

# About Nobias

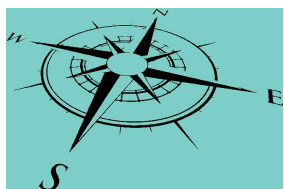
Context and perspective in the fake news era

... we hope to help people understand the landscape of media bias and to give them the power over the algorithms that shape what they read and see online.

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## Nobias (NBS)

### Description:

Nobias was founded in 2017

### Stakeholder(s):

#### Tania Ahuja :

*Founder and CEO — Tania Ahuja is Founder and CEO of Nobias and is Head of US Operations for Arker Inc. — She is a former director of Citigroup and serves on the Board of Overseers at Stern School of Business, NYU. Additionally, she sits on the board of other learning and art organizations including the Center of Advanced Study of India (CASI) at the University of Pennsylvania, Salome Chamber Orchestra, The Paper Bag Players, and is Chairman of the Board for the Summit Music Festival. Tania holds a PhD in Finance from Stern School of Business, New York University. She has a BS in Statistics and an MS in Operations Research.*

#### Anant Goel :

*Chief Technology Officer — Anant Goel leads our software development efforts at Nobias. He had previously co-founded Fib, where he used machine learning to verify facts and received the Google Moonshot award. He's also worked as a machine learning engineer for projects at NASA and helped run The Anvil, a startup incubator, which has helped scale student companies to million dollar valuations. Anant has a BS in Computer Science from Purdue University.*

#### Shinichi Urano :

*Chief Technology Advisor — Shinichi Urano is the Chief Technology Advisor at Nobias. Shinichi started out his career as a theoretical Physicist and has published in various leading journals including the prestigious Physical Review Letters. He has since become a technologist and an entrepreneur, and has over ten years of experience in various leadership roles in start-up organizations. During this time, Shinichi has co-authored five patents in areas related to infrastructure automation and virtualization. Shinichi brings tremendous practical knowledge and experience in technology and in leading engineering teams to Nobias. Shinichi has a Ph.D. in Physics from Texas A&M University.*

#### Sudip Gupta :

*Chief Data Science Advisor — Sudip Gupta is the Chief Data Science Advisor at Nobias and a faculty in the finance area at the Gabelli School of Business of Fordham University. Previous faculty positions include Indiana University, New York University, University of Maryland and the Indian School of Business. His research and consulting areas include auctions, financial derivatives, industrial organization, IPOs, M&A and risk management. He has served as a consulting expert to various international organizations and regulatory authorities in vari-*

*ous antitrust and financial litigations. Sudip has a Ph.D. in Economics from University of Wisconsin, Madison.*

#### Boris DeSouza :

*Head of User Interface — Boris DeSouza is the Head of User Interface and User Experience at Nobias and the Head of Engineering at Braintree. Boris has an MS in Computer Science from Georgia Institute of Technology.*

#### Nicholas Gonzalez :

*Software Engineer — Nicholas Gonzalez is a Software Engineer at Nobias responsible for the extension. He is a Technical Lead at Headspace. At Snap, Nicholas was a senior software engineer and developed the Snap Kit Developer Portal, On-Demand Geofilters and Lenses (create.snapchat.com), and various internal web apps and code packages. Nicholas has a BS in Computer Science from Yale University.*

#### David Idol :

*Software Engineer — David Idol is a Software Engineer at Nobias responsible for the extension. David has interned at IBM, Google, and True Ventures TEC. After getting banned from Xbox Live for reverse engineering proprietary Xbox data formats, he was hired by Microsoft to join Xbox Live as a software engineer full time. David later migrated to Snap and was one of three engineers to build and launch the sponsored geofilters product at Snap. Currently David works on Snap Kit as well as the newly-launched Snap Games product. David has B.S. and M.S. degrees in Computer Science from the University of North Carolina Chapel Hill*

#### Yuri Ahuja :

*Data Scientist — Yuri Ahuja is a Data Scientist at Nobias responsible for the article level bias algorithm. After rotations in the Harvard Biomedical Informatics and MIT Computer Science departments, he is pursuing his MD in general medicine and a PhD in Biostatistics at Harvard University predominantly interested in designing better models using electronic medical record data with the goal of enhancing medical decision support to revolutionize personalized medicine. Yuri has a BS in Molecular Biophysics and Biochemistry from Yale University and is pursuing an MD/PhD at Harvard Medical School.*

#### Vitaly Borzenkov :

*Engineer + Data Scientist — Vitaly Borzenkov is a Data Science Consultant at Nobias and a Quantitative Analyst at*

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*Stakeholders (continued)*

*TransMarketGroup. Vitaly has a BS in Probability/Statistics and Cognitive Science from UC San Diego, and an MS in Computational Finance from Carnegie Mellon University.*

**Amalia Halikias :**

*PR Consultant and Lead Writer — Amalia Halikias is PR consultant and Lead Writer at Nobias where she works on writing, marketing, and public relations projects and is responsible for Spotlight. She has worked for a number of political races, most recently as the Policy Director on the Josh Hawley for US Senate campaign. She also has experience in public relations and ghostwriting, and is the co-author of Liberty Lane: A Conservative Children's Book Series. In her free time, Amalia enjoys watching Netflix and eating as many dumplings as humanly possible. Amalia has a BA in Political Science from Yale University.*

**Jinghui Zhou :**

*Data Scientist — Jinghui Zhou is a Data Scientist at Nobias where she mainly takes charge of data processing and algorithm research using NLP and machine learning. She is a Finance Validation Intern at Numerix, and is pursuing an MS in Quantitative Finance at Fordham University. Jinghui has a BE in Economics from Peking University and her BS in Physics and Material from Renmin University of China.*

**Saranya Vijayakumar :**

*Data Scientist — Saranya Vijayakumar is a Data Scientist at Nobias, and is an Analyst at Goldman Sachs. Previously, she has worked as a Data Analyst at Columbia Law School and interned at Booz Allen Hamilton, DodeEd, and Columbia University Saranya has a BS in Computer Science and Government from Harvard University.*

**Katy Trost :**

*Content Writer — Katy Trost is the Content Writer focusing on marketing at Nobias and a Professional Certified Coach through the Institute For Professional Excellence In Coaching (IPEC), ACC accredited by the International Coach Federation (ICF), and a contributor to Forbes Magazine. Her work has*

*been featured in Forbes, Success Magazine, Addicted2Success, Thrive Global, 'The Best You Magazine, Best Self Magazine, Thought Catalog, and other publications. Additionally, she has partnered with companies such as WeWork and Techhub to lead trainings on the topics of entrepreneurship and personal & professional development. Born and raised in Germany, she has traveled for four years and is now based in New York.*

**Avni Ahuja :**

*Engineer Intern — Avni Ahuja is an intern in Engineering at Nobias working on web development and user interface design. Previously, she has interned at Microsoft through Girls Who Code and worked on data analysis at Columbia University School of Engineering and Applied Science Avni is pursuing a BS in Computer Science and Cognitive Science from the University of Pennsylvania*

**U.S. :**

*Current Nobias Status (July 2019): Criteria: Article level Slant, Source level Slant when article level slant is missing and Source and Author Credibility. Platforms: Facebook News Feed, Google News Feed and Google Search. Publications: Political news from 400 news sources covering 80% of US news (Lexis Nexis). Region: U.S. only*

**Facebook News Feed****Google News Feed****Google Search****Lexis Nexis****Other Stakeholders :**

*Coming Soon: Criteria (2019): Author level Slant, Gender bias. Publications (2020): Financial news, Health news. Region: International (2021)*

## Vision

Consumers are protected from deceptive or misleading content on the internet.

## Mission

To promote responsible/inclusive technology to protect consumers from deceptive or misleading content on the internet.

## Values

**Responsibility**

**Inclusiveness**

## 1. Media Bias

*Help people understand the landscape of media bias.*

### 1.1. Political Slant

*Determine political slant.*

**How We Determine Political Slant** — It is difficult to exactly identify the bias of a news source as there is no comparable observed metric of left versus right leaning. In the absence of such a metric, we use the published methodology of Matthew Gentzkow and Jesse Shapiro's in *Econometrica* (2010), a top economics journal (henceforth Gentzkow et al) to identify the leaning of a news source... Nobias' closely follows the procedure of Gentzkow et al. with a few exceptions.

- Procedure 1. Gentzkow et al used the 2005 congressional speeches as a benchmark, which may miss out on a few relevant new phrases which may be used by Democrats and Republicans in recent times. For example, "Obamacare" was not available in 2005 and Nobias believes it may be used more often in recent times and is a relevant phrase.
- Procedure 2. We use only phrases used at least 3 times. The dataset includes the relative frequency of these phrases and the identity of the speaker. We follow a similar procedure of Gentzkow et al. and assign a relative weight by a regression procedure. Specifically, we run a regression of the relative frequency of these phrases used by the Congressperson on the identity of their respective political party (Democrat/Republican). We use the phrases with statistically significant (@10% level of significance) slope and intercept coefficients and use the procedure of Gentzkow et al. (section 3.2 of their 2010 paper) to map the phrases to ideology. This procedure gives us the most recent phrases and assigns an ideology to a particular phrase. With these procedures, Nobias identified 318 additional phrases from recent (2015 to 2017) Congressional speeches.
- Procedure 3. Nobias then uses these 1,318 phrases to identify the left (Democrat) and right (Republican) leaning of news sources based on the relative usage of these phrases from about sixty seven thousand articles published in the four-month period July 1st, 2018 to October 31st, 2018.

#### Stakeholder(s):

**Matthew Gentzkow :**

*To estimate the "newspaper slant", Gentzkow et al followed a two-step procedure. Identify the phrases most used by a particular Democrat or Republican congressman in their congressional speeches based on the 2005 congressional records. This step identifies the left (Democrat) leaning vs. right (Republican) leaning phrases and gives a benchmark set of phrases of two or three words (bi-grams or tri-grams). For example, they identified that phrases like "death tax," "tax relief," "personal account," and "war on terror" as strongly Republican, and*

*"estate tax," "tax break," "private account," and "war in Iraq," as strongly Democratic. They identified 1000 such phrases as a benchmark for Democrat and Republican leaning. Match these phrases with phrases used by a news source in a regression framework to generate the slant index for a newspaper.*

**Jesse Shapiro**

#### 1.1.1. Sources

*Rank news sources.*

How Nobias develops a relative rank of news sources:

### 1.1.1.1. Benchmark Phrases

*Use benchmark phrases to measure the slant of articles.*

We use the 1,318 benchmark phrases to measure the slant of each pre-processed article by taking the ratio of Democrat phrases matched in the article to that of the total phrases (Democrat+Republican). Therefore, the slant measured for each article is the relative slant for being a Democrat. For example, if there are 10 phrases that matched in an article and 3 of them are Democrat phrases, then the slant (of being Democrat) of the article is 0.3. Clearly, one minus the (Democrat) slant measure is the relative slant of being a Republican.

### 1.1.1.2. Phrase Counts

*Count the number of Democrat and Republican phrases and calculate article slant.*

Due to the possibility that an article may contain zero phrases and hence zero Democrat leaning phrases leading to a 0/0 problem, we use the following simple non-informative prior. We count the number of Democrat phrases that matched, K, and number of Democrat & Republican phrases that matched, N, and calculate article slant as  $(K+\alpha)/(N+\alpha+\beta)$ , we set  $\alpha=0.1$  and  $\beta=0.1$  as non-informative prior.

## 1.1.2. Relative Leaning

*Establish the relative leaning of news sources.*

How Nobias establishes the relative leaning of each news source:

### 1.1.2.1. Centric Sources

*Identify sources that avoid favoring either conservative or liberal ideas and causes.*

If 90% of articles from the news source has less than 6 left or right leaning phrases then we assume that this news source avoids favoring either conservative or liberal ideas and causes and we identify them as Center.

### 1.1.2.2. Left- & Right-Centric Sources

*Identify Center-Left and Center-Right sources.*

If 85% to 90% of articles from the news source has less than 6 left or right leaning phrases then we proceed to calculate the slant (steps 3 & 4 below) but identify these sources as Center-Left or Center-Right.

### 1.1.2.3. Distribution & Comparison

*Examine the distribution and compare the slant of each news source to the distribution of the entire sample.*

We examine the distribution of slant of each news source (overall articles of the particular news source) and compare it to the distribution of slant of our entire sample by taking the ratio of the median of the news source slant to the median of the entire sample. This ratio being greater than one implies that the news source is more Democrat leaning than the entire sample during the same period. Similarly, a ratio less than one implies that the source is more Republican leaning. For example, if the median of the slant of all news source is 0.6 and a particular news source has a median of 0.75, then the ratio being 1.25 classifies the news source as likely left leaning.

### 1.1.2.4. Grouping

*Classify three broad groups.*

We then look at the distribution of this ratio for all news source and classify three broad groups (Left (Democrat), Center and Right (Republican)) based on the quintiles of the distribution.

### 1.1.2.5. Sample

*Calculate relative leaning of news sources only for those with at least 30 articles published.*

Note that the relative leaning of a news source is only calculated for sources with at least 30 articles published in the four-month period July 1st, 2018 to October 31st, 2018.

## 1.2. Credibility

*Determine credibility.*

How We Determine Credibility — There are five LexisNexis source ranks, we use the top three ranks as follows: LexisNexis Source Rank 1 (Nobias Credibility: Highly Credible): Top international, national, and business news sources, e.g. The New York Times, CNN, The Economist. LexisNexis Source Rank 2 (Nobias Credibility: Very Credible): Top regional sources, e.g. Houston Chronicle, MIT Technology Review, Pharmaceutical Journal, Advertising Age. LexisNexis Source Rank 3 (Nobias Credibility: Somewhat Credible): A broad range of news sources of good editorial quality. Includes the following types of news sources:

- Industry specific news sources such as PC Magazine, World of Concrete
- Country specific news sources, e.g. New York Daily News, etc.
- Government department press releases, e.g. US Treasury, etc.
- Dedicated sports news sources, e.g. ESPN.com, Sports Network

#### Stakeholder(s):

**LexisNexis :**  
*Nobias uses editorial ratings generated by LexisNexis. These editorial ranks are applied to news sources and employers of journalists. It is a source-level categorization indicating LexisNexis' editorial ranking of the source. Note, we are adding to our source*

*list as we expand to non-US Sources that report on US political news.*

News Sources

Employers of Journalists

### 1.2.1. Author Ratings

*Provide author ratings.*

Author Credibility Score

#### Stakeholder(s):

Authors

**LexisNexis :**  
*Nobias additionally provides author ratings include which whether journalistic awards won (see list below) and inheriting their employer rank (generated by LexisNexis).*

#### Muck Rack :

*Employers are identified using Muck Rack and LinkedIn.*

#### LinkedIn

Journalistic Awards :  
*List of recognized journalistic awards:*

#### Dart Awards

#### David Nyhan Prize

Deadline Club :  
*Awards*

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*Stakeholders (continued)*

- *Deadline Club Award for Business Feature*
- *Deadline Club Award for Business Investigative Reporting*
- *Deadline Club Award for Daniel Pearl Prize for Investigative Reporting*
- *Deadline Club Award for Magazine Feature Reporting*
- *Deadline Club Award for Magazine Investigative Reporting*
- *Deadline Club Award for Magazine Personal Service*
- *Deadline Club Award for Magazine Profile*
- *Deadline Club Award for Newspaper or Digital Beat Reporting*
- *Deadline Club Award for Newspaper or Digital Enterprise Reporting*
- *Deadline Club Award for Newspaper or Digital Feature Reporting*
- *Deadline Club Award for Newspaper or Digital Local Reporting*
- *Deadline Club Award for Newspaper or Digital Spot News Reporting*
- *Deadline Club Award for Opinion Writing*
- *Deadline Club Award for Reporting by a Newspaper With Circulation Under 100,000*
- *Deadline Club Award for Reporting by Independent Digital Media*
- *Deadline Club Award for Science, Technology, Medical or Environmental Reporting*
- *Deadline Club Hall of Fame Award*

**Edward R. Murrow Award****Frontline Club Awards****George Polk :***Awards*

- *George Polk Award for Education Reporting*
- *George Polk Award for Financial Reporting*
- *George Polk Award for Foreign Reporting*
- *George Polk Award for Justice Reporting*
- *George Polk Award for Local Reporting*
- *George Polk Award for Magazine Reporting*
- *George Polk Award for Medical Reporting*
- *George Polk Award for National Reporting*
- *George Polk Award for Political Reporting*
- *George Polk Award for State Reporting*

**Goldsmith Awards****Michael Kelly Award****NewsGuild Heywood Broun Award****Pulitzer Prize :***Prizes*

- *Pulitzer Prize for Commentary*
- *Pulitzer Prize for Criticism*
- *Pulitzer Prize for Editorial Writing*
- *Pulitzer Prize for Explanatory Reporting*
- *Pulitzer Prize for Feature Writing*
- *Pulitzer Prize for International Reporting*
- *Pulitzer Prize for Investigative Reporting*
- *Pulitzer Prize for Local Reporting*
- *Pulitzer Prize for National Reporting*

**Scripps Howard :***Awards*

- *Scripps Howard Business/Economics Reporting William Brewster Styles Award*
- *Scripps Howard Commentary Award*
- *Scripps Howard Editorial Writing Walker Stone Award*
- *Scripps Howard Human Interest Writing Ernie Pyle Award*
- *Scripps Howard Investigative Reporting Ursula and Gilbert Farfel Prize*
- *Scripps Howard Washington Reporting Raymond Clapper Award*

**Seldon Ring Award****Shahid Ethics Award****Sigma Delta Chi Awards for Excellence in Journalism (SPJ) :***Awards*

- *SPJ Award for Deadline Reporting*
- *SPJ Award for Editorial Writing*
- *SPJ Award for Feature Reporting*
- *SPJ Award for Foreign Correspondence*
- *SPJ Award for Investigative Reporting*
- *SPJ Award for Magazine Reporting*
- *SPJ Award for Non-Deadline Reporting*
- *SPJ Award for Public Service in Journalism*
- *SPJ Award for Public Service in Magazine Journalism*
- *SPJ Award for Washington Correspondence*

**The Ancil Payne Award for Ethics in Journalism****The Phillip Meyer Award****Thomas M. Keenan NewsGuild of New York Service Award****Toner Prize**



## 2. Algorithms

*Give people power over the algorithms that shape what they read and see online.*

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