

# Decoding Political Identity: Visual Cues, Issue Stances, and Interest Group Ratings in Congressional Social Media

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## Introduction

Social media profiles are often voters' first exposure to political elites. This study analyzes the full ensemble of **visual** and **textual** cues, compares self-presentation across platforms for the (same) elites, and links profile-level signals to broader messaging and behavior.

- Contribution:** Multimodal analysis (CLIP) for signal measurement, and CTEs (via embedding / GPT-4o) for interpretable drivers, plus a test of **strategic visual concealment** linking profile aesthetics to votes and interest-group ratings (extension).
- Scope & Data:** U.S.118th–119th Congress, Governors, Cabinets, and (Journalists); official and personal accounts on Twitter and Truth Social; profile photo, cover image, and bio text.

## Three-stage framework

**Stage 1 – Embedding & detection.** All three modalities are embedded with CLIP (ViT-B/32); a two-layer MLP classifier is evaluated via 10-fold CV. Signal share:

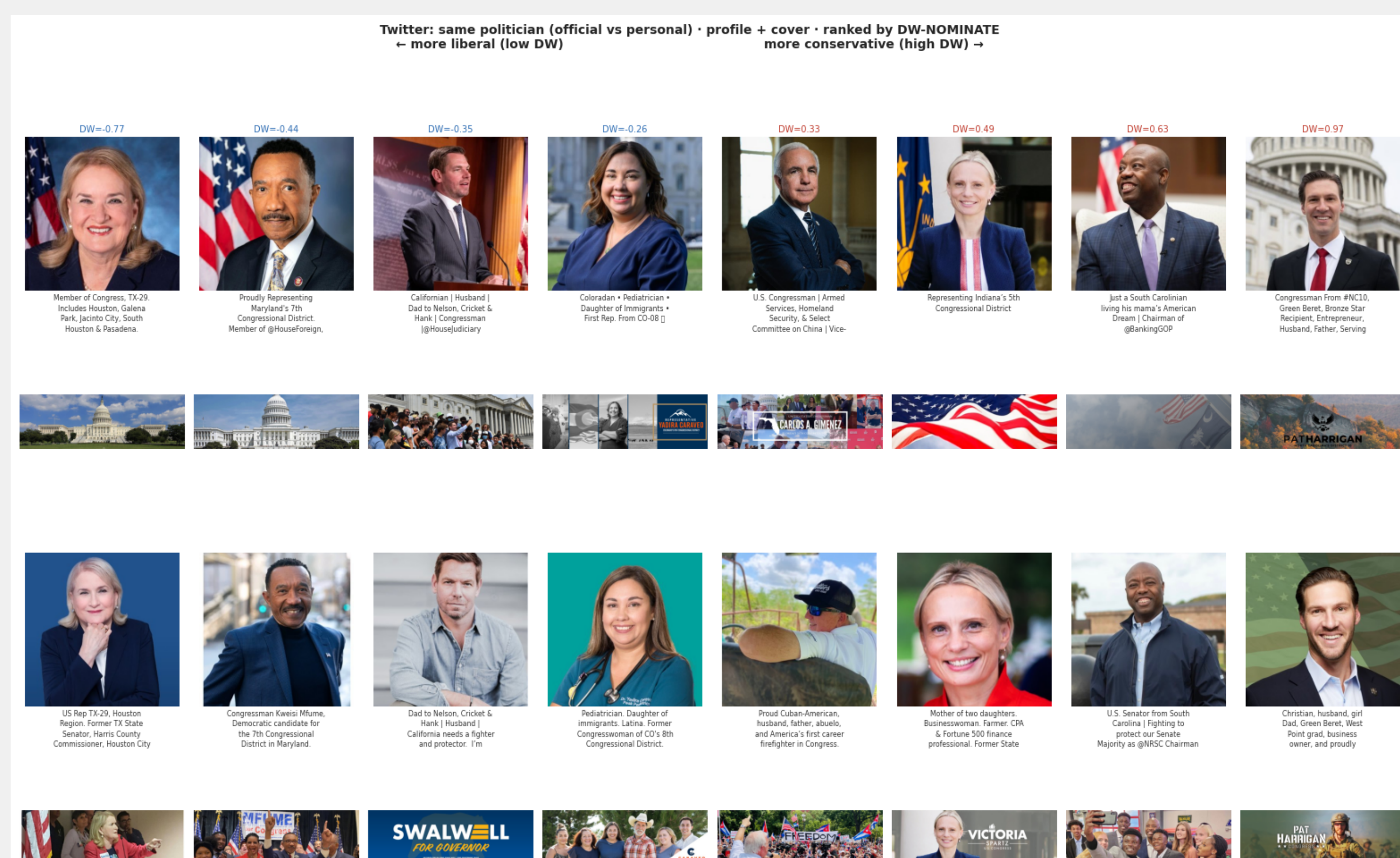
$$\text{share}_k = \frac{\text{AUC}_k - 0.5}{\text{AUC}_{\text{stacked}} - 0.5} \times 100.$$

**Stage 2 – Cross-modal scatter.** Member-level scores plotted across cue pairs; 45° alignment = redundancy, dispersion = complementarity (Level/Discordance decomposition).

**Stage 3 – Interpretation.** Zero-shot CLIP concept similarity + OLS (HC3) yields **Concept Treatment Effects (CTEs)**; full paper adds GPT-4o/Gemini/SpLICE for richer concept extraction.

## Profile demonstration (Twitter)

Representative scraped cues (profile photo, cover image, and bio text) used in the multimodal pipeline.



## Main results — pooled partisan signal

**Signal shares (vs. stacked):** profile 87.8%, cover 78.5%, bio 90.0% (need not sum to 100%; modalities correlated).

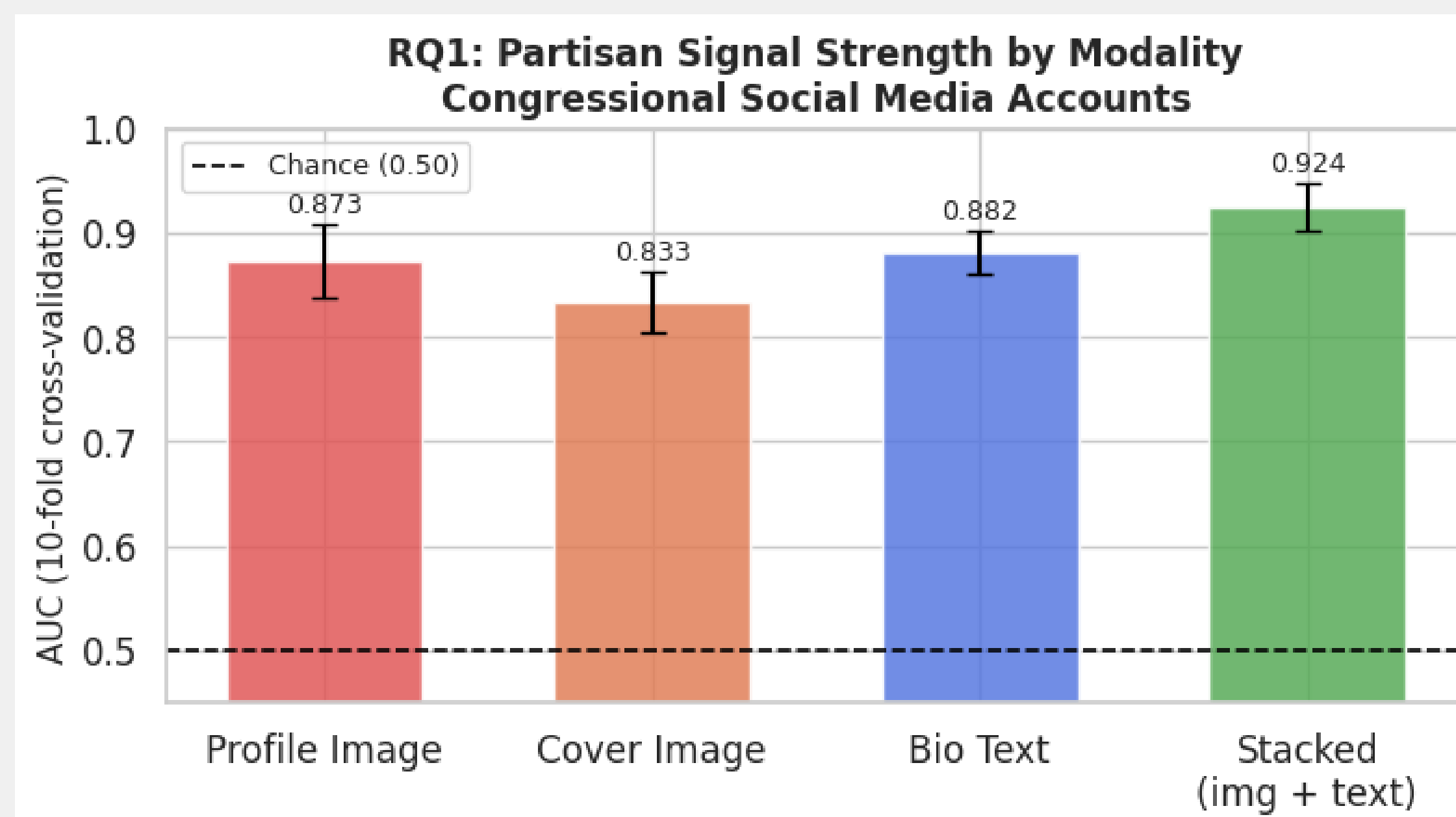
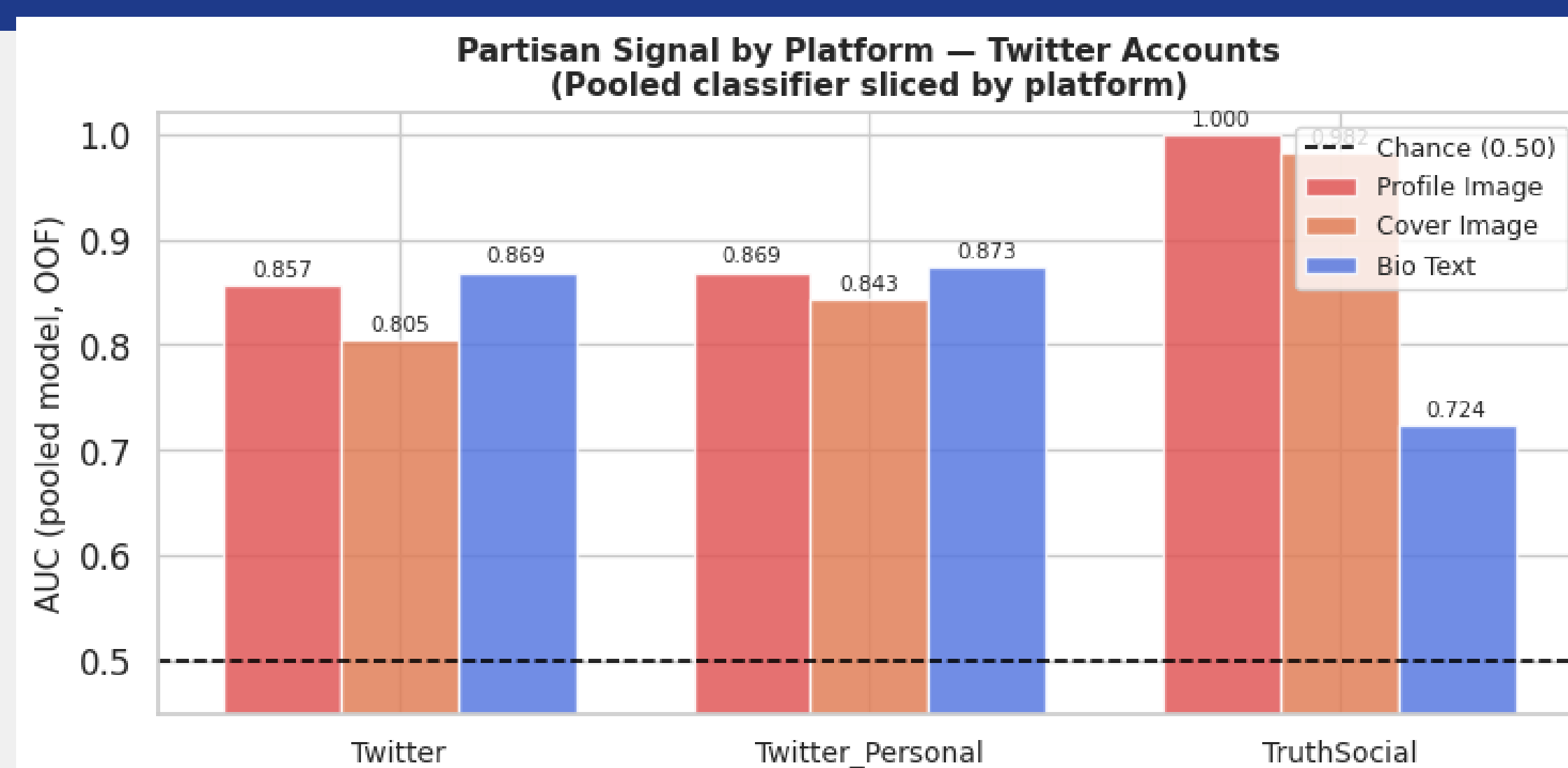


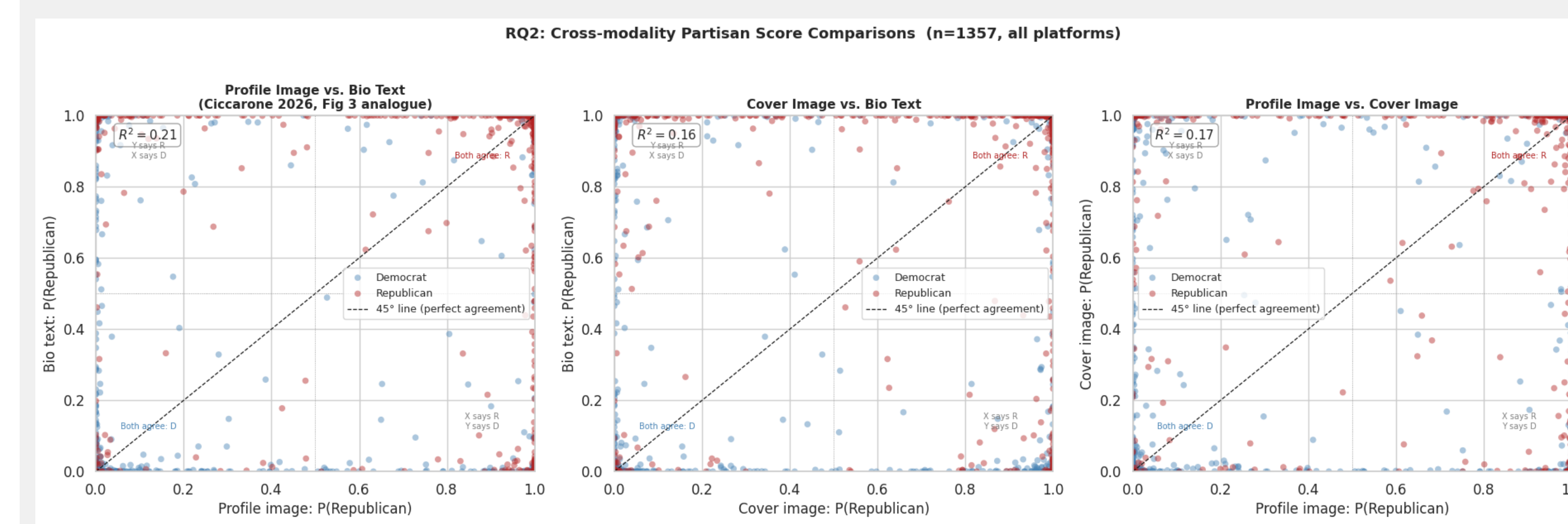
Figure 1. AUC by modality and stacked model. Bars: mean AUC; error bars: SD across folds.

## Heterogeneity by platform



## Cross-modal comparison (RQ2)

Scatter plots compare predicted Republican probability across modalities; low  $R^2$  on panels indicates **distinct** information across channels.



## Empirical Strategy (RQ3)

$$y_i = \alpha + \beta c_i + \gamma' z_i + \varepsilon_i$$

$y_i$ : predicted partisan signal (classifier score,  $P(\text{Repub.})$ );  $c_i \in \{0, 1\}$ : CLIP zero-shot concept indicator;  $z_i$ : demographics (gender, race); Robust SEs.

## Which concepts move predictions? (RQ3)

Zero-shot CLIP concept labels + OLS on partisan scores (baseline vs demographic controls).

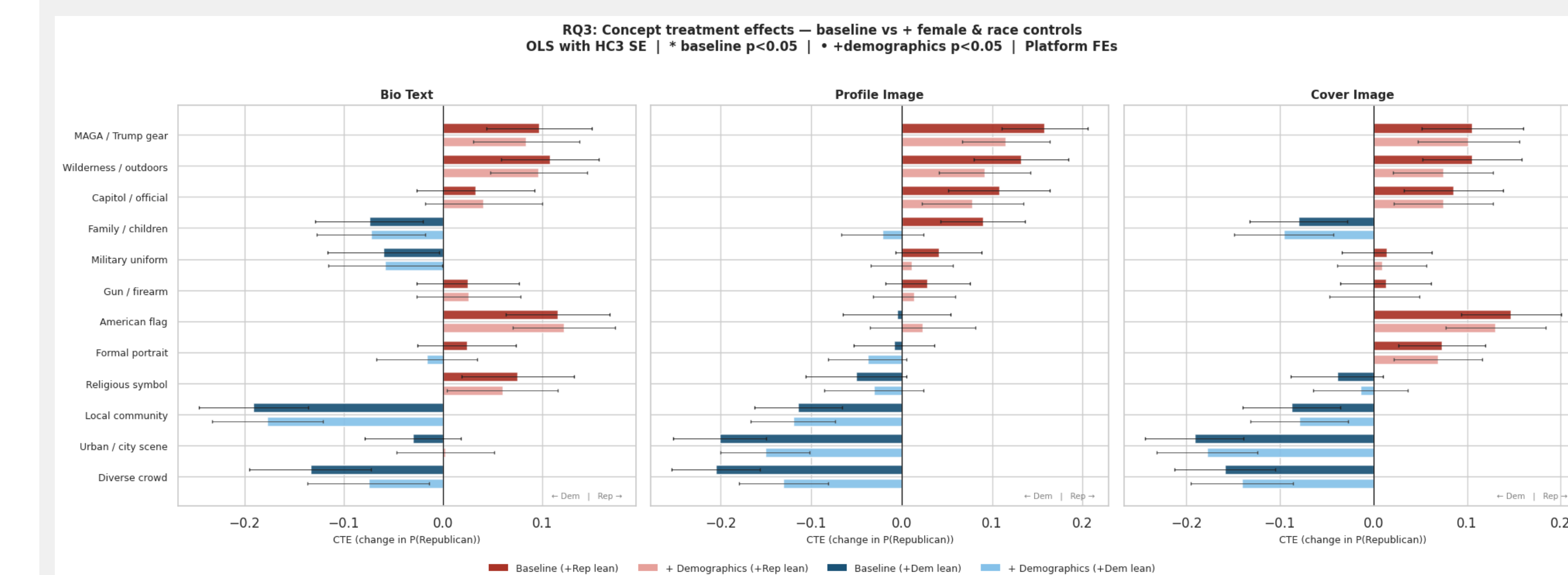


Figure 2. CTE forest plot: change in predicted  $P(\text{Republican})$  when a concept is present.

Example profile-image CTEs (baseline): MAGA/Trump gear +0.158; wilderness/outdoors +0.132. Cover image: diverse crowd -0.159 (Democratic-leaning visual cue).

## Findings, Conclusion and Extension

- Strong partisan signal in **all three** modalities; stacked AUC = 0.924.
- Modalities are **partially complementary** — combining cues improves on any single channel.
- partly distinct partisan information.
- Extension: Tests for strategic revelation and concealment, linking profile aesthetics to ideology and group ratings(e.g. firearms imagery vs. NRA ratings).

## References

[1] Ciccarone, Tyler. 2026. *Partisan signal in congressional social media*. Working paper / manuscript. Teaching demo: [code/analysis/teaching\\_demo/demo\\_partisan\\_signal.ipynb](#).