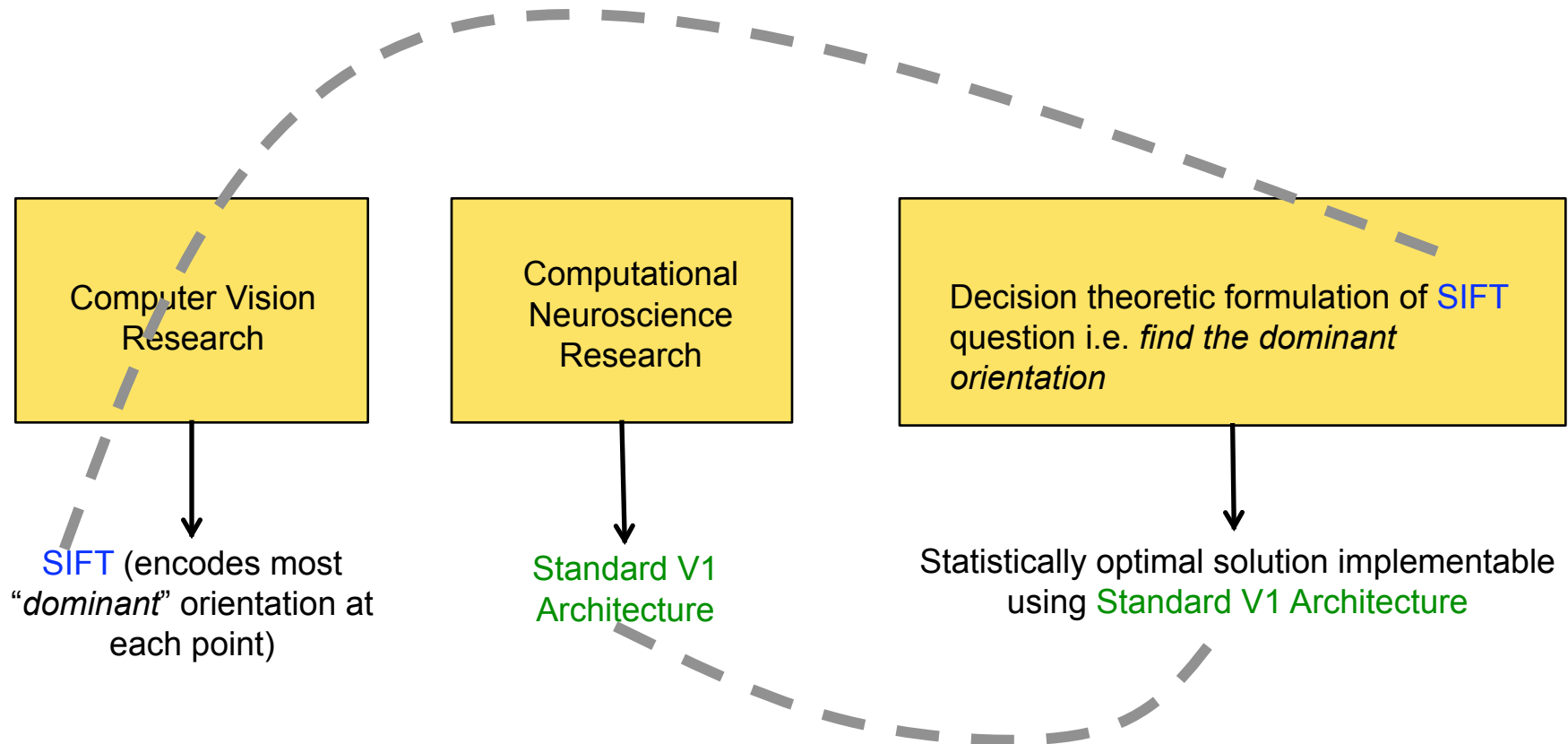
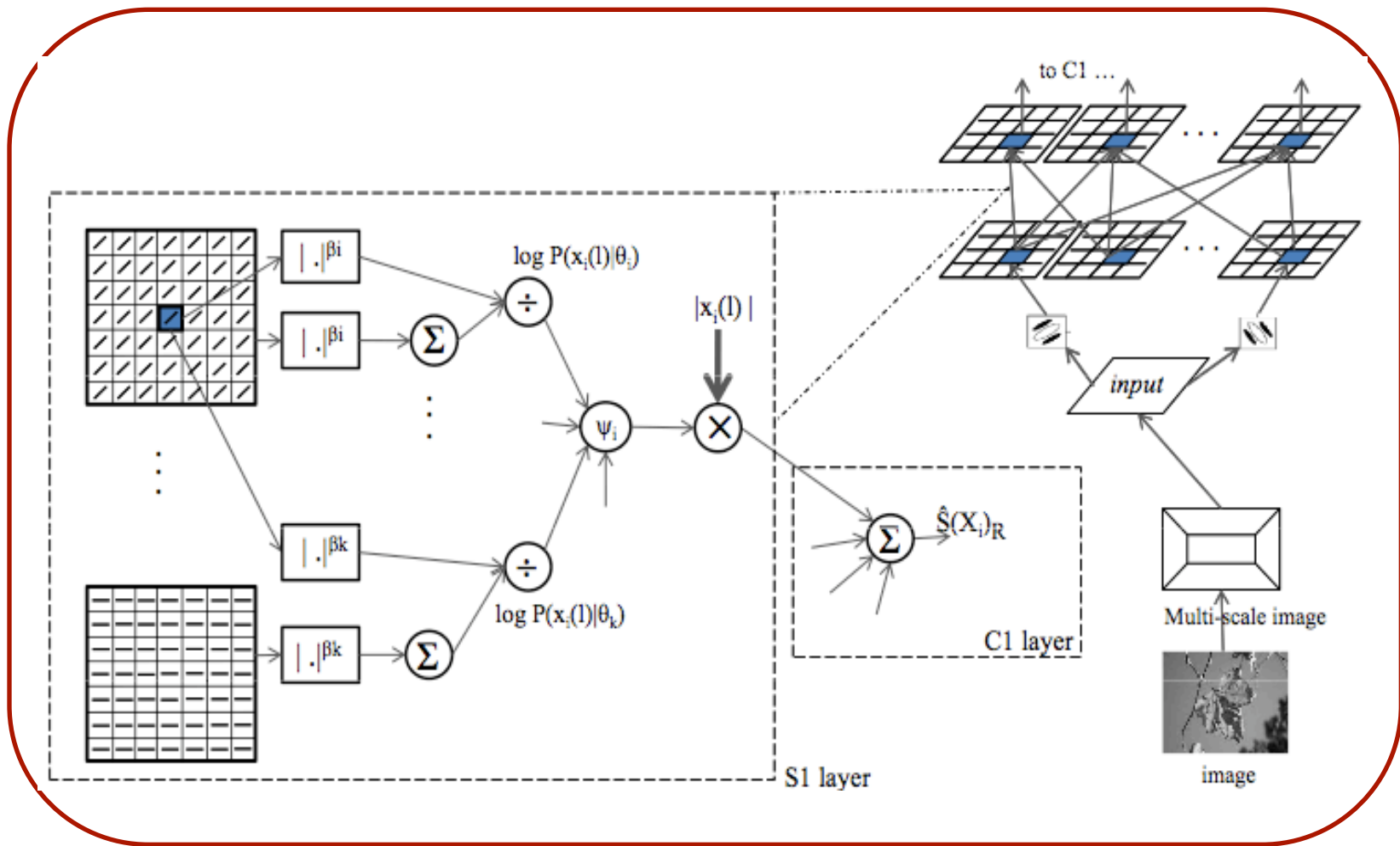


# A Biologically Plausible Architecture for the Computation of Orientation Dominance

Kritika Muralidharan, Nuno Vasconcelos, Statistical Visual Computing Lab. dept. of Electrical and Computer Engineering, UCSD

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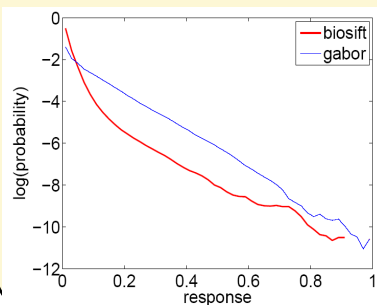




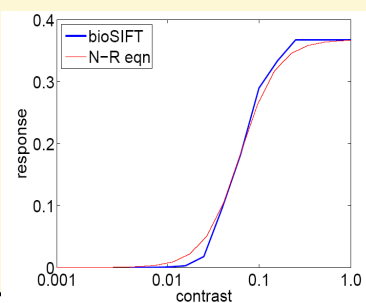
Statistically Optimal Solution implementable using **standard V1 operations.**

## Biological Properties

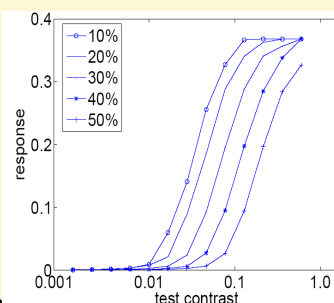
### Sparseness



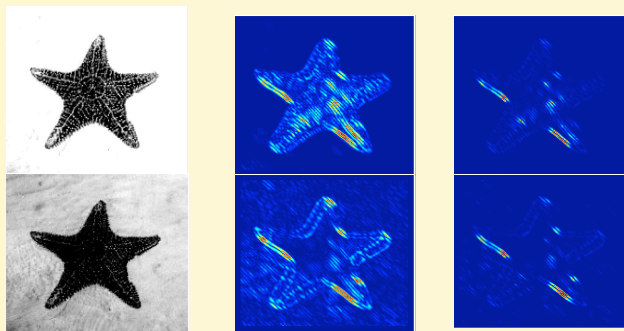
### Naka-Rushton Fit



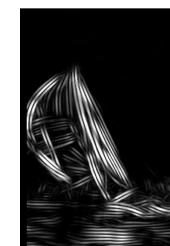
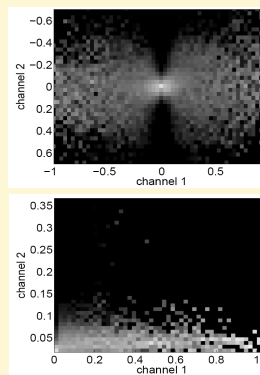
### Cross-orientation suppression



### Contrast Invariance



### Independence



# Contributions

- Connection between SIFT and biological vision.
- SIFT is an approximation to the **optimal solution** to the decision theoretic formulation of the Orientation Dominance problem and this solution is **biologically plausible** => legitimacy to the success of SIFT.
- **Orientation Dominance** is an important feature for visual perception.
- Properties like **independence** and **sparseness** hold for SIFT-like features.
- Biologically plausible recognition architectures can compete with the non-biological state-of-the-art.