Comparing Automated Factual Claim Detection Against Judgments of Journalism Organizations

Naeemul Hassan#, Mark Tremayne, Fatma Arslan, Chengkai Li

University of Texas at Arlington

2016 Computation + Journalism Symposium, Sept. 30th, 2016

The author is now with University of Mississippi

Fact-checking at Peak

Who else won the first presidential debate

Fact-checkers

Lester Holt Proved We Need Fact-Checking In Debates

FactCheck.o... ☑ Foll
@factcheckdotorg

We are experiencing technical
difficulties on our website. Sorry!

9:08 PM - 26 Sep 2016

NPR's real-time fact-checking drew millions of readers

Bloomberg TV to fact check debate on-screen

Fact-checking the Presidential Debates

DONALD TRUMP

"I did not support the war in Iraq … The record shows that I'm right."

— *PolitiFact National* on Monday, September 26th, 2016

http://www.politifact.com/

FALSE

POLITIFACT TRUTH-O-METER™

For the nth time…

HILLARY CLINTON

Says Donald Trump "publicly invited Putin to hack into Americans' (emails)."

— *PolitiFact National* on Monday, September 26th, 2016

http://www.politifact.com/

HALF TRUE

POLITIFACT TRUTH-O-METER™

Trump later said he was being sarcastic

3

iDiR

ClaimBuster automated live fact-checking

Find factual claims in your own text

2016 U.S. Presidential Debate

Hansard: Parliament of Australia

Tweets by @ClaimBusterTM

ClaimBuster Retweeted

Senator Ben Cardin ✓
@SenatorCardin

Hmm. Worst revival of an economy? Unemployment is at 4.9 percent. Businesses have created 15.1M jobs. #Debates2016

27 Sep

ClaimBuster
@ClaimBusterTM

(1/3)#debatenight [DONALD TRUMP?] It's hundreds of millions of ads and the only gratifying thing is i saw the polls

23h

4

iDiR

Live Coverage of Debates

Closed-caption decoder

Finding Important Factual Claims: A Supervised Learning Task

2016 Presidential Debates

Human Annotation

Feature Extraction

Learning Algorithm

Presidential Debate Transcripts (1960-2012)

Ground Truth

Feature Vectors

CLAIMBUSTER

Important factual claims
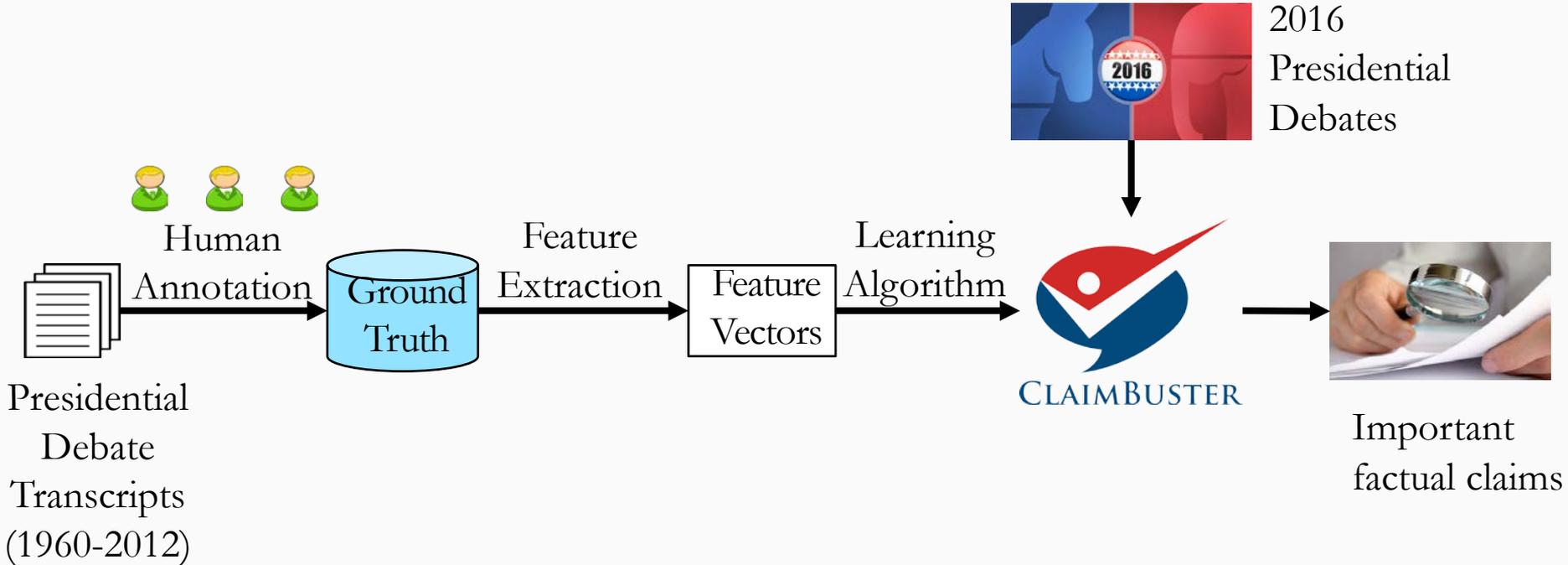
Training Dataset

o   Transcripts of all 30 debates (11 general elections) in history
o   20k sentences by candidates: removed very short (< 5 words) sentences
o   Ground truth collection website

OI: Wages are goings up for the first time in a decade.

More Context

Will the general public be interested in knowing whether (part of) this sentence is true or false?

○ There is **no** factual claim in this sentence.

○ There is a factual claim but it is **unimportant**

○ There is an **important** factual claim.

Submit   Skip this sentence   Modify My Previous Responses

Experiments

2016 U.S. Presidential Election Primary Debates

o Transcripts of 21 debate (12 Republican, 9 Democratic)

o 30737 sentences

o Collected fact-checks by PolitiFact and CNN

o Detected topics of the sentences

❖ 12 Most Important Topics (MIP) used by Gallup*

❖ For each topic, we manually created a set of keywords representing that topic. E.g., keywords for topic "Abortion": {abortion, pregnancy, planned parenthood}

* M. E. McCombs and D. L. Shaw. The agenda-setting function of mass media. Public opinion quarterly, 1972
* T. W. Smith. America's most important problem-a trend analysis. Public opinion quarterly, 1980

Platforms	avg(YES)	avg(NO)	t-value	p-value
CNN	0.433	0.258	21.137	1.815E-098
PolitiFact	0.438	0.258	16.362	6.303E-060

(1) Sentences selected by Journalism organizations (CNN and PolitiFact) for checking had ClaimBuster scores significantly higher (were more check-worthy) than sentences not selected for checking.

Fact-checks by PolitiFact

Fact-checks by CNN
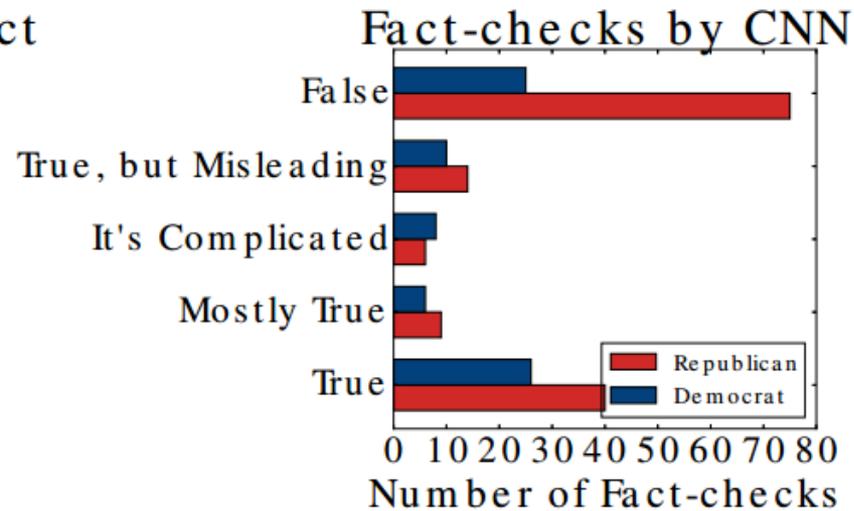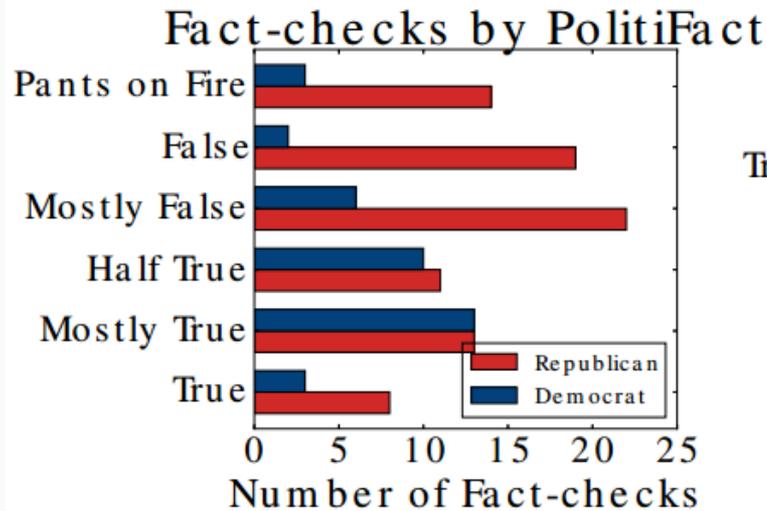
Distribution of topics over sentences scored high (≥ 0.5) by ClaimBuster
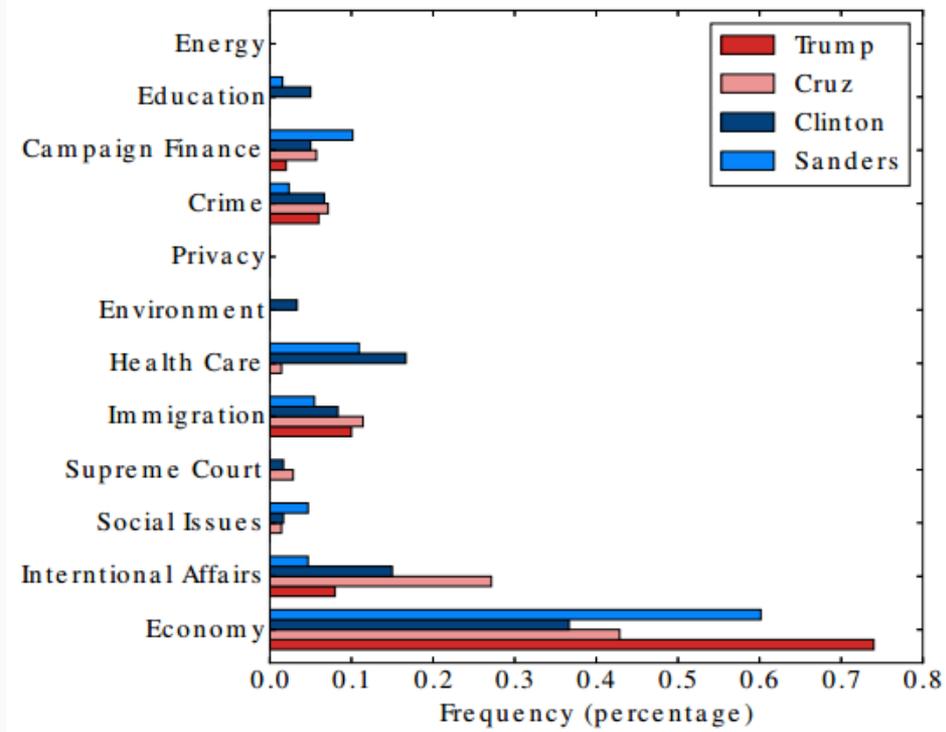
Distribution of topics over sentences scored low (≤ 0.3) by ClaimBuster
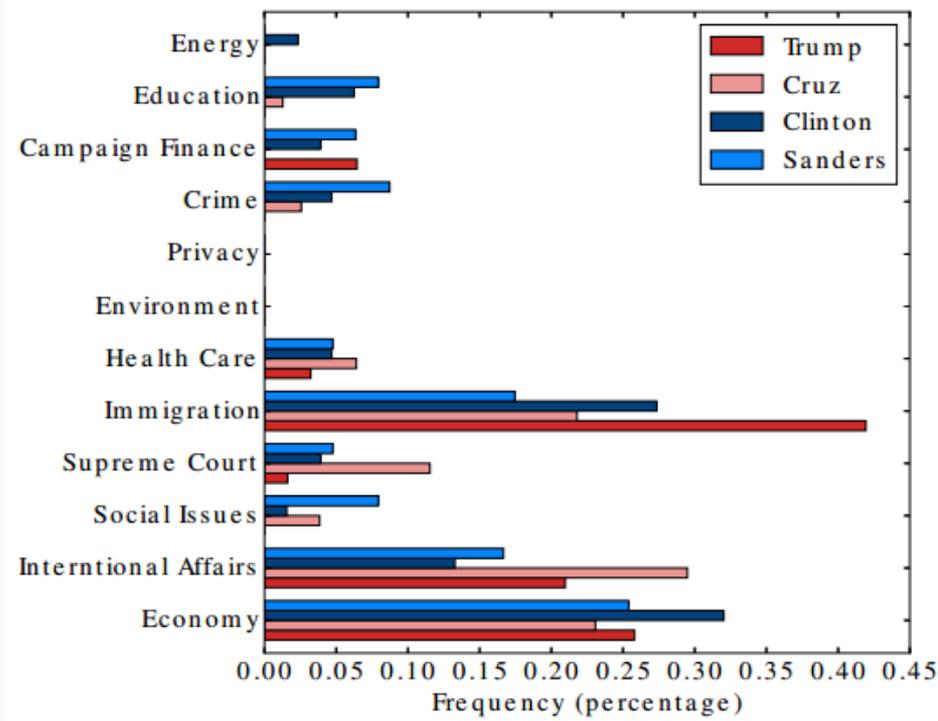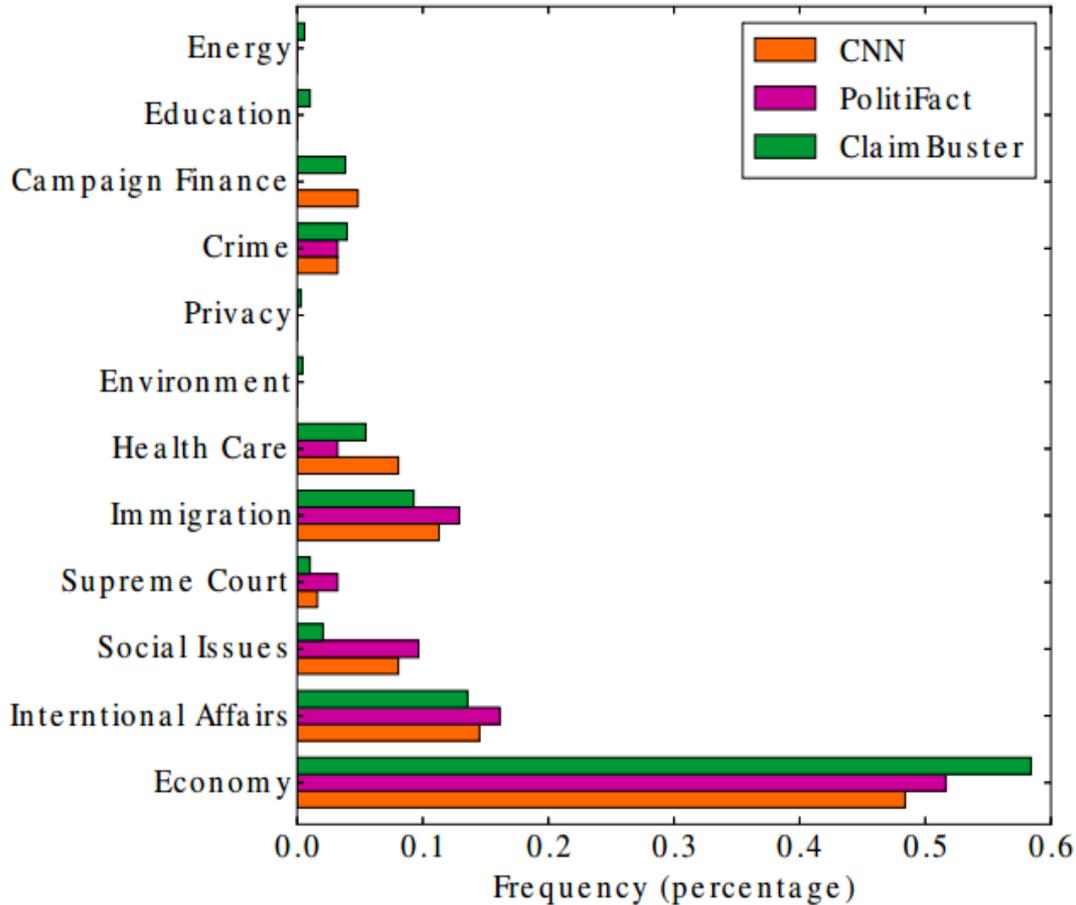
(2) ClaimBuster is similar to Journalism organizations (CNN and PolitiFact) in the distribution of topics among highly scored sentences (≥ 0.5) and fact-checked sentences.

The Quest to Automate Fact-Checking

repository of fact-checks by professionals

- debates
- interviews
- speeches
- political ads
- social media
- web
- news

CLAIMBUSTER

claimed detected and ranked by check-worthiness

matched existing fact-checks: delivered via browser extensions, mobile apps, and smart-TV apps

new factual claims: solicit analyses from professionals; algorithmic fact-checking

iDiR
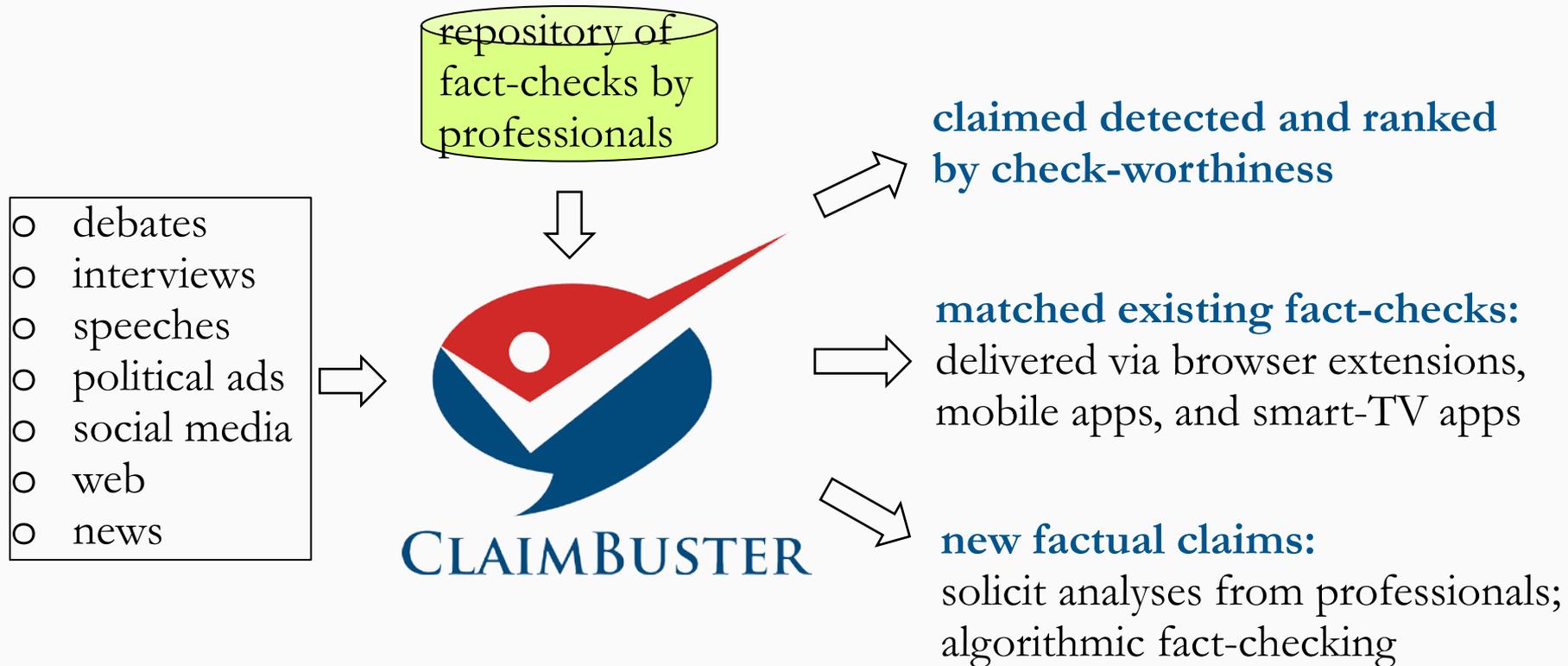
One Day Robot Fact-checkers will Dominate

o Less subjective

Eight examples where 'fact-checking' became opinion journalism

Bloomberg Largely Ignores Clinton During Live Fact-Checking

Giuliani slams Lester Holt for fact-checking like Candy Crowley

One Day Robot Fact-checkers will Dominate

o Restless and more efficient

FACT CHECKER AT REPUBLICAN DEBATE HOSPITALIZED FOR EXHAUSTION

Satire

Fact-checking presidential debate 'exhausting' says Toronto Star's Daniel Dale

iDiR

One Day Robot Fact-checkers will Dominate

o More intelligent
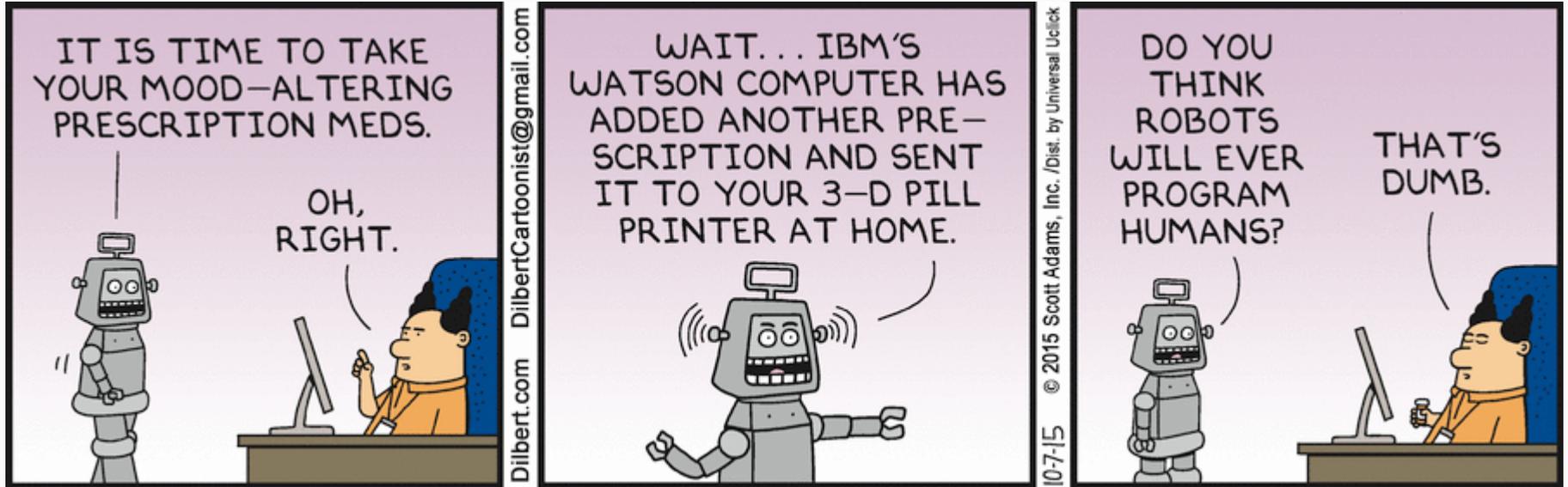
Acknowledgment

UTA Students

o   Naeemul Hassan (graduated)

o   Fatma Arslan

o   Siddhant Gawsane

o   Aaditya Kulkarni

o   Joseph Minumol (graduated)

o   Vikas Sable

o   Gensheng Zhang

o   Many more students who are currently working on it

Collaborators

o   Bill Adair (Duke)

o   Pankaj Agarwal (Duke)

o   Peter Fray (UTS)

o   James Hamilton (Stanford)

o   Mark Tremayne (UTA)

o   Jun Yang (Duke)

o   Cong Yu (Google Research)

Acknowledgment
Funding sponsors

Thank You! Questions?

- http://ranger.uta.edu/~cli

  cli@uta.edu

- Twitter   @ClaimBusterTM

- Prototype

  http://idir.uta.edu/claimbuster

- You are invited to contribute

  http://bit.ly/claimbusters