B.Sc. / M.Sc. Topic
“Digital image analysis of stationary surfing waves”

Background
In recent years, river surfing has become a welcoming alternative to overcrowded beaches resulting from the immense growth of surfing sports. For this purpose a wave forming apparatus, which maximizes wave height and inclination, was built at the IWS Hydraulic Laboratory. It consists of a height-adjustable ramp which causes an upstream impoundment and accelerates the flow over a deflector. The data acquisition equipment comprises a newly-developed digital image analysis (DIA), providing a full contour line of the wave, and a water level gauge to capture the wave dimensions. Both the wave forming apparatus and the DIA system show an acceptable performance, however, further improvement is needed.

Thesis Overview
1. Literature review of stationary surfing waves and DIA
2. Modification of the wave forming apparatus and improvement of the existing DIA system
3. Experimental series: Wave quality assessment of different geometrical and hydraulic conditions
4. Analysis and interpretation

Desirable Skills
- Interest in hydrodynamics and experimental science
- Knowledge of MATLAB or Python is an asset but not mandatory

Please send your CV and a few lines why you would like to take this topic.

The thesis can be written in German or English.

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