

Gesture Heatmaps:

Understanding Gesture Performance with Colorful Visualizations

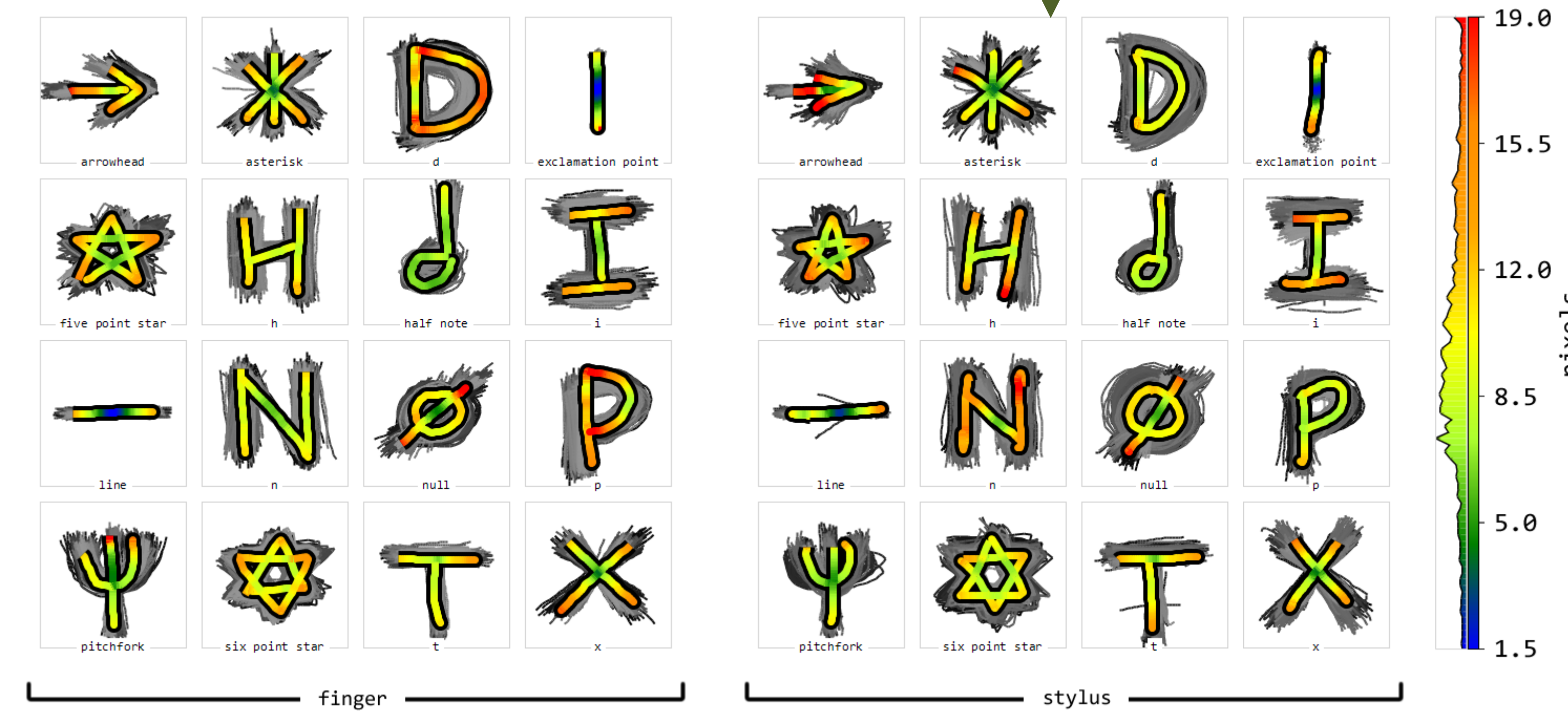
Gesture heatmaps are a **novel gesture analysis technique** that employs color maps to visualize the variation of features along the gesture path.

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).

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).



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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