Replication: Estimating the Ideology of Political YouTube Videos

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ARTICLE

Estimating the Ideology of Political YouTube Videos

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Background and Purpose

1. Increasing Influence of Online Media
2. Previous Work on Ideology Estimation
    1. Political actor
    2. Social Media
3. Gaps in Existing Research
    1. Rely on static Human-Labeled dataset

1. Develop a Novel Ideological Estimation Method
2. Application: Evaluate the presence of echo chambers
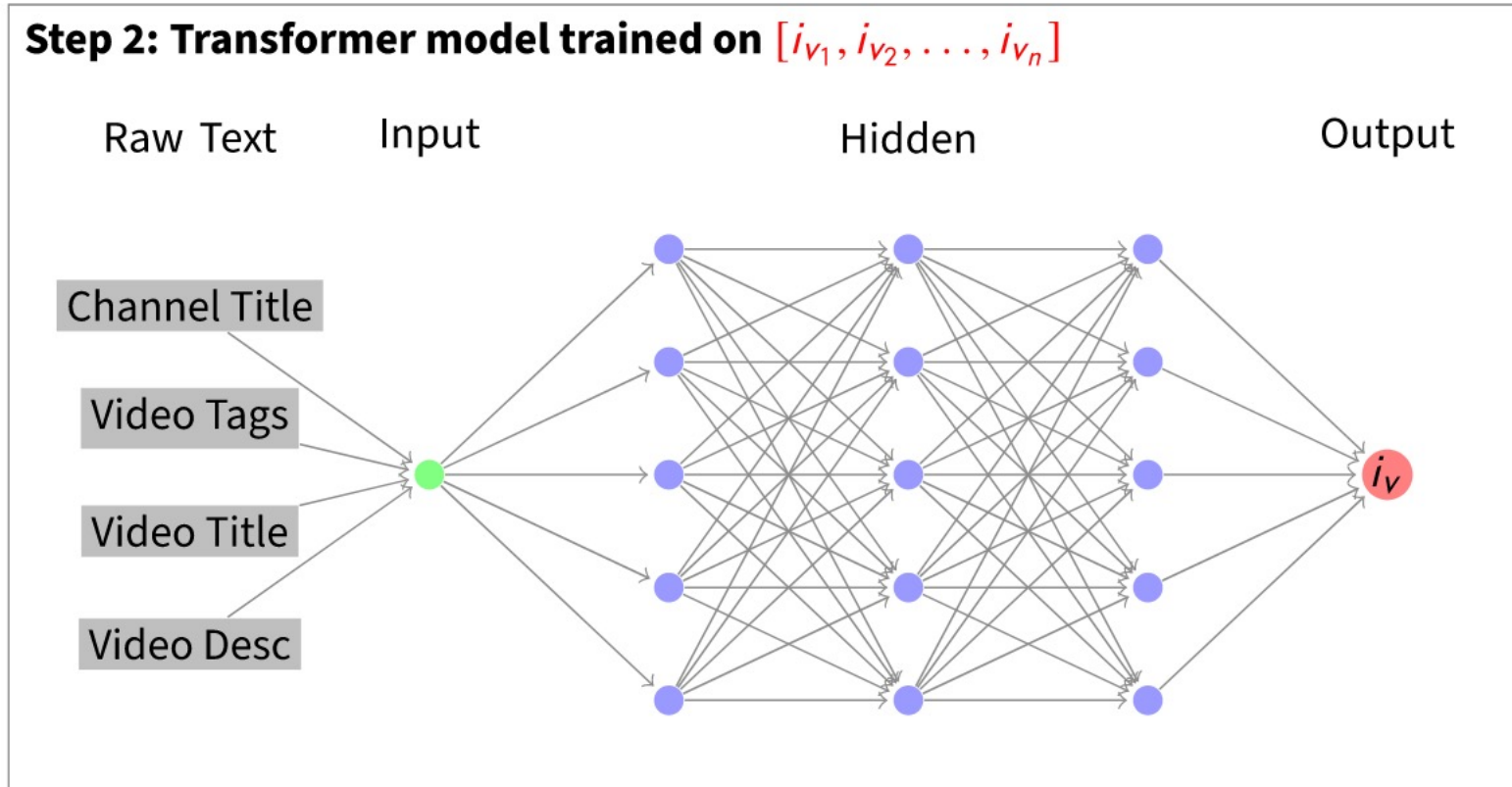
Methodology: Video-Subreddit Matrix

Identifying Political Subreddits

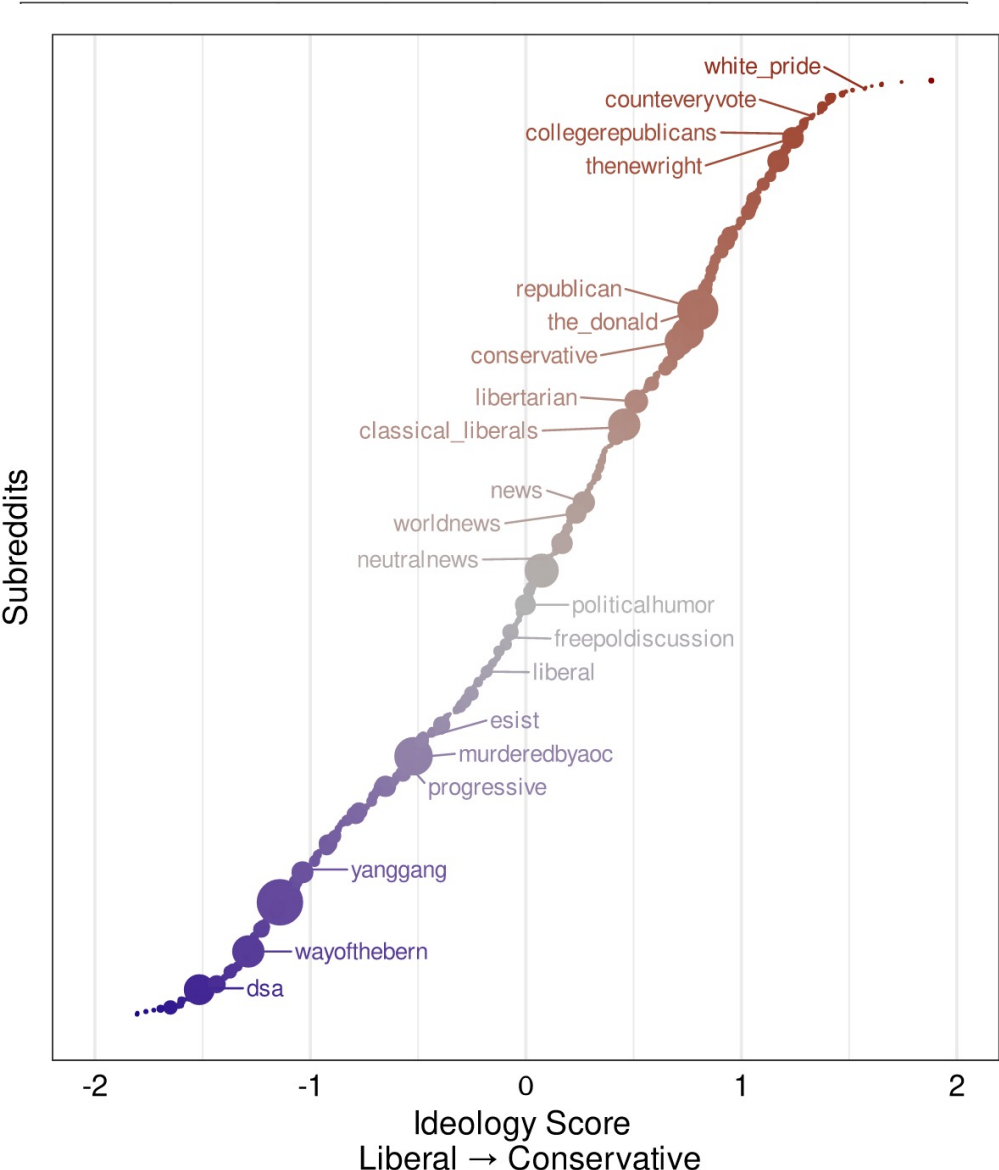Seed Subreddits + Community Detection $\rightarrow [s_1, s_2, \ldots, s_m]$

Step 1: Correspondence Analysis on video-subreddit matrix

$$
\begin{array}{c}
\begin{array}{cccc} s_1 & s_2 & \cdots & s_m \end{array} \\
\begin{array}{c} v_1 \\ v_2 \\ \vdots \\ v_n \end{array}
\begin{bmatrix}
3 & 8 & \cdots & 4 \\
8 & 0 & \cdots & 4 \\
\vdots & \vdots & \ddots & \vdots \\
4 & 9 & \cdots & 0
\end{bmatrix}
\end{array}
\rightarrow
\begin{array}{c}
\begin{array}{cc} CA_1 & CA_2 \end{array} \\
\begin{array}{c} v_1 \\ v_2 \\ \vdots \\ v_n \end{array}
\begin{bmatrix}
.79 & -.11 \\
-.67 & -1.21 \\
\vdots & \vdots \\
.02 & .47
\end{bmatrix}
\end{array}
\rightarrow [i_{v_1}, i_{v_2}, \ldots, i_{v_n}]
$$

Methodology: Deep Learning Model for Video Ideology Training

Step 2: Transformer model trained on $[i_{v_1}, i_{v_2}, \ldots, i_{v_n}]$

Raw Text · Input · Hidden · Output

Channel Title
Video Tags
Video Title
Video Desc

i_v

Result: Ideology Score based on the Subreddit Matrix

Result: Ideology Distributions
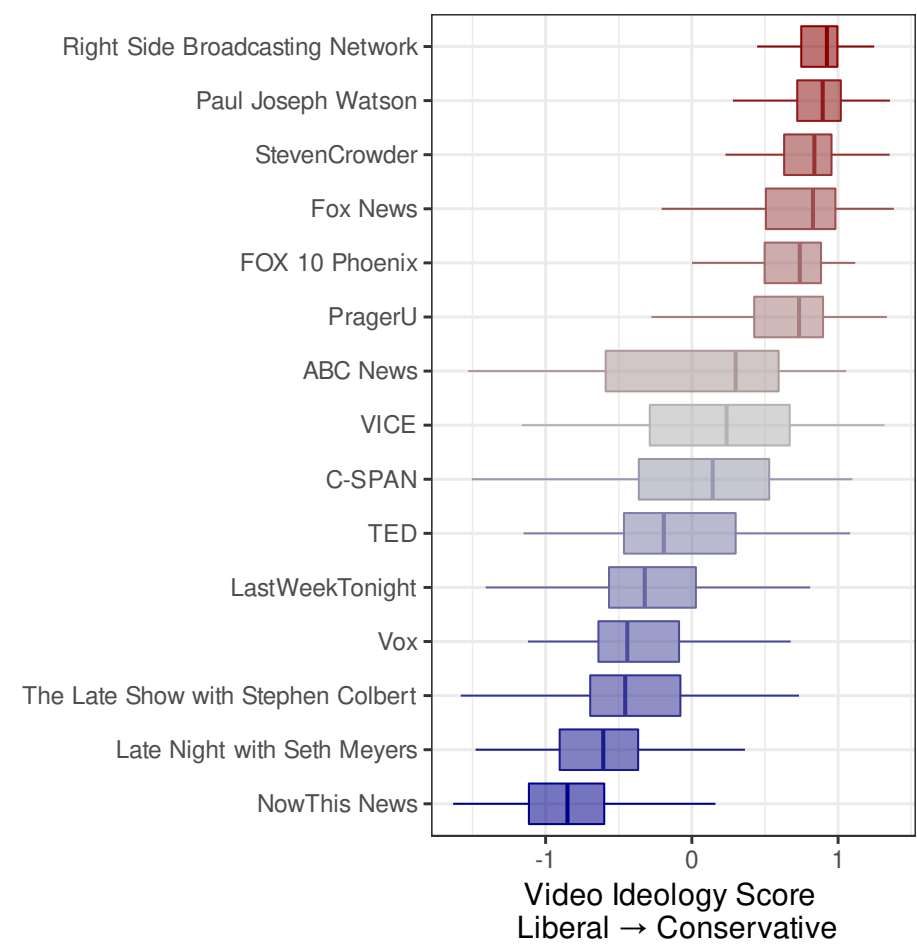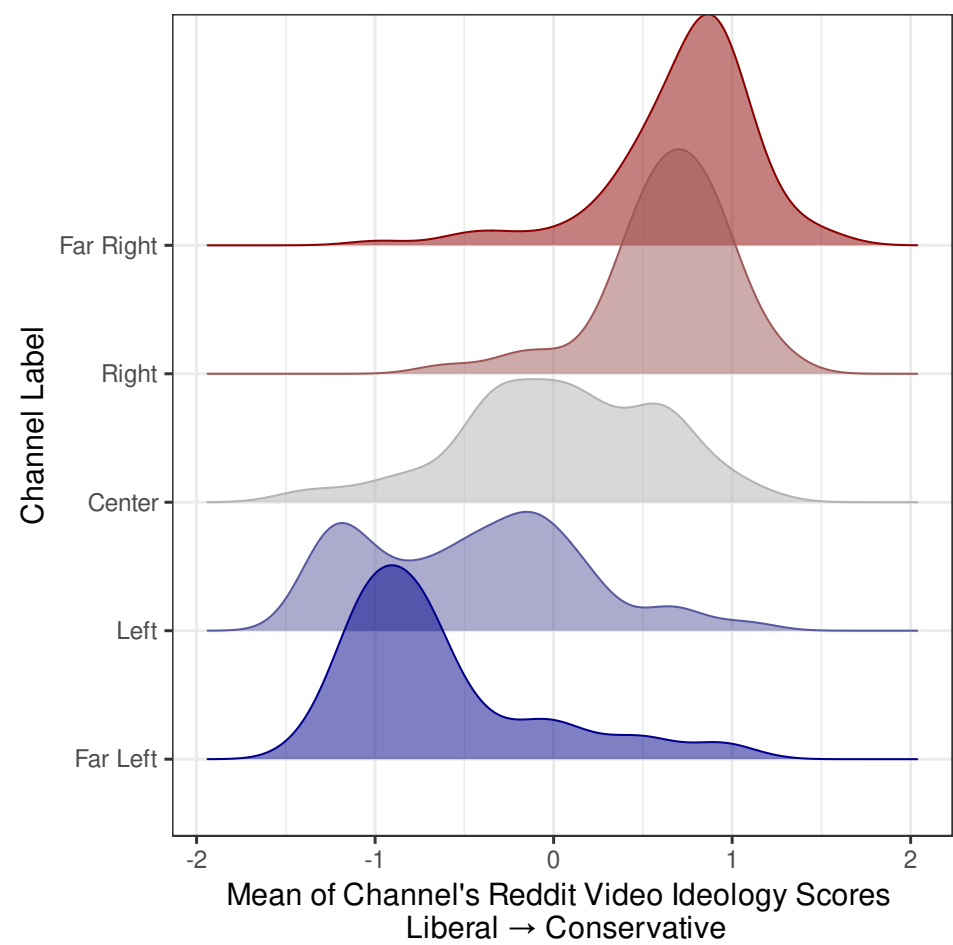
Result: Consistency of Score and Human Coders

Score distance	% Agreement
(0.0,0.25]	54.88
(0.25,0.5]	58.68
(0.5, 1.0]	71.02
(1.0, 1.5]	77.21
(1.5,2.0]	88.94
(2.0,3.0]	88.70
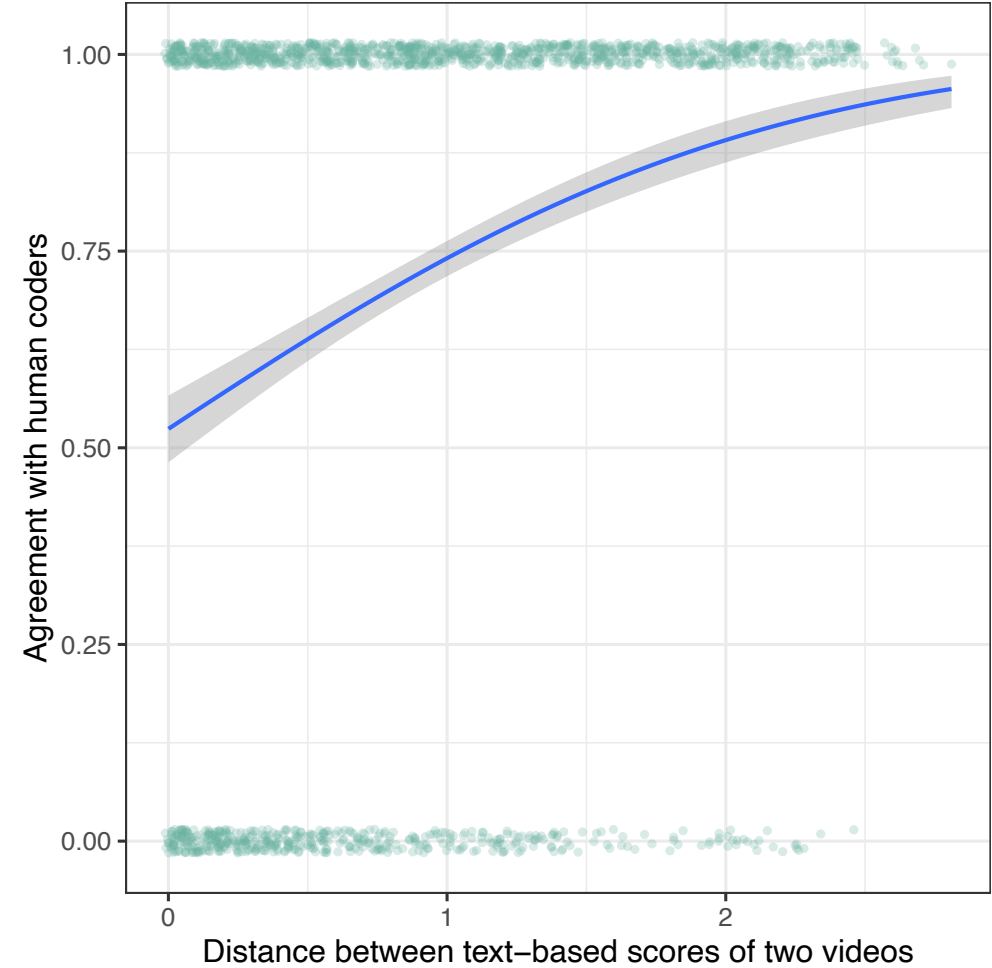
Application: Media Diets and Echo Chambers