



BA/SA:

Smartwatches in the Pool

Smartwatches are getting more common and sophisticated. They include an array of sensors, and can sometimes even measure your heart rate and position.

Ever since waterproof smartwatches have become available, triathletes and open water swimmers have enjoyed the possibility to measure swim distances and times during training. In the pool, such watches do however still show poor performance. In this thesis, we are interested in using sensor measurements of smartwatches to exploit their potential in a swimming pool. We have already done a [project using smartwatches](#) and are able to recognize swimming styles and count laps with 98% accuracy. The next step would

be to investigate how precisely we can measure the time for a lap, follow a given swimming plan and provide feedback for a swimmer. We therefore would like to deploy our recognition methods directly on the smartwatch and develop an Android app that can be used during as well as after the training in order to evaluate the swimming performance. This task would require an engineering approach, where we would focus on balancing between practicability, performance and user experience.

If this sounds interesting to you, please do not hesitate to contact us so we can have a (zoom) chat. We would like to hear your ideas on this topic as well!

Requirements: Android programming experience is an advantage. There will be weekly meetings with your supervisors to discuss progress and open questions.

Interested? Please contact us for more details!

Contacts

- Simon Tanner: simon.tanner@tik.ee.ethz.ch, ETZ G97
- Darya Melnyk: darya.melnyk@tik.ee.ethz.ch, ETZ G97

