Gesture Heatmaps:

Understanding Gesture Performance with Colorful Visualizations

Gesture heatmaps are a **novel gesture analysis technique** that employs color maps to visualize the variation of features along the gesture path.

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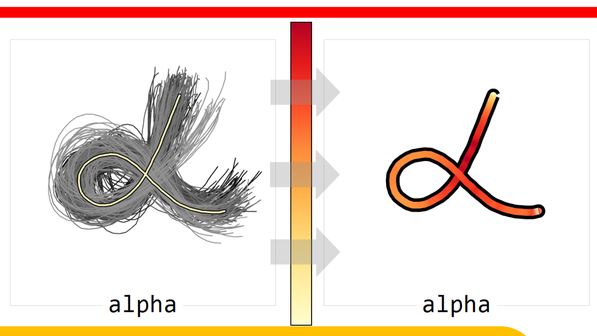
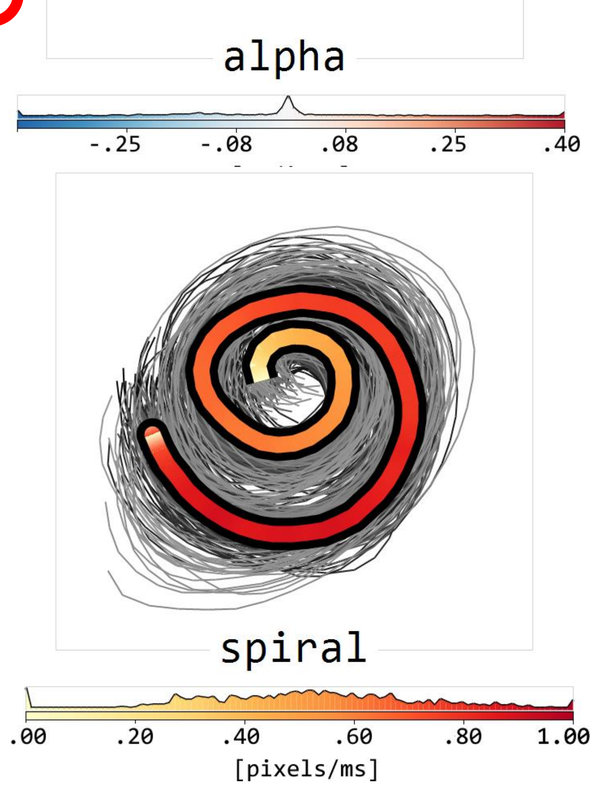
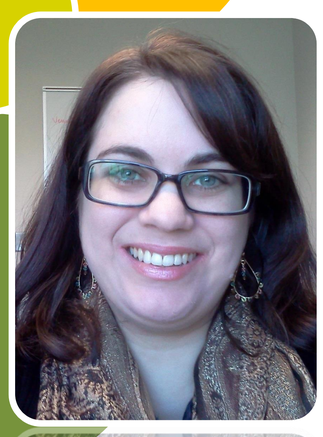
We compute gesture heatmaps directly from recognizers' training sets using **gesture centroids & color schemes**.



We demonstrate the use of gesture heatmaps with **3 case studies** involving public datasets (with a total of 15,840 samples, 70 gestures, 45 participants).





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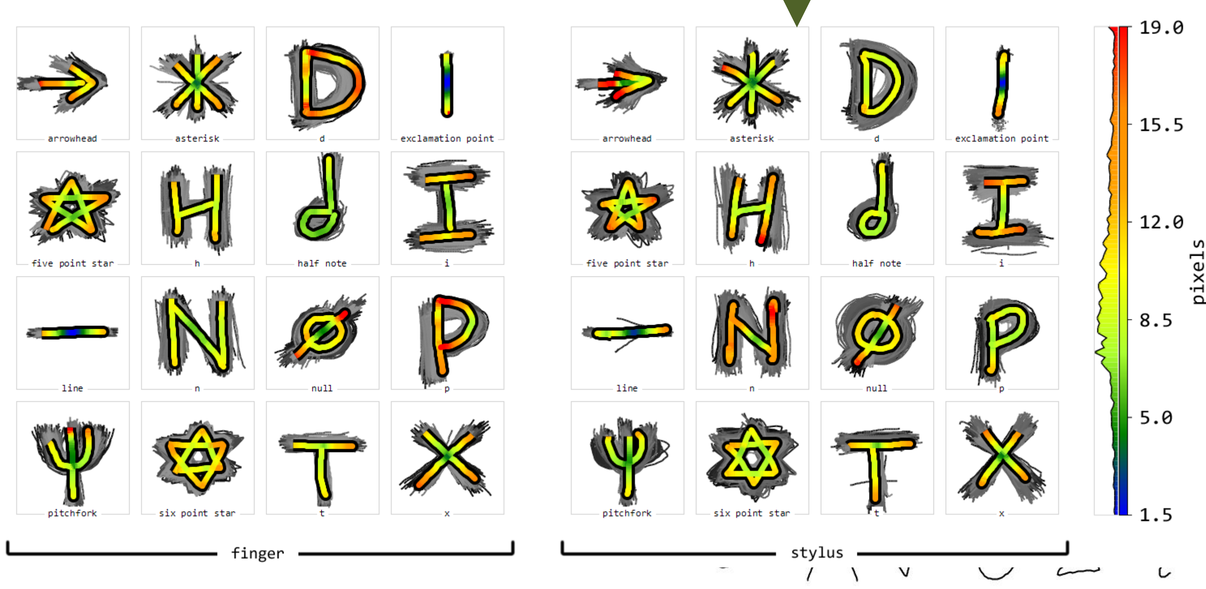
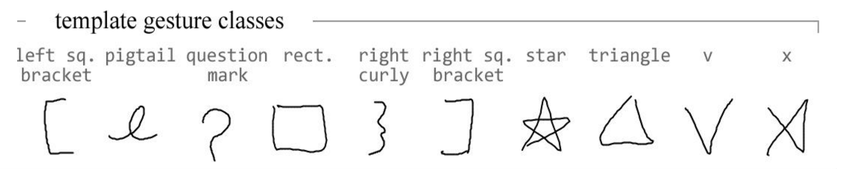
For example, we employed gesture heatmaps to:

- ☑ Reveal **causes of erroneous classification** (*e.g.*, for the $1, $N, and $P gesture recognizers)
- ☑ Understand people's **subjective perceptions** about gestures (*e.g.*, difficulty of articulation)
- ☑ Characterize users' **gesture differences** between articulation conditions (*e.g.*, finger versus pen).





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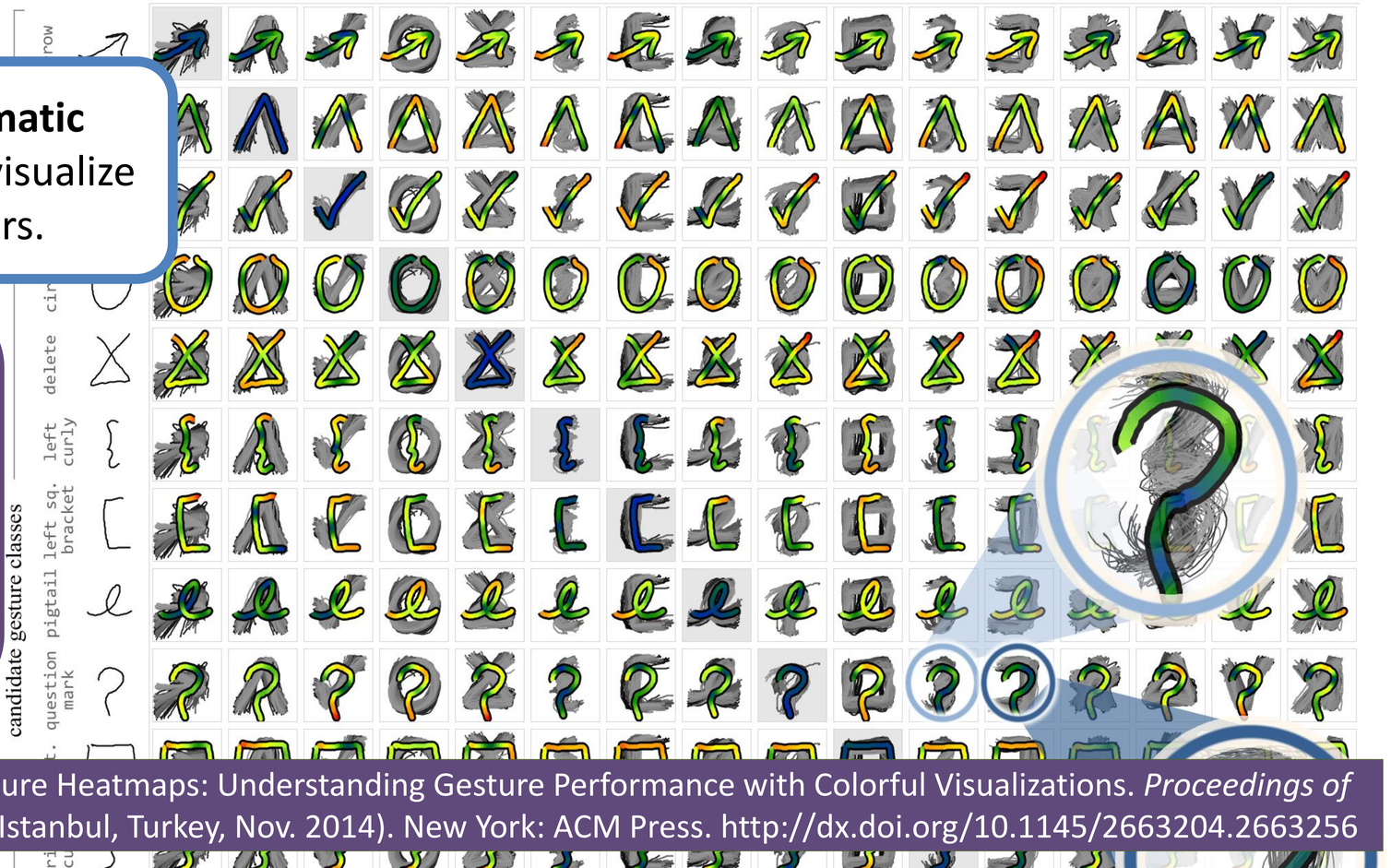
We also introduce the **chromatic confusion matrix** to better visualize and explain recognition errors.

We release **Gesture HeatmapS Toolkit (GHoST) as open source software**.
http://depts.washington.edu/aimgroup/proj/dollar/ghost.html



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