**Effect of prior knowledge on localization of tactile stimulation**

Stephanie Badde & Michael S. Landy
Department of Psychology and Center of Neural Science, New York University

---

**Introduction**

Do humans systematically integrate
- stimulus properties (uncertainty)
- prior knowledge (subset prior)
- special locations (hand center prior)
- subsequent action (response modality)
when localizing a tactile stimulus?

---

**Task**

1. **Fixate**
   - Verbal response (visual reference)
   - Motor response (blindfolded)

2. **Vibrotactile stimulation**
   - 2 different stimulus strengths + durations, based on detection thresholds
   - 3 separately tested subsets of locations
   - 150 training trials (exposure) per set

3. **Report**
   - Approximately learned fixed prior
   - Estimators: Maximum Likelihood, ML
   - Maximum a Posteriori, MAP
   - Bayesian Least Squares, BLS

**Plots illustrate subset 1**

---

**Conclusion**

Humans integrate stimulus properties and a mixture of recently learned prior knowledge and a hand center prior when localizing touch.
The relative influence of learned and hand center prior depends on the subsequent action.

Support: NIH EY08266 (MSL) & DFG BA5600 1-1 (SB)