Fake Accounts: Theory and Practice

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Who is this Person?

I'm Devin!

- 2008-2010 Bennington College, 140kit
- 2011-2012 OII, SocialBots, Twitter Geography
- 2013-2014 Lead @ Little Bird
- 2014-2018 Northeastern, Reddit Contagion
- 2020-2021 IPM
- Has Dogs

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Do Bots Even Work?

- **Yes, But Scant IRB-Backed Evidence**
  - [30k Bots Built for Single Paper](#)
  - [15% Follow-Back on Co-Partisans](#)
  - **Hard to Ethically Experiment**
  - **Detection Work Insufficient**
- **Presence Alone Degrades Platforms**
- **Bot Discourse Creates Incentives For Bot Creation**
- **Bots As Rhetorical Foil Regardless of Reality**
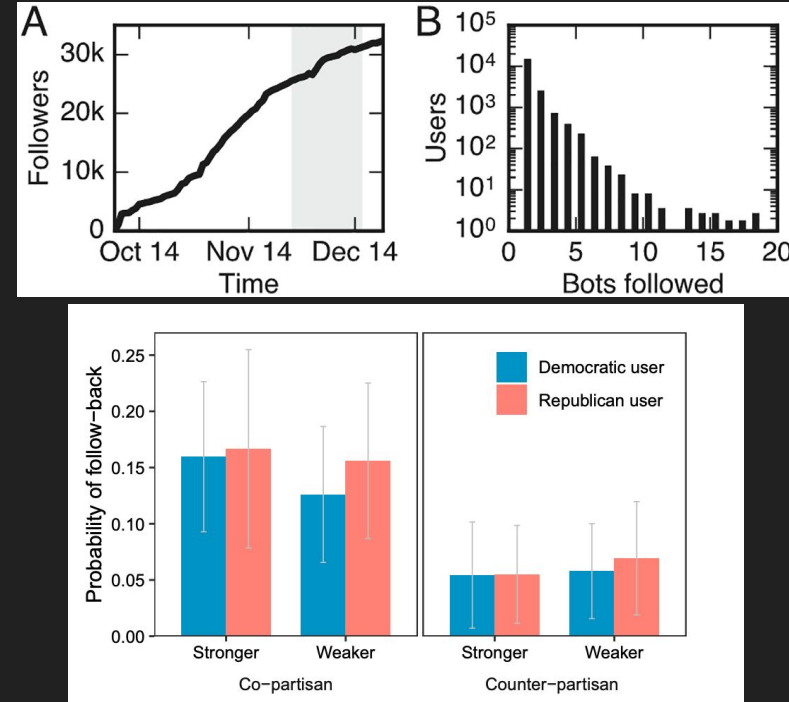
Targets of Bot Builders

- **On-Platform Users**
  - Encourage Arguments (Twitter)
  - Buy/Sell Influence (Twitter)
- **Off-Platform Users**
  - Entice in-migration (Ashley Madison)
  -
- **On-Platform Algorithms**
  - Trending Topics (Twitter)
  - Suggested Users/Products (Amazon)
- **Partnership Programs**
  - View/Click Fraud (YouTube)
- **Anywhere where Incentives > Costs (Political|Financial)**

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Tools of Bot Builders

- **Generation Procedures**
  - [Demographic Mimicry](#)
  - [Photographic Mimicry](#)
  - Adversarial Generation - Update Generation Based on Successful/Failed Attempts
- **Interaction Interfaces**
  - [Python requests library](#)
  - [Selenium](#)
  - [Selenium Stealth](#)
- **Network Interfaces**
  - [ExpressVPN](#) - VPN Masking
  - [Luminati](#) - Proxy Masking
  - [Hotspots](#) - Cell Network Masking

- **Grey Market APIs**
  - [2Captcha](#) - Break Captchas
  - [Zadarma](#) - Buy/Access Phone Numbers
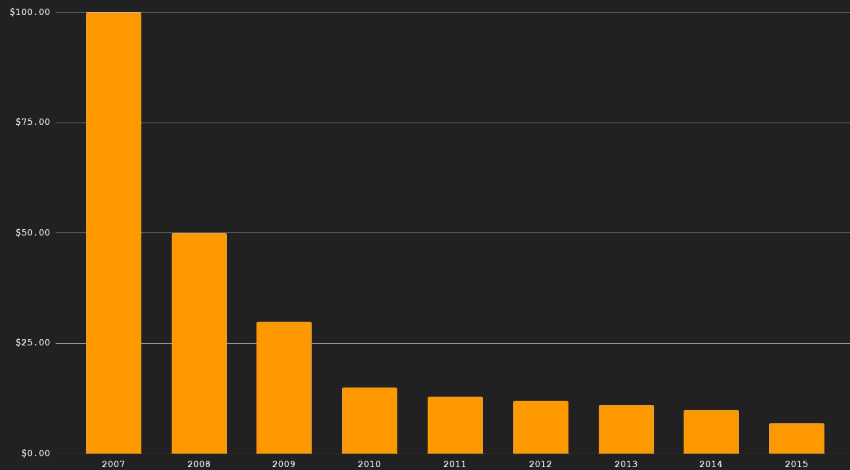 - [Mailslurp](#) - Buy/Access Email Addresses
- **Reverse Engineering Target Platforms**
  - [Network Inspector](#) - Investigate Server Interactions
  - [HTTP Echo Servers](#) - Test Outbound Server Interactions
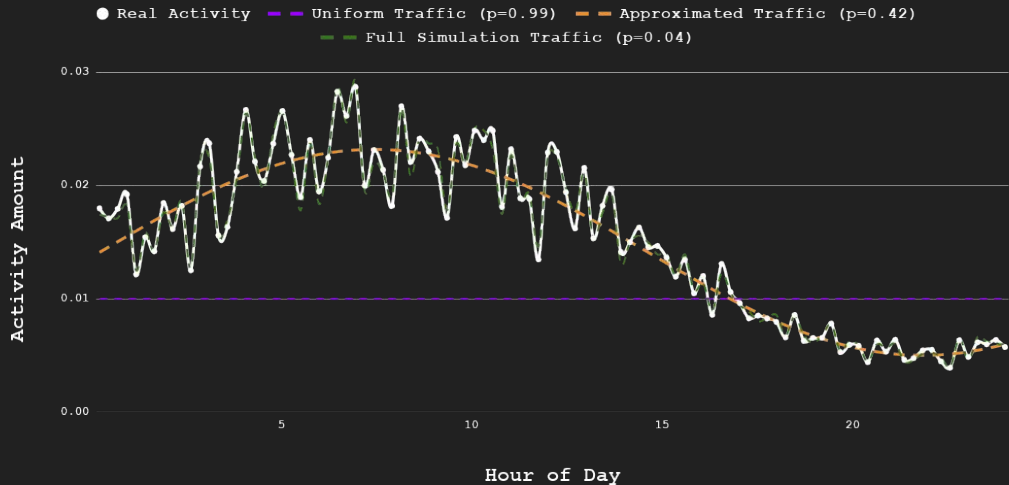 - [IfConfig.me](#) - Test Outbound IP Environment

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Techniques of Bot Builders

Aging

Aged Account Cost, AccFarm.com

Mimicking

- ● Real Activity
- ━ Uniform Traffic (p=0.99)
- ━ Approximated Traffic (p=0.42)
- ━ Full Simulation Traffic (p=0.04)

Activity Amount

Hour of Day

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Practical Demonstration - Demo App

SAMPLE APP

Home   Help   Log in

Sign up

Name

Email

Password

Confirmation

Create my account

The Ruby on Rails Tutorial by Michael Hartl

About   Contact   News

```
--- !ruby/object:ActionController::Parameters
parameters: !ruby/hash:ActiveSupport::HashWithIndifferentAccess
  controller: users
  action: new
permitted: false
```

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Practical Demonstration - Direct HTTP

```python
import sys
import requests
from bs4 import BeautifulSoup
name = sys.argv[1]
email = sys.argv[2]
password = sys.argv[3]

page_load = requests.get("http://demo-rails-app-testing.ipm-corporation.com/signup")
cookies = dict(page_load.cookies)
soup = BeautifulSoup(page_load.text, 'html.parser')
auth_token = soup.findAll(attrs={"name" : "authenticity_token"})[0]['value']

data = {
  'utf8': '\u2713',
  'authenticity_token': auth_token,
  'user[name]': name,
  'user[email]': email,
  'user[password]': password,
  'user[password_confirmation]': password,
  'commit': 'Create my account'
}

response = requests.post(
    'http://demo-rails-app-testing.ipm-corporation.com/users',
    cookies=cookies,
    data=data,
    verify=False
)
```

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Practical Demonstration - Direct HTTP, Fake User Agent

```python
import sys
import requests
from bs4 import BeautifulSoup
name = sys.argv[1]
email = sys.argv[2]
password = sys.argv[3]

page_load = requests.get("http://demo-rails-app-testing.ipm-corporation.com/signup")
cookies = dict(page_load.cookies)
soup = BeautifulSoup(page_load.text, 'html.parser')
auth_token = soup.findAll(attrs={"name" : "authenticity_token"})[0]['value']

headers = {
    'User-Agent': 'Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_6) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/88.0.4324.150 Safari/537.36'
}
data = {
    'utf8': '\u2713',
    'authenticity_token': auth_token,
    'user[name]': name,
    'user[email]': email,
    'user[password]': password,
    'user[password_confirmation]': password,
    'commit': 'Create my account'
}

response = requests.post(
    'http://demo-rails-app-testing.ipm-corporation.com/users?block_bot_useragents=true',
    cookies=cookies,
    data=data,
    headers=headers,
    verify=False
)
```

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Practical Demonstration - Selenium

```python
import sys
from selenium import webdriver
from selenium.webdriver.common.keys import Keys
name = sys.argv[1]
email = sys.argv[2]
password = sys.argv[3]

driver = webdriver.Firefox()
driver.get("http://demo-rails-app-testing.ipm-corporation.com/signup")
element = driver.find_element_by_id("user_name")
element.send_keys(name)
element = driver.find_element_by_id("user_email")
element.send_keys(email)
element = driver.find_element_by_id("user_password")
element.send_keys(password)
element = driver.find_element_by_id("user_password_confirmation")
element.send_keys(password)
element.send_keys(Keys.RETURN)
element.close()
```

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Practical Demonstration - Selenium Stealth

```python
import sys
from selenium import webdriver
from selenium.webdriver.common.keys import Keys
from selenium_stealth import stealth
name = sys.argv[1]
email = sys.argv[2]
password = sys.argv[3]

options = webdriver.ChromeOptions()
options.add_argument("--disable-blink-features=AutomationControlled")
driver = webdriver.Chrome(options=options)
stealth(driver,
    languages=["en-US", "en"],
    vendor="Google Inc.",
    platform="Win32",
    webgl_vendor="Intel Inc.",
    renderer="Intel Iris OpenGL Engine",
    fix_hairline=True,
)
driver.get("http://demo-rails-app-testing.ipm-corporation.com/signup?disallow_selenium=true")
element = driver.find_element_by_id("user_name")
element.send_keys(name)
element = driver.find_element_by_id("user_email")
element.send_keys(email)
element = driver.find_element_by_id("user_password")
element.send_keys(password)
element = driver.find_element_by_id("user_password_confirmation")
element.send_keys(password)
element.send_keys(Keys.RETURN)
element.close()
```

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