

Computer Vision for Sports

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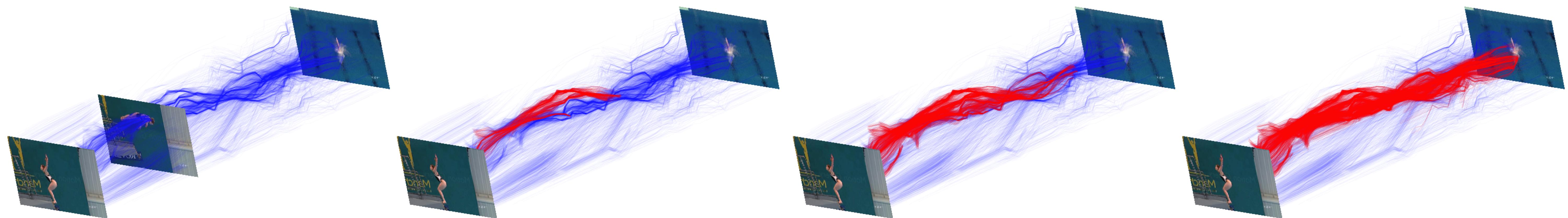


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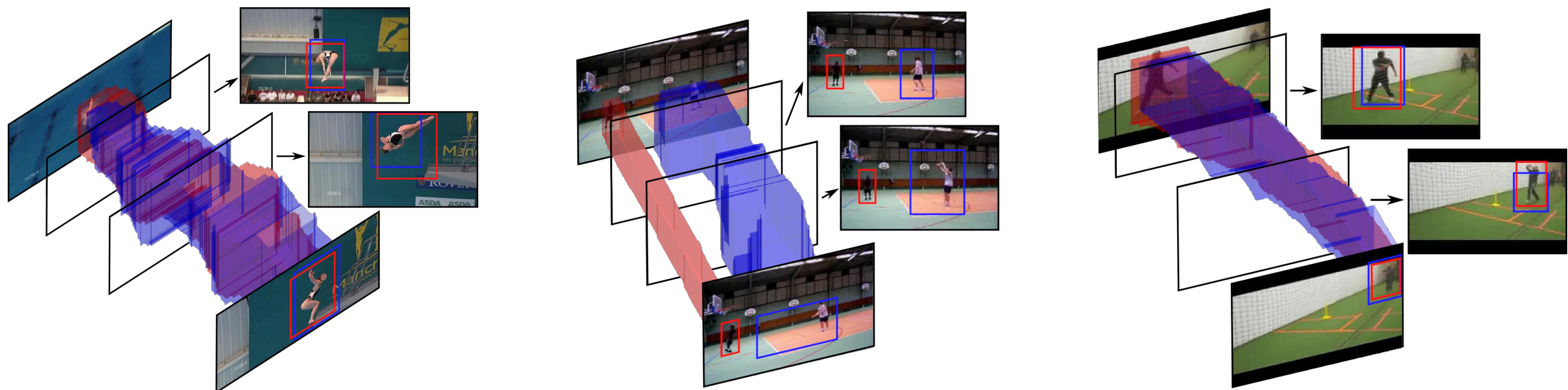
Action localization: find *what*, *when* and *where* its happening

Grouping similar looking and moving patches in time and space:

[Jain et al, cvpr14]
[Gemert et al, bmvc15]



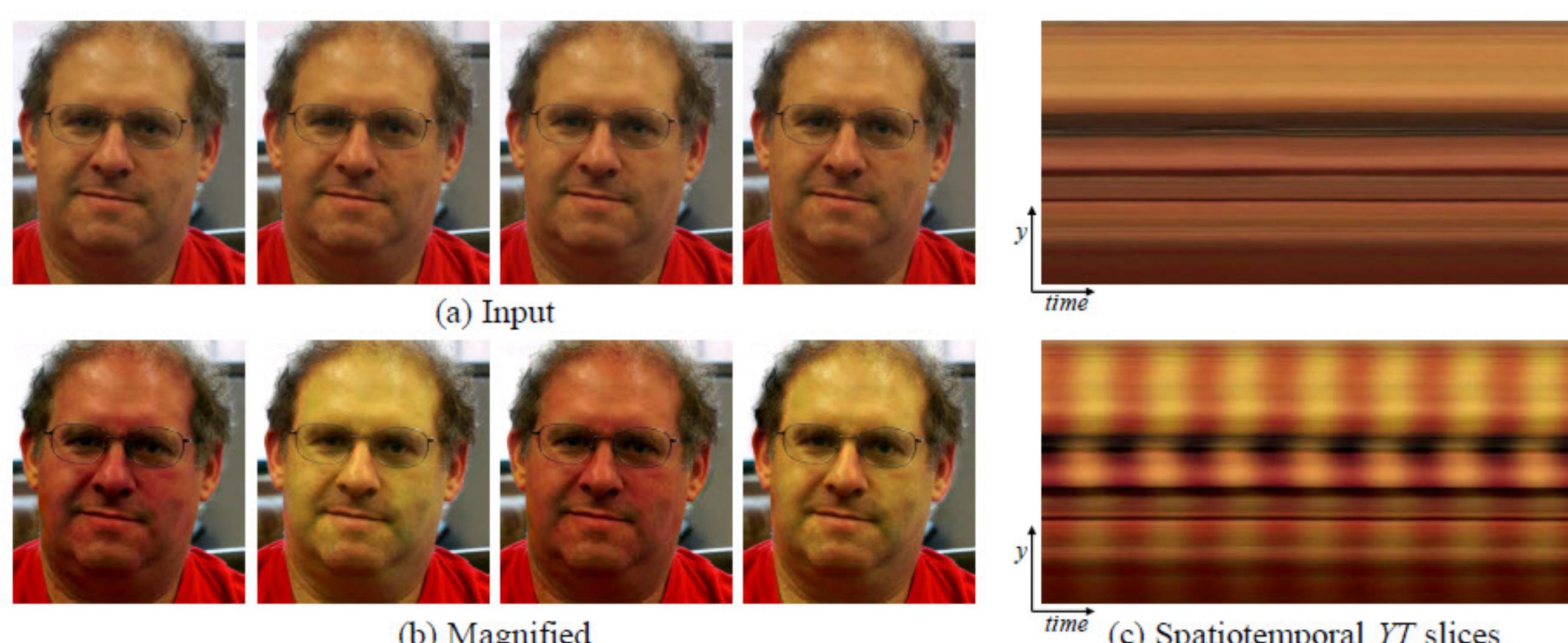
Example detections: ground truth action (red tube) and detected action (blue tube):



Possible applications: team play analysis; personal statistics; summarization; etc.

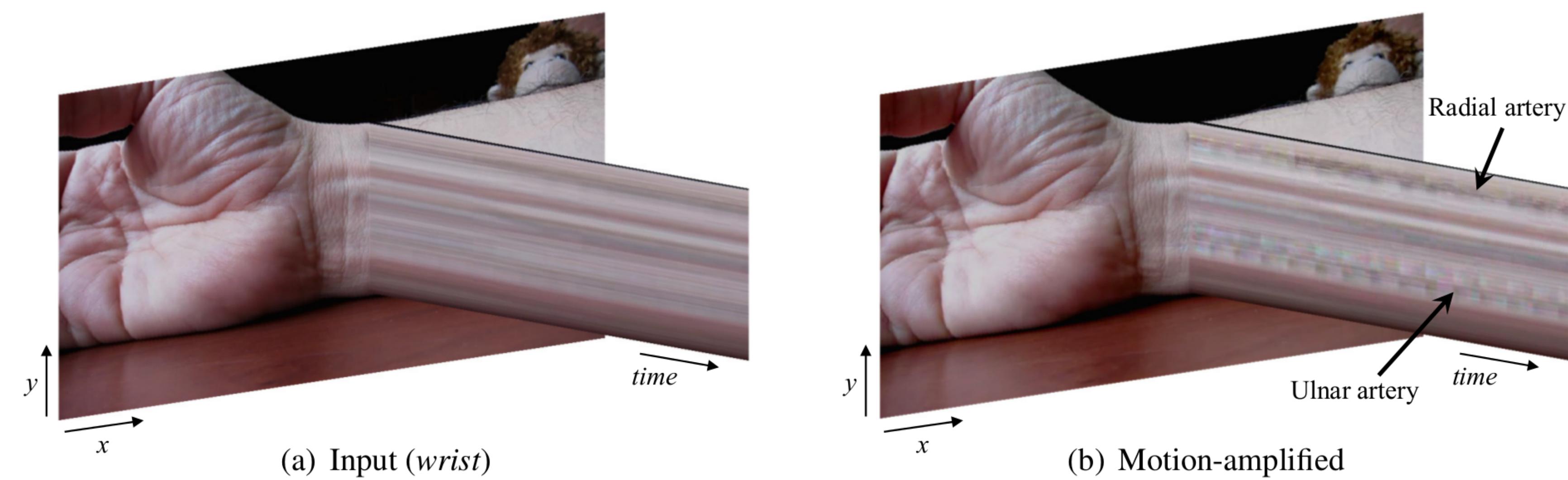
Video magnification: revealing invisible changes

Magnify tiny color changes



[Wu et al, siggraph12]

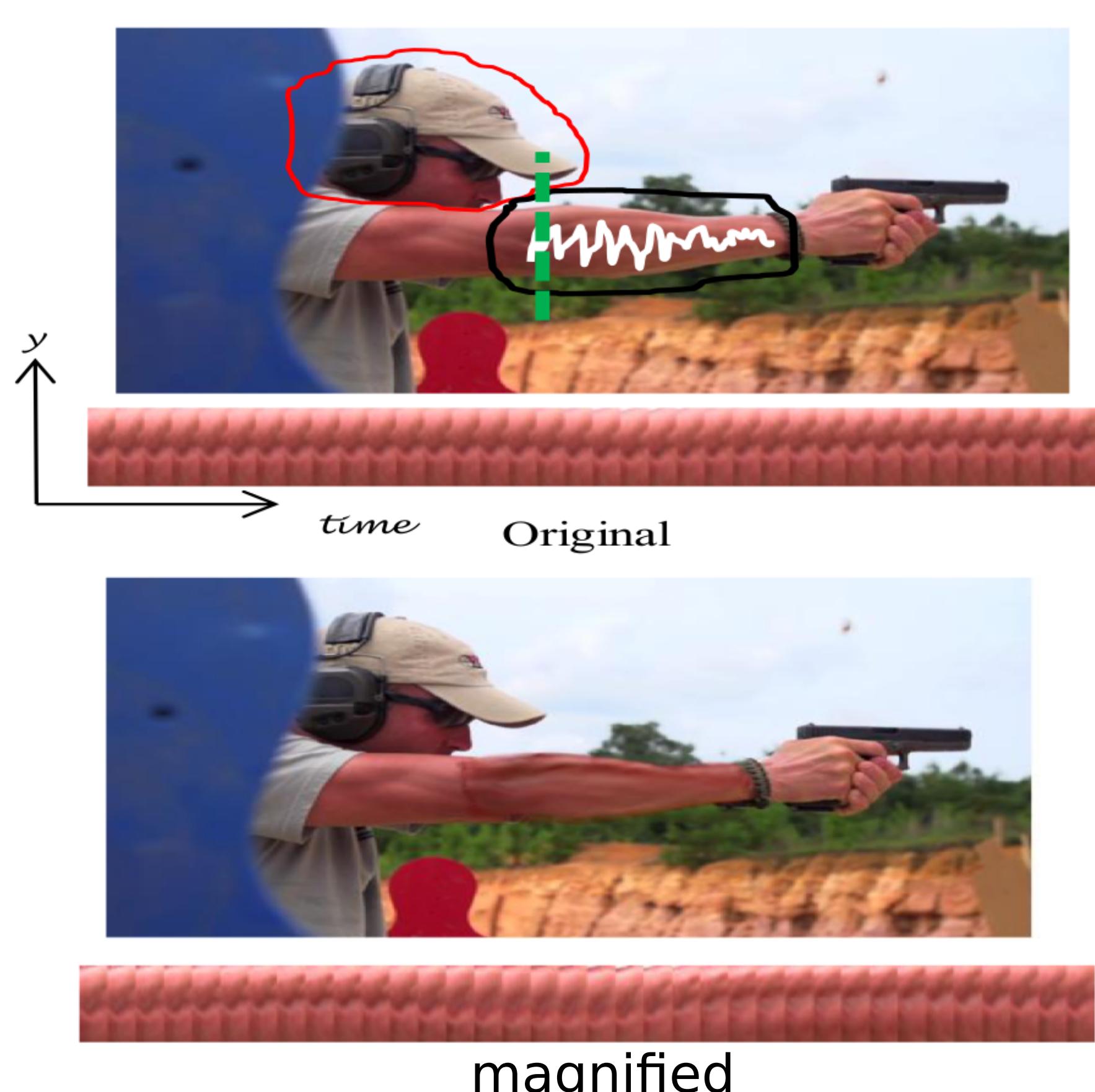
Magnify tiny motion



(a) Input (wrist)

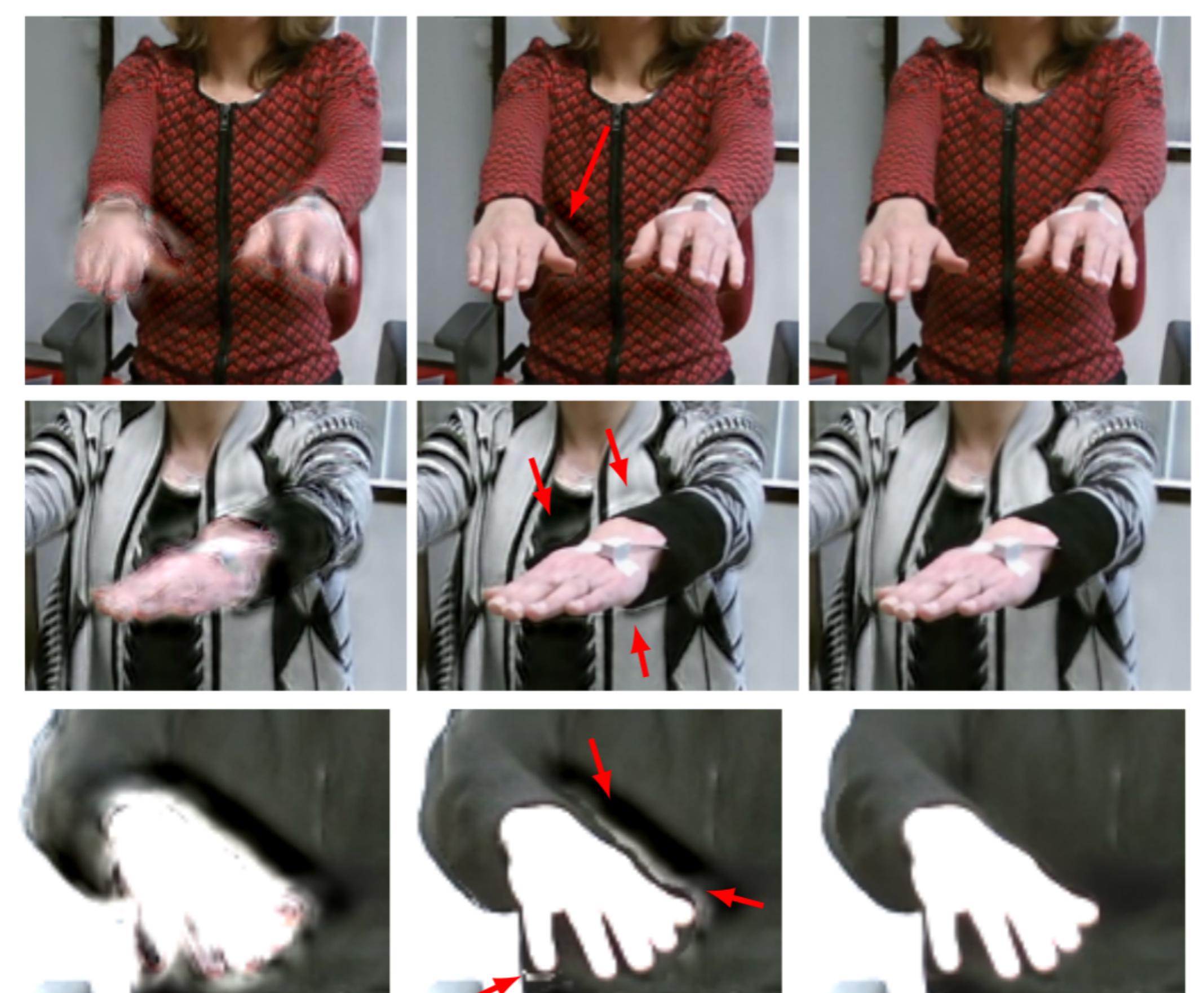
(b) Motion-amplified

Magnify muscle movements



[Wadhawa et al, siggraph13]

Magnify involuntary tremors



[Wu et al, siggraph12]

[Elgarib et al, CVPR15]

[Kooij & Gemert, ECCV16]

(submitted)

Filter small changes over time; magnify them; and put them back in.