

## **On Algorithmic Shape Optimization**

Shape optimization is quite often considered from the point of view of shape calculus only. This talk builds up on shape and preshape calculus and discusses various algorithmic approaches towards shape optimization ranging from steepest descent to shape-Newton methods. Several problems from applications will be used as motivation. We will see that different shape concepts provide different means for the analysis of shape optimization algorithms. Finally, a novel framework for the convergence analysis is provided, resulting into the definition of yet another variant of shape Hessians. Benefits and challenges of this new framework are discussed.