

Unmasking Twitter Misinformation Bots with Deep Learning

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Twitter Misinformation Bots

- Between 9-15% of Twitter accounts are social bots (~50m accounts)
- Simple bots easy to identify
- More sophisticated social AI designed to evade detection

Varol, Ferrara, Davis, Menczer, Flammini. *Online Human-Bot Interactions: Detection, Estimation, and Characterization*. ICWSM 2017

Election Interference

- Election Day 2016, group of bots tweeted the #WarAgainstDemocrats more than 1700 times
- Putin claimed leaks/misinformation due to “free spirited hackers” defending Russia
- Bot communities amplify misinformation campaigns, spread conspiracy theories
- Hacked or counterfeit accounts used to tweet propaganda at journalists, politicians, influencers

<https://www.nytimes.com/2017/09/07/us/politics/russia-facebook-twitter-election.html>

The Approach

- **Use public datasets to train ANN to spot misinformation bots in real-time**
 - Current tech only allows targeted checking
- **Data points:**
 - User metadata (name, age, profile pic, activity)
 - Connections (followers, followed)
 - Networks of similar accounts
 - Content (hashtags, @s, entropy of words used)
 - Timing (between tweets, retweets, mentions)

Technologies

- **Python computation**
 - <https://keras.io/> fast FOSS ANN API
 - Support for both CPU and GPU computation
 - <https://www.tensorflow.org/> low level backend
- **Datasets**
 - High volumes of quality annotated data
 - <https://botometer.iuni.iu.edu/bot-repository/datasets.html>

Individual Project

- I work best alone
- Everyone else is already in a team
- This is subject matter about which I am passionate
- Fantastic opportunity to advance my data-analysis skills

Works Cited

- <http://www.emilio.ferrara.name/2016/11/07/twitter-social-bots-and-the-us-presidential-elections/>
- <https://www.sciencedirect.com/science/article/pii/S0020025518306248>
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Fight Misinformation