



# Can AI Reduce Gang Violence or Cause More Harm?

DESMOND U. PATTON, PHD, MSW



DECEMBER 10<sup>TH</sup>, 2018

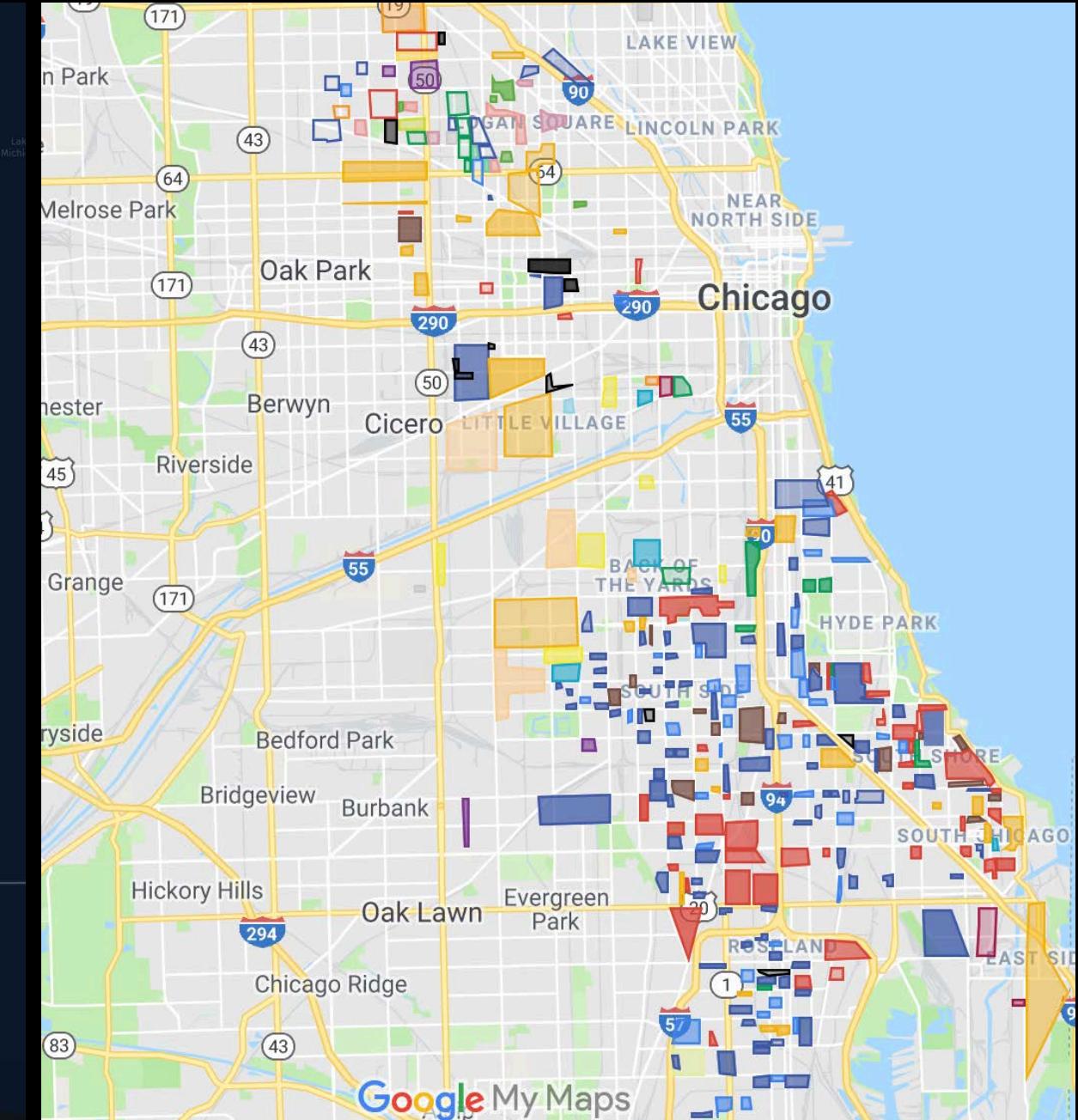
Data Science Education Roundtable

ASSOCIATE PROFESSOR | COLUMBIA UNIVERSITY  
SCHOOL OF SOCIAL WORK & DEPARTMENT OF SOCIOLOGY



SAFE  
LAB







**Chicago Tribune**

Gangs increasingly challenge rivals online with postings, videos



*The Atlantic*

The Desire to Live-Stream Violence:  
Why would four suspects in Chicago broadcast the torture of a man on Facebook Live?

**Bloomberg**

London Murder Mystery: Why Killings Are Up:  
[London police chief citing role of social media in homicides]

**Detroit Free Press**  
PART OF THE USA TODAY NETWORK

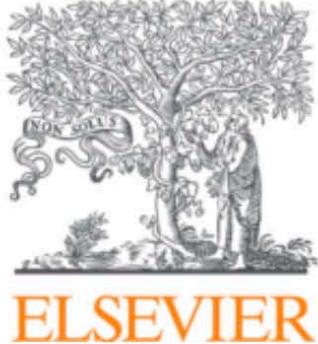
Gang rape. Suicides. Shooting deaths. The dark side of social media

**Daily Mail**

Chinese social media 'spreading violence and obscenity'



2013



## Computers in Human Behavior

Volume 29, Issue 5, September 2013, Pages A54-A59



Internet banging: New trends in social media, gang violence, masculinity and hip hop

Desmond Upton Patton <sup>a</sup>  , Robert D. Eschmann <sup>b</sup>  , Dirk A. Butler <sup>b</sup>  





2015

# Social Science Computer Review

## I Know God's Got a Day 4 Me

*Violence, Trauma, and Coping Among Gang-Involved Twitter Users*

Desmond U. Patton, Ninive Sanchez, Dale Fitch, more...

First Published December 13, 2015 | Research Article |



Check for updates

<https://doi.org/10.1177/0894439315613319>

[Article information ▾](#)



2016

# New Media & Society

## **Gang violence on the digital street: Case study of a South Side Chicago gang member's Twitter communication**

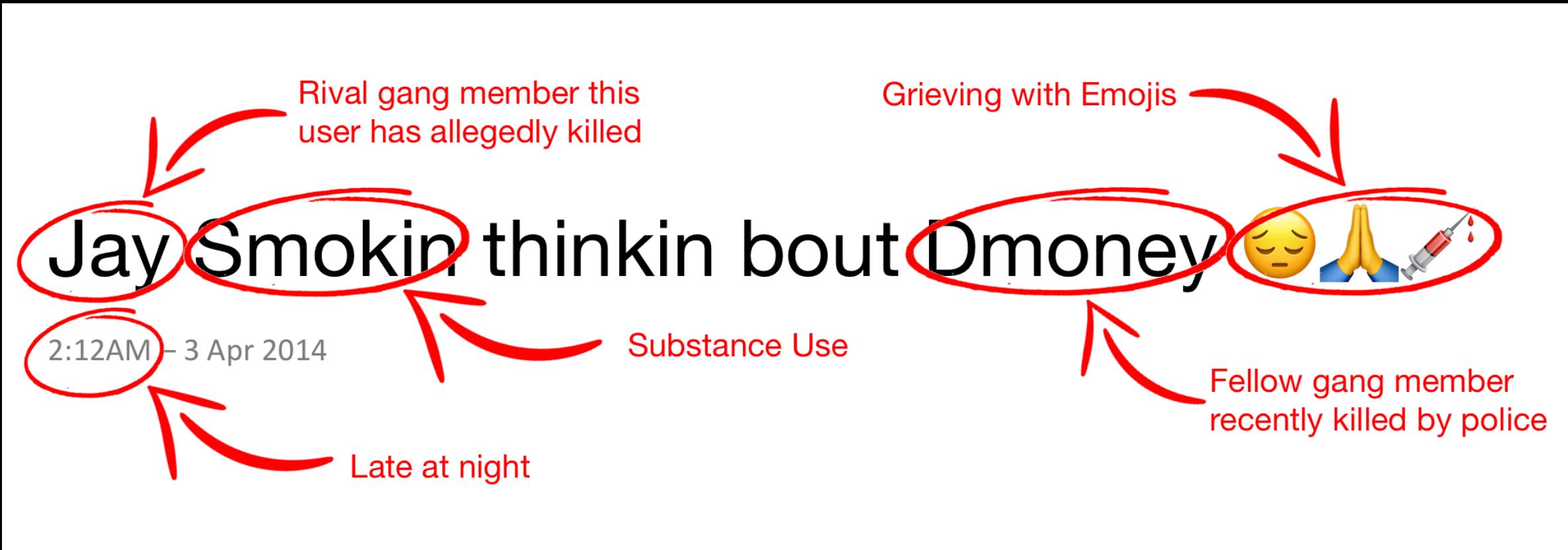
[Desmond U Patton, Jeffrey Lane, Patrick Leonard, Jamie Macbeth, Jocelyn R Smith Lee](#)

First Published January 25, 2016 | Research Article |



<https://doi.org/10.1177/1461444815625949>





## CONTEXTUAL ANALYSIS OF SOCIAL MEDIA (CASM)



1

**Clarify research question(s)  
& study population**

**Social media corpus creation.**  
Outline inclusion/exclusion criteria

**Identify and consult domain experts.**  
Insights on localized language, context, & events

**DATA ACQUISITION  
& CORPUS  
DEVELOPMENT**



1. DOMAIN OVERVIEW
2. ANNOTATOR ROLE
3. SYSTEM TUTORIAL
4. DEEP IMMERSION
5. PRACTICE ANNOTATION AND FEEDBACK

## TRAINING ANNOTATORS



## TRAINING ANNOTATORS

- PURPOSE OF THE ROLE
- AIMS OF OUR INTERPRETATION & ANALYSIS
- CODING OF TEXT/IMAGES
- MAKING ETHICAL CONSIDERATIONS



# VISUAL & TEXTUAL ANALYSIS SYSTEM (VATAS)

Tweet Annotation      Export      Expert pool      Annotation overview      Select task ▾      Logout (safelab)

**Page 2/3**

**Tweet (2878/48968)**

@YaeMoney\_\_

RT @Jumoney49: IF U Ain't Ina Streets Or  
Know What's Going On Don't Speak On  
What's Going On 🗣

retweets: 393  
2017-02-16 15:50:07

**Instructions**

1. Look at the text (emojis, hashtags)
2. Look at any links or images in the tweet
3. Go to the original post on Twitter
  1. See who the poster is
  2. If anyone is @ed, see who they are
  3. See if any offline events are referenced
  4. See the amount of likes and retweets
  5. See if there are any replies/comments on the tweet

**General Description**

Please describe in detail everything that is going on in this tweet.



3

STEP 1

## BASELINE INTERPRETATION

@Bossman\_Bucks

MA! I been huggin da block 😬

retweets: 0

2017-02-14 05:13:55

### First Impression

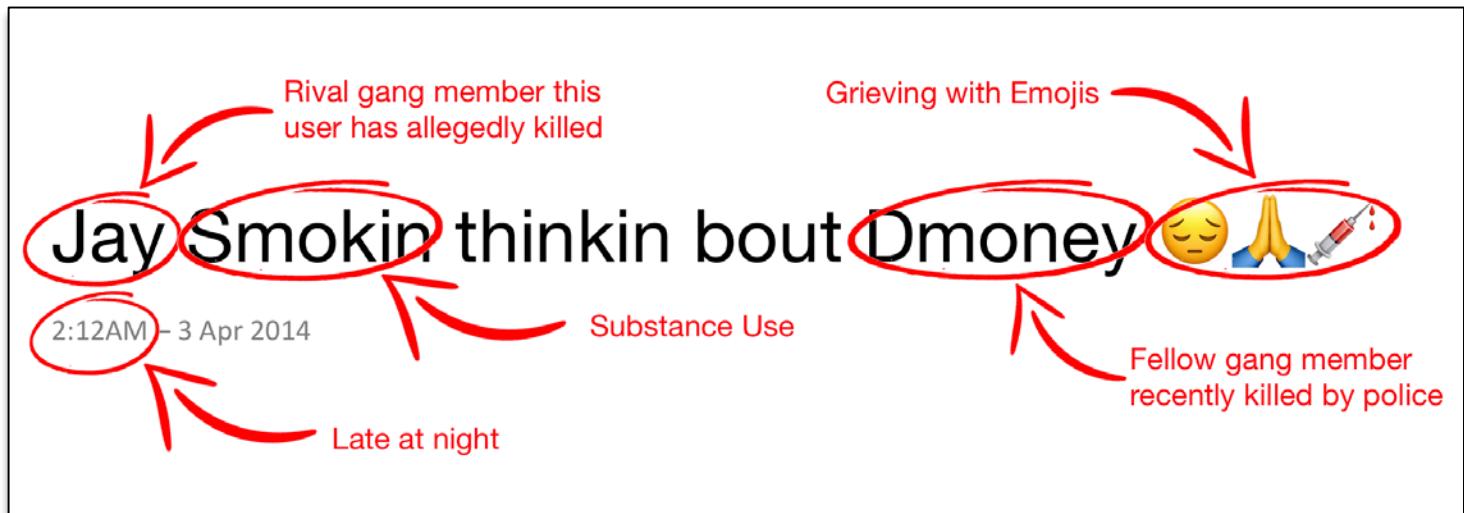
If this tweet came up on your social media wall, what would be your first impression? (What would come to your mind right after seeing it?)

He's been on the block all day.



1. Original Social Media Post
2. Utilize Web-Based Resources
3. Original Post's Author
4. Peer Network
5. Offline Events
6. Virality
7. Engagement

## ANNOTATION PROCESS



# 3

## STEP 3

# INTERPRETATION & CONTEXTUAL ANALYSIS ASSESSMENT

@Bossman\_Bucks

MA! I been huggin da blockZIPPER MOUTH

retweets: 0

2017-02-14 05:13:55

### General Description

Please describe in detail everything that is going on in this tweet.

I believe the user is posting lyrics to a song - Touch it or not by Cam'ron. The line 'Ma I been huggin the block' is in reference to selling drugs in the song. But the majority of the song is about asking women if they will perform oral sex. I believe the user posted the lyrics to the song because he likes or aggress with the song. He adds a zipper mouth emoji possibly meaning he's staying quiet.

'Ma I've been hugging the block'



# LABELING

- LOSS/GRIEVING
- AGGRESSION
- SOCIAL BEHAVIOR
- MOOD
- NEIGHBORHOOD  
(GENERAL/GANG-RELATED)
- STATUS SEEKING

- HEALTH
- RELATIONSHIPS  
(ROMANTIC/FAMILIAL)
- SUPPORT
- GROWTH
- AUTHENTICITY
- SUBSTANCE USE

## Machine Learning Labels:

- LOSS
- AGGRESSION
- OTHER



3

STEP 5

## COMMUNITY VALIDATION & RECONCILIATION

### COMMUNITY EXPERTS

PROFESSIONAL INTERVENTION EXPERIENCE WITH GANGS  
INVOLVEMENT IN OR AFFILIATIONS WITH GANGS

### DISAGREEMENT THEMES

COMMUNITY-LEVEL ITEMS, PLACES, CONTEXTS, OR 'BACKSTORIES' (E.G., TRAP HOUSE)  
PEOPLE (E.G., DEATH)  
HAND GESTURES (E.G., GANG AFFILIATION)



# NATURAL LANGUAGE PROCESSING



2016



# Automatically Processing Tweets from Gang-Involved Youth: Towards Detecting Loss and Aggression

TERRA BLEVINS, ROBERT KWIATKOWSKI, JAMIE C. MACBETH, KATHLEEN MCKEOWN, DESMOND PATTON, OWEN RAMBOW





2018

# EMNLP 2018

## Detecting Gang-Involved Escalation on Social Media Using Context

Serina Chang, Ruiqi Zhong, Ethan Adams, Fei-Tzin Lee, Siddharth Varia, Desmond Patton, William R. Frey, Chris Kedzie, Kathy McKeown [less](#) •

Published 2018 in EMNLP

AUTOMATICALLY CLASSIFIES POSTS AS **AGGRESSION**, **LOSS**, & **OTHER**

**F-MEASURE 69.8%**





2019

# ICWSM-2019

## Multimodal Social Media Analysis for Gang Violence Prevention

Philipp Blandfort, Desmond Patton, William R. Frey, Svebor Karaman, Surabhi Bhargava, Fei-Tzin Lee, Siddharth Varia, Chris Kedzie, Michael B. Gaskell, Rossano Schifanella, Kathleen McKeown, Shih-Fu Chang





(a) handgun, long gun



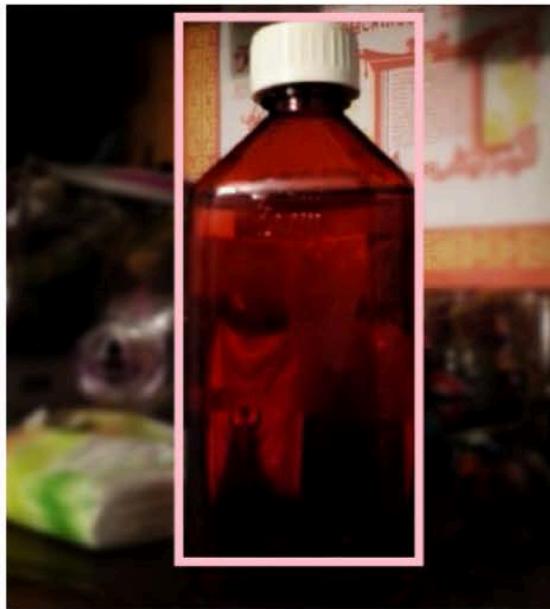
(b) person, hand gesture



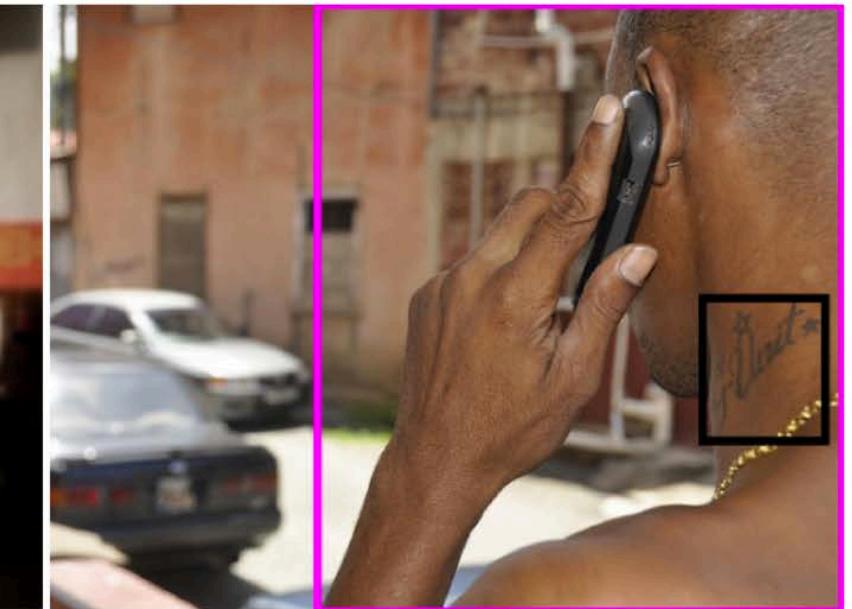
(c) money



(d) marijuana, joint



(e) lean



(f) person, tattoo





**ETHICAL ANNOTATION AGREEMENT**  
SAFElab, Columbia University School of Social Work

I, \_\_\_\_\_, as an annotator of social media data in the SAFElab at Columbia University School of Social Work, adhere to the following ethical agreements in order to prevent harm to and protect the safety of users whose social media data I am annotating. If any instances arise where I break any of the following agreements, I will notify Dr. Desmond U. Patton and William R. Frey immediately.

**I will not:**

- discuss content of my social media annotation with anyone outside of the SAFElab research team.
- present or share any identifying information from my social media annotation.
- share any data or research notes with anyone outside of the SAFElab research team.
- actively interact with users in the dataset
  - (e.g., like, retweet, comment, or mention on posts from the dataset).

**I will:**

- log out of the annotation system after every coding session.
- take measures to protect the social media data if coding in public
  - (e.g. use a dark screen, sit in a private location).

Signature: \_\_\_\_\_ Date: \_\_\_\_\_



2017

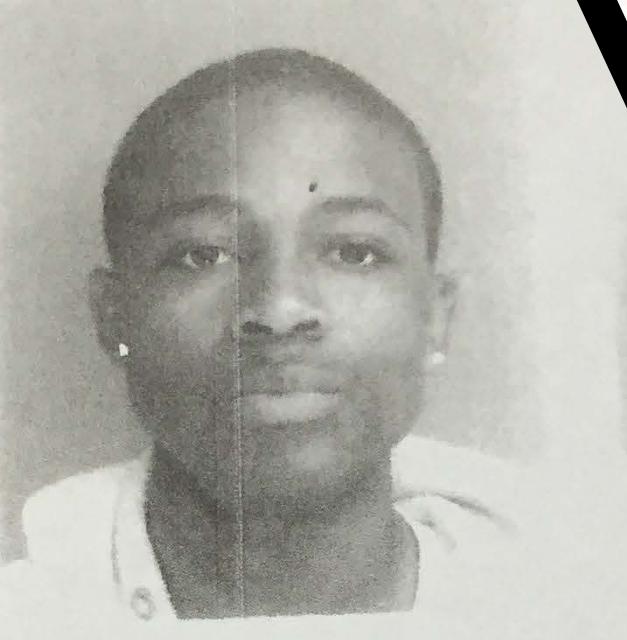
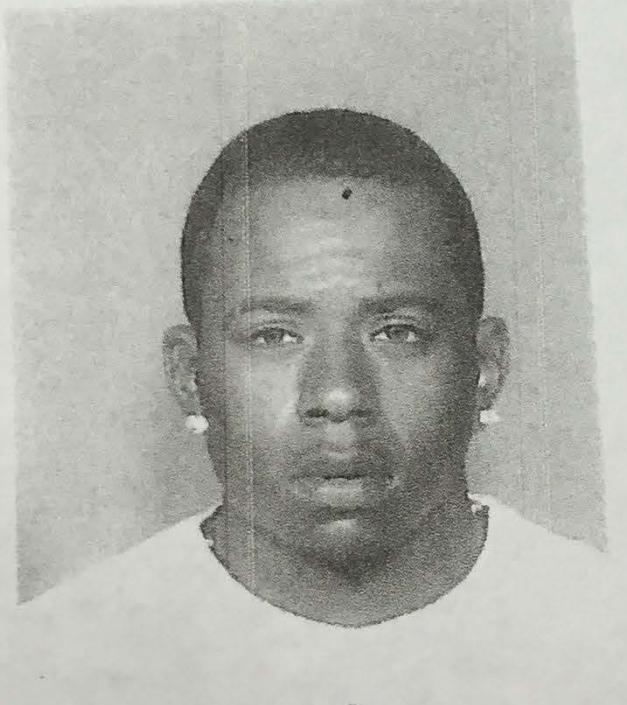
# Social Media + Society

## Stop and Frisk Online: Theorizing Everyday Racism in Digital Policing in the Use of Social Media for Identification of Criminal Conduct and Associations

Desmond Upton Patton, Douglas-Wade Brunton, Andrea Dixon, Reuben Jonathan Miller, Patrick Leonard, Rose Hackman [Show](#)

First Published September 28, 2017 | Research Article | [Check for updates](#)





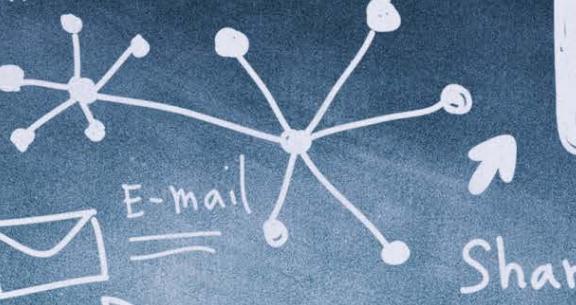


interaction among  
ate, share or  
nd ideas in virtual  
ork.



websites and applications used for social networking.

Connect



Share



like!

SHARE

CHAT

Internet

a global computer network providing a variety of information and communication facilities, consisting of interconnected computer networks that use standardized communication protocols.



ected to the Internet

one or more pages on

Web



ADD FRIENDS



Computer



E-mail



Connect



World Wide Web

The world wide web is a system of interlinked hypertext documents that are accessed via



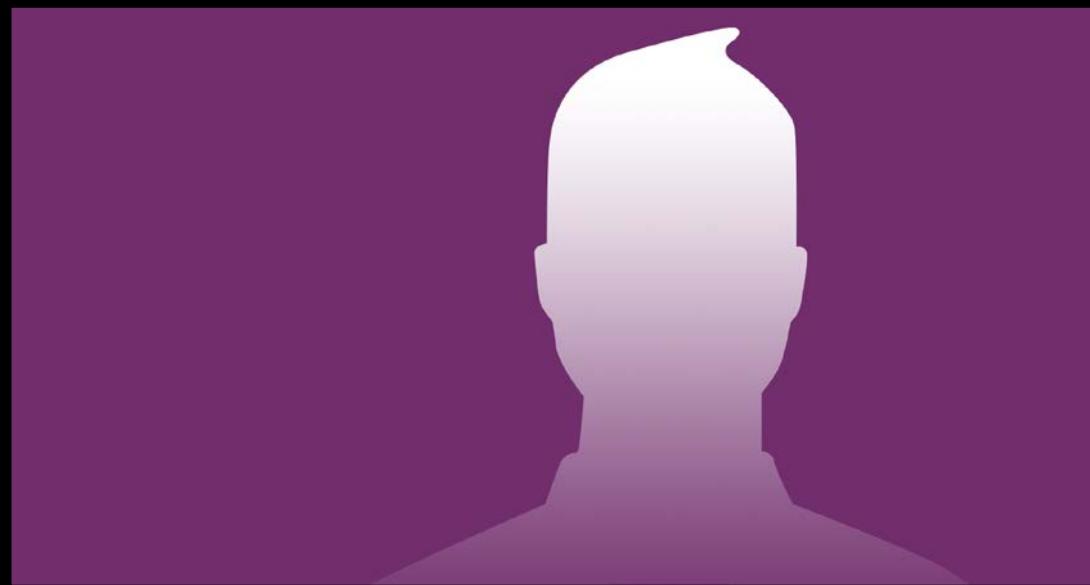
friend

noun

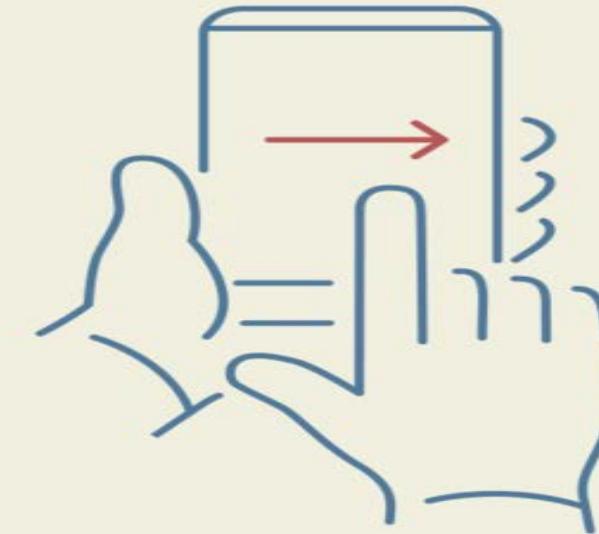
- ① a person whom one knows well and with whom one has a bond of mutual affection, respect, and trust, typically a sexual or family member
- ② (Friend) a member of a social group, especially a group of Friends; a Quaker



# TEACHABLE MOMENTS



## EDUCATION AS INTERVENTION



to be best in any point of view.

## **Empathy**

understanding, be best in any feelings, thought of another point of view.

## **Behavior**

the way a person acting or controlled person behaves





© Barnes Family Handout



 @SAFELAB

 @DRDESMONDPATTON

2016



Journal

**Journal of Human Behavior in the Social Environment >**

Volume 26, 2016 - Issue 3-4: Police shooting of unarmed African American males: Implications for the individual, the family, and the community

Articles

# **“Police took my homie I dedicate my life 2 his revenge”: Twitter tensions between gang-involved youth and police in Chicago**

Desmond Upton Patton , Patrick Leonard, Loren Cahill, Jamie Macbeth, Shantel Crosby & Douglas-Wade Brunton

Pages 310-324 | Published online: 20 Jan 2016

