revising the training set to the core seizure phase with high motion intensity only, performance improved to 86% for seizure events and 78% for non-seizure times.
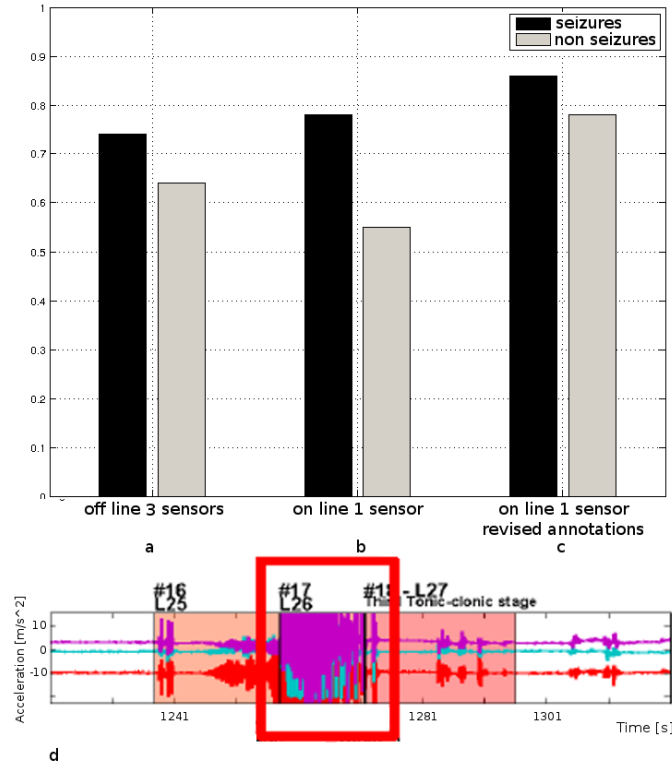


Figure 5 Epilepsy seizure detection performance using the CRNTC+ framework. (a): offline, using three 3D acc. units placed on the upper arms and dominant wrist. (b): online, using one 3D acc. unit at wrist. (c): online, using one 3D acc. unit at wrist with revised training data (see main text for details). (d): Annotation example for a Tonic-clonic seizure. The red square marking indicates the seizure part used as training data for the results in panel (c).

## *2.7 Conclusion and future work*

We proposed and evaluated a new framework for smartphone-based sensor data recording and processing, which emphasises extensibility and leverages the widely used CRN toolbox for generic data processing algorithms. The new CRNTC+ was implemented in a layered framework design. Our formal evaluation and study results showed that CRNTC+ is versatile to handle various multi-modal sensors and recognition solutions, which are essential to prototype patient care solutions with phones. While the present investigation focused on assessing feasibility of CRNTC+ for epilepsy detection in daily life, further work is needed to optimize the detection by evaluating additional algorithms and evaluation in larger studies.