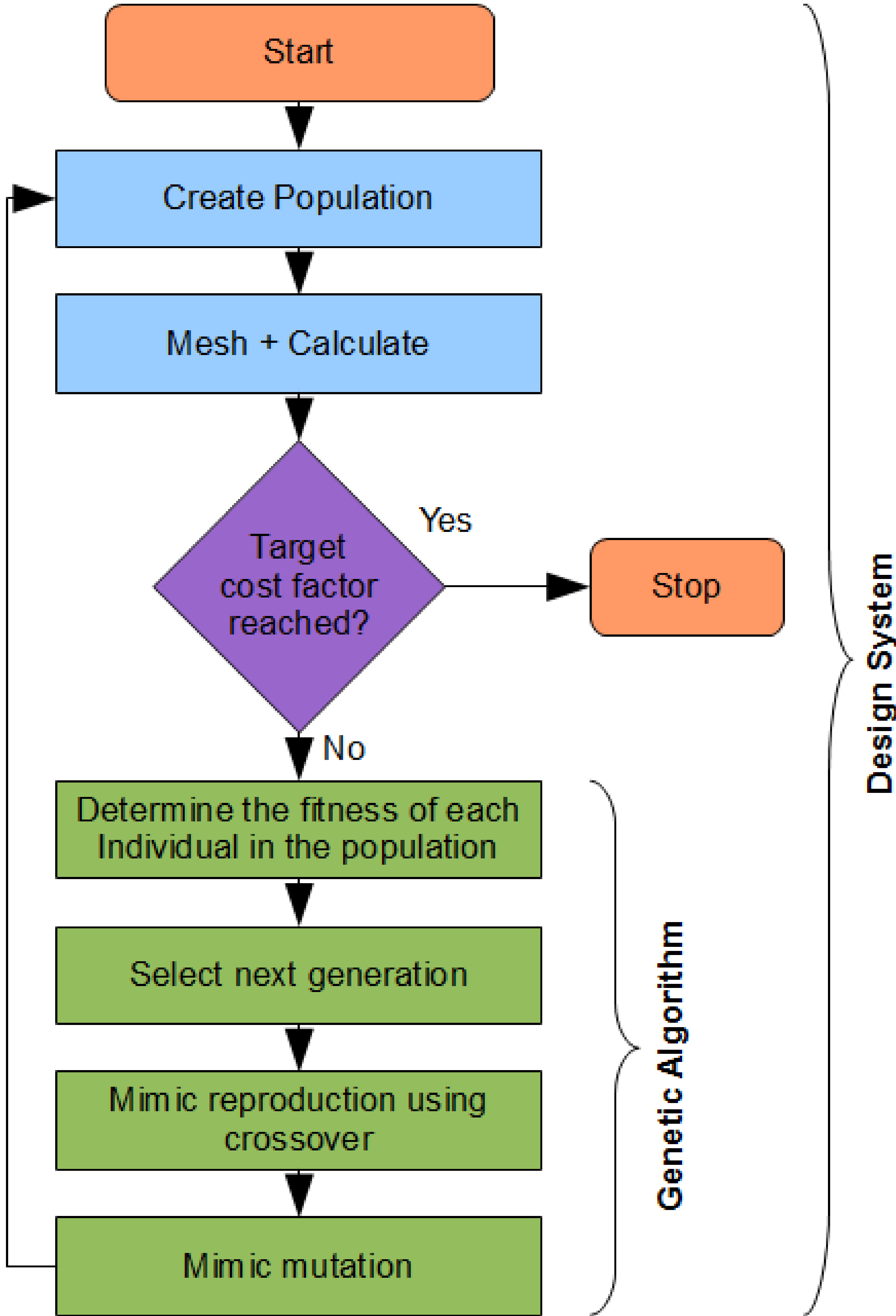


Introduction

This poster describes the design of a non-axisymmetric profiled endwall with tip clearance flow. Previous designs have assumed that the interaction between the tip clearance flow and the endwall has been negligible and this paper allows this assumption to be tested.

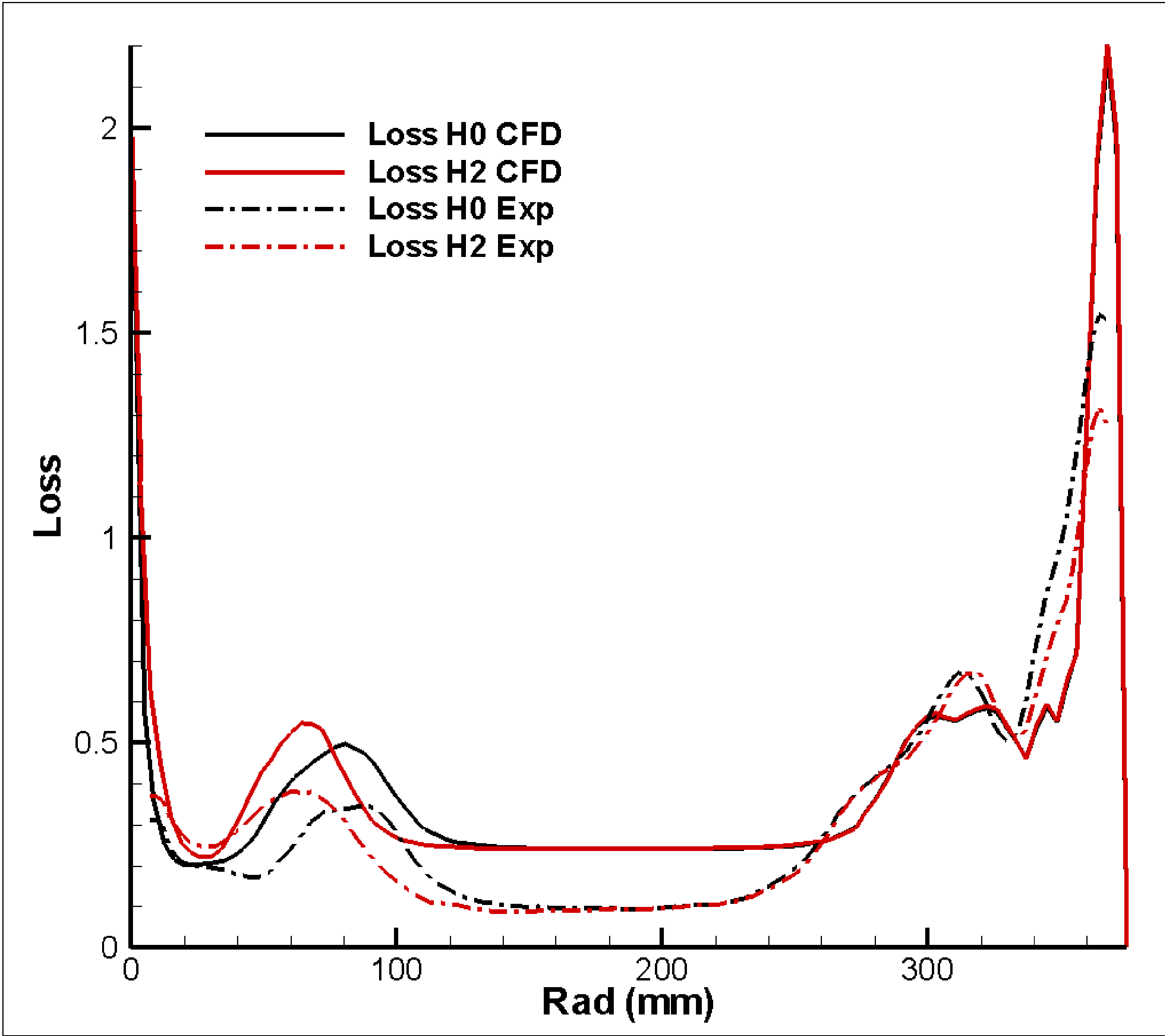
Design System and GA



Some Example Equations

- ▶ A fourier series  $f(t) = a_0 + \sum_{n=1}^{\infty} (a_n \cos \frac{n\pi t}{L} + b_n \sin \frac{n\pi t}{L})$
- ▶ Secondary energy coefficient  $C_{SKE} = \frac{U_{sec}^2 + U_r^2}{U_{ups}^2}$
- ▶ A cost function  $f_{cost} = f_{C_{SKE}} + f_{yaw} + f_{mass}$

A Sample Figure



Some Sample Text

Tip leakage flow is caused by fluid flow through the tip gap of an un-shrouded blade driven by a pressure gradient between pressure side and suction side of a blade. The flow is quite complex but the main feature is the flow over the tip forming a streamwise vortex. The cross passage flow also separates from the endwall and rolls up into a passage vortex. From the blade mid-span toward the tip gap endwall the tip leakage vortex is usually the dominant structure and has an opposite rotation sense compared to passage vortex. The relations between the circulation and size of the two structures depend among others mainly on tip gap size and flow turning angle.

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