



AI for Innovative Social Work

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Alan Turing Institute
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SAFE
LAB



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Lil Shawtty got hit Up who Sung that #Bdk song. That shit Sad. But thats a fine example of how Internet drilling get u kilt. Smd R.I.p Jojo

4 Sep



JoJo got whacked???

4 Sep



I swear if I was Jojo's mama, Maugs would be dyin of all sorts of accidental deaths man... These kids have no concept of life n death...

6 Sep



@DatNigga_Biliz: alot of bodies finna start droppin now that jojo dead #RipJOJO

5 Sep



That shit crazy I just seen jojo ass on 73nd and may that saturday of my lil sis party tssss smfh

5 Sep



That boy jojo dat got killed , I seen him on the 4th downtown

6 Sep



"Thinking" this Chief Keef JoJo Lil Reese situation is gonna blow up into the national news

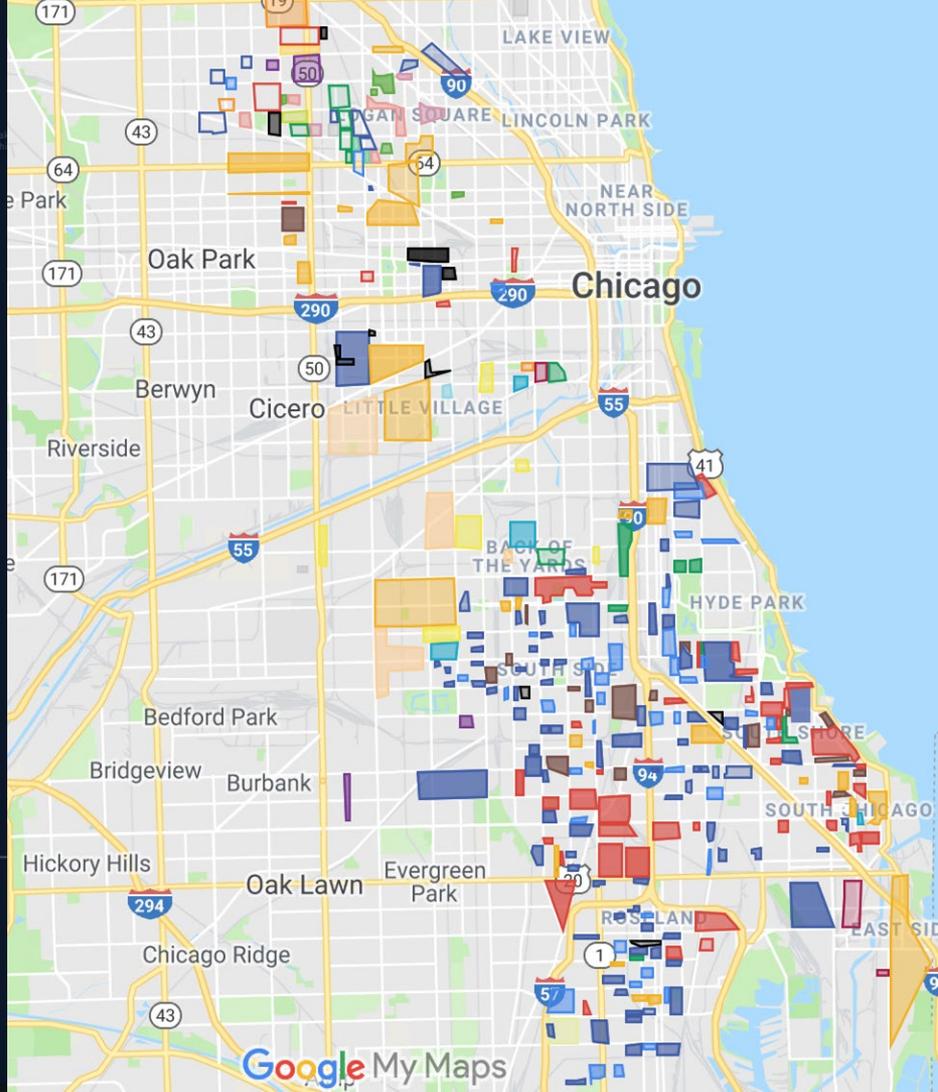
6 Sep

PUBLIC ENEMIES



Chicago Handgun Crimes 2001 - 2018

Crime incident descriptors
AGGRAVATED: HANDGUN
ARMED: HANDGUN
data.cityofchicago.org



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TEENS ON SOCIAL MEDIA

92% ONLINE DAILY

71% USING MORE THAN ONE
SOCIAL NETWORKING SITE

45% OF BLACK TEENS
USE TWITTER





ELSEVIER

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 ^a  , Robert D. Eschmann ^b  , Dirk A. Butler ^b  



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2013



Qualitative Studies



ELSEVIER

Computers in Human Behavior

Volume 65, December 2016, Pages 591-600



Sticks, stones and Facebook accounts: What violence outreach workers know about social media and urban-based gang violence in Chicago

Desmond Upton Patton ^a  , Robert D. Eschmann ^b , Caitlin Elsaesser ^c , Eddie Bocanegra ^d 

Original Article | [Published: 28 March 2019](#)

When Twitter Fingers Turn to Trigger Fingers: a Qualitative Study of Social Media-Related Gang Violence

[Desmond U. Patton](#) , [David Pyrooz](#), [Scott Decker](#), [William R. Frey](#) & [Patrick Leonard](#)

[International Journal of Bullying Prevention](#) **1**, 205–217(2019) | [Cite this article](#)

3252 Accesses | **5** Citations | **48** Altmetric | [Metrics](#)

Digital Qualitative Methods



Tweets **26.9K** Following **304** Followers **4,623** Likes **37**



NO SURRENDER LIL B

@TyquanAssassin

#Youngest In Charge..#063-4 free dem
 Hittas I hope dey get an appeal #STLEBT
 #BCTVG #TMB #TTG #CPDK #CPDK
 #tyquanassassin PAID SHOOTA

📍 HEADQUARTERS BITCH

📅 Joined December 2011

Tweets Tweets & replies Media

Who to follow · Refresh · View all



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On 4nem the opps killed my brobro 💔

Vernon dats da Gun Line. You cross it You
end up in da Head lines 🖤 🤒 🔫

my struggle ain't been told 🤔 🤒

anyone can get 🙌 in this lyfe 🙇 lackin 🅑 🔫 100

my blood 🚔 🐷 🚓 left him in cold blood 😞 🙏

We see da opps Fuck it We Gon smoke em
🖤



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

Show less ^

First Published January 25, 2016 | Research Article |  Check for updates

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

Article information  



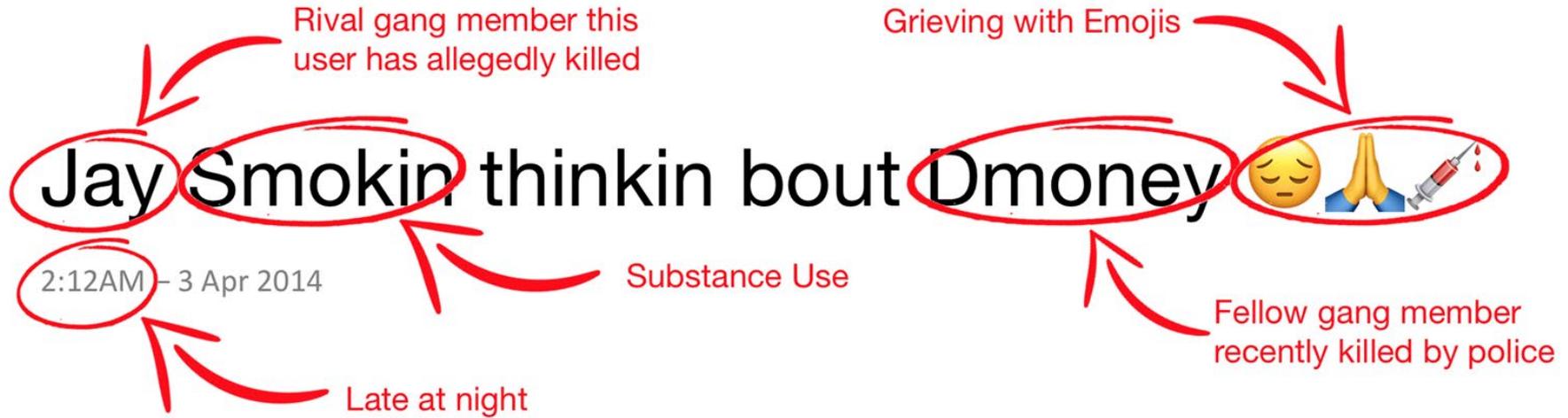
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New Methodology for Social Media Analysis: The CASM Method

CONTEXTUAL ANALYSIS OF SOCIAL MEDIA (CASM)



DOMAIN EXPERTS



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MSW ANNOTATORS



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Application of CASM

VISUAL & TEXTUAL ANALYSIS SYSTEM (VATAS)

Full Annotation Task

Export

Annotation overview

Select task ▾

Logout (safelab)

Tweet

Im Been Up 4 Lik 3 Days Straight 🙄😬 ...

Part 1/3 – 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? How would it make you feel?)

[Go to Part 2](#)



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1

BASELINE INTERPRETATION

Im Been Up 4 Lik 3 Days Straight 🙄😳 ...

Part 1/3 – 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? How would it make you feel?)

he hasn't slept in days



2

ANNOTATION PROCESS

Original Social Media Post

Utilize Web-Based Resources

Original Post's Author

Peer Network

Offline Events

Virality

Engagement

Im Been Up 4 Lik 3 Days Straight 🙄😬 ...



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3

INTERPRETATION & CONTEXTUAL ANALYSIS ASSESSMENT

Im Been Up 4 Lik 3 Days Straight 🤔😬...

General Description

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

This user is saying that he's been up for three days straight most likely meaning he hasn't slept in three days. This post comes days after his friend was killed. This user may be having difficulty sleeping because of his friend's death. He includes a persevering emoji and a flushed face emoji.

'I've been up for like 3 days straight.'

1/1



Im Been Up 4 Lik 3 Days Straight 🙄😬 ...

Part 3/3 – Code

<input type="checkbox"/> Grieving
<input type="checkbox"/> Aggression
<input type="checkbox"/> Social Behavior
<input type="checkbox"/> Mood
<input type="checkbox"/> Neighborhood (General/Gang-Related)
<input type="checkbox"/> Status Seeking
<input checked="" type="checkbox"/> Health
<input type="checkbox"/> Relationships (Romantic/Familial)
<input type="checkbox"/> Support
<input type="checkbox"/> Growth
<input type="checkbox"/> Authenticity
<input type="checkbox"/> Substance Use

Machine Learning Labels:

- **LOSS**
- **AGGRESSION**
- **OTHER**



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)



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NATURAL LANGUAGE PROCESSING & COMPUTER VISION



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NATURAL LANGUAGE PROCESSING



NLP @ 

COMPUTER VISION



DVMM*lab*
digital video | multimedia laboratory



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Objective

- Develop an AI system to automatically detect Aggression and Loss in social media posts from gang-involved youth from Chicago.
- Supervised Learning and Natural Language
 - Discrete features extracted from text
 - Data labeled with aggression, loss and other
- Semi-Supervised Learning and Neural Nets
 - Word embeddings
 - Unlabeled plus labeled data

Data for Initial Experiment

Training data: 616 tweets

Development: 102 tweets

Test: 102 Tweets

Manually Annotated with Parts of Speech Tags.

The title 'COLINGS 2016' is rendered in a large, black, stylized font. The letters are cut out, revealing a background of a cityscape with various buildings and structures. The 'O' in 'COLINGS' is particularly large and prominent. The '2016' is also large and stylized, with the '1' and '6' having unique shapes. The overall aesthetic is modern and urban.

COLINGS 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



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2016

New Datasets



1: 4,936 labeled tweets

- Gakirah Barnes and her top communicators
- Labeled by Community Domain Experts and MSW student annotators

2: ~ 1,000,000 unlabeled tweets from 279 total users

- Collected through an adapted traditional snowball sampling technique
- Using Gakirah Barnes and her top 14 communicators as the Seed Users



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%



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2018



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



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2019



(a) handgun, long gun



(b) person, hand gesture



(c) money



(d) marijuana, joint



(e) lean



(f) person, tattoo



The Impact of Lockdown on Social Media

Network Video Productions/Last Night
Chicago



**CORONAVIRUS
PANDEMIC**

GLOBALLY

TOTAL CASES

19,947,467

DEATHS

732,650

IN THE UNITED STATES

TOTAL CASES

5,071,306

DEATHS

163,252

SOURCE: JOHNS HOPKINS UNIVERSITY

AMERICA IN CRISIS

**CHICAGO IN DISARRAY AFTER A NIGHT
OF SHOOTINGS, LOOTING, & DESTRUCTION**

CNN

DOW ▲ 357.96

THE LEAD



ETHICAL ANNOTATION AGREEMENT

SAFElab, Columbia University School of Social Work

I, _____, as someone receiving social media data from 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 observing. If any instances arise where I break any of the following agreements, I will notify Dr. Desmond U. Patton and William R. Frey immediately, and work with them to build a strategy for accountability.

I will not:

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

I will:

- store the data on a password protected computer.
- take measures to protect the social media data.
 - (e.g. use a dark screen, sit in a private location).

Signature: _____ Date: _____



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TO WHAT END?

DEVELOPING PLATFORMS WITH
COMMUNITIES FOR REAL-TIME SOCIAL
MEDIA UPDATES



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TO WHAT END?

DEVELOPING PLATFORMS WITH
COMMUNITIES FOR REAL-TIME SOCIAL
MEDIA UPDATES

STOP



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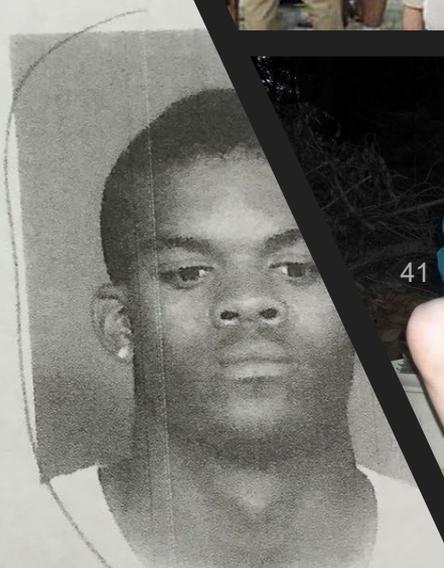
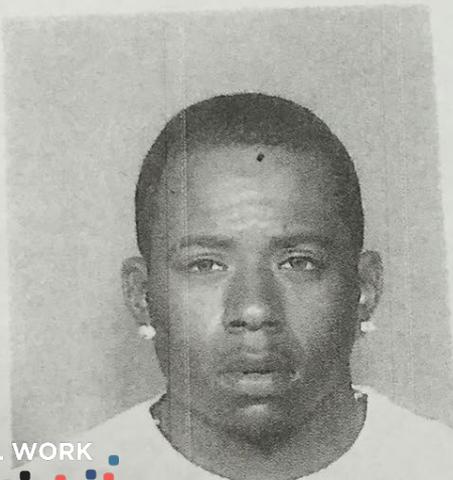
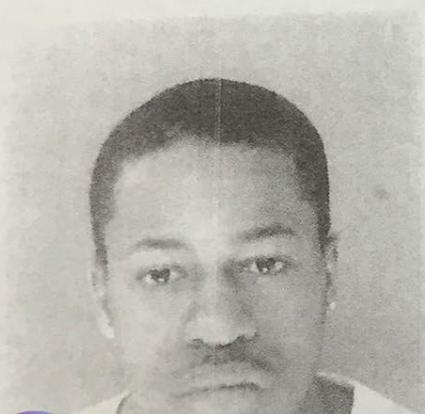




1



2



41



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SIMULATION EDUCATION

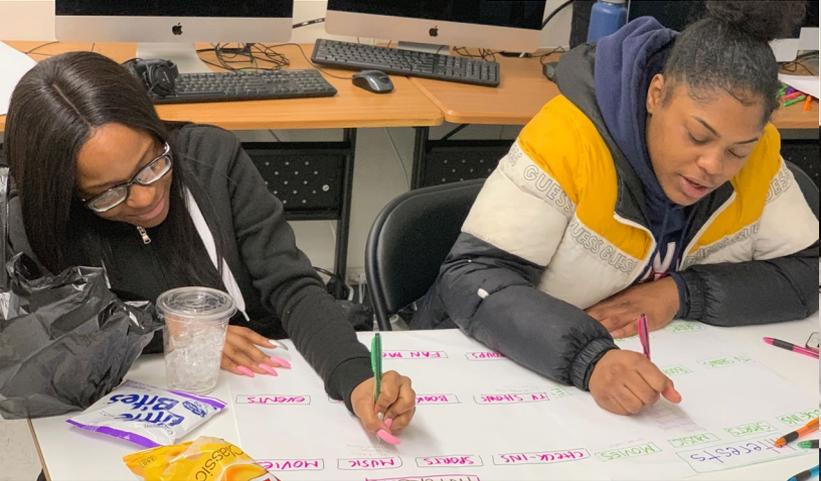
INTERVENTIONS



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MC

Likes: theblueroom

Friends

- [alex](#)
- [qua](#)
- [sara](#)

Option 2

Post

New Friend @MC :)

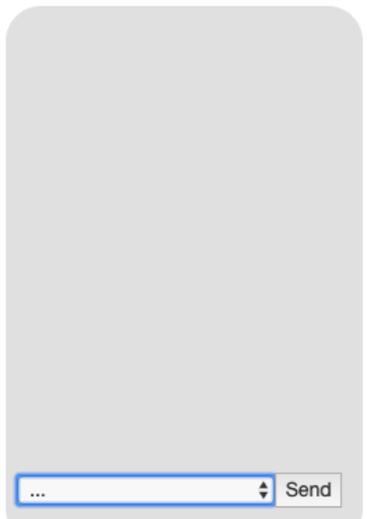


Yes, PM me!

Post

Posted on 03-18-2019 @ 12:12pm by alex

44



... Send



InterpretME

4 Stages of Practice

1. **Interpret** social media posts
2. Learn about a post's **Context**
3. **Interact** with stakeholders and post feeds
4. Choose **Response** and reflect

InterpretME

im finna roll up JRoy right na! 🤨👹😏

What do you think this post is about? Why?



InterpretME

Here are some options to learn more. You can explore all or none of them.

Connect with their school

Send street officers to monitor near where the youth lives/goes to school

Analyze past social media posts

Look up the youth's criminal background



Social media:

- Communities where youth live their lives, not necessarily distinct from their offline world
- Can be powerful tool for understanding/preventing root causes of violence

Artificial Intelligence (AI):

- offers opportunity to augment/bolster current violence prevention efforts

HOWEVER, social media and AI are not sole answer to violence prevention.

When not used thoughtfully and correctly, social media and AI can be tools for surveillance and mass incarceration.



Context:

- Extremely important when interpreting/analyzing social media posts
- Important to uncover and **Biases (Personal & Institutional):**
- consider when using social media/AI for school violence prevention

This work should not be done alone.

It's important to have critical, diverse perspectives and voices in the application of social media/AI for community safety.



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TAKE AWAYS



© Barnes Family Handout



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Thank you!

Dr. Desmond Upton Patton

 **@DrDesmondPatton & @SAFElab**

Associate Professor of Social Work & Sociology

Associate Dean for Curriculum Innovation & Academic Affairs



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