Kelvin Ting
A1829445

Kelin "Colin" Zhu

A1805827

Pham Gia "Alan" Nghi A1808891

Team 15 Skyward

### Visual ID concept

#### Input your descriptipn

JOB CODE: 101 DISTURBANCE

PRIORITY: 2 TIME: 17:52 SOURCE: 000

ADDRESS: 49 Robbies Rd, Cockle Bay

RP: Michael Jones 0424496491

A dark skin man with black jacket and white t-shirt. he also wears a black jeans and has

a backpack

Start Again?

#### **Appearence Description**

A dark skin man with black jacket and white t-shirt. he also wears a black jeans and has a backpack

Gender Skin

man

Jacket

dark

none

black

Shirt

Hair

white

**Bottom (Jeans or Shorts)** 

black jeans

essories

#### Generated



VISUallD

DECRIPTIONS TO IMAGES MADE EASY

- 1 Problem
- 2 Solution
- 3 Evidence
- 4 Product Concept

## When crimes are reported, a text description of suspects is sent to police officer.

Acronyms: RP: Reporting person Cauc: Caucasian WBTS: Whereabouts flags IO: Intervention order Vic: Victim App: Appearance Desc: Description ITO: Inpatient treatment order Poss: Possible RAH: Royal Adelaide Hospital JOB CODE: 101 DISTURBANCE PRIORITY: 2 TIME: 17:52 SOURCE: 000 ADDRESS: 49 Robbies Rd, Cockle Bay RP: Michael Jones 0424496491 RP states male is out front of his address, throwing glass bottles at passing cars/pedestrians. Appears drug affected. Male described as cauc, wearing a grey hoodie, black track pants, addidas sneakers, red cap. JOB CODE: 106 DOMESTIC DISTURBANCE PRIORITY: 1 TIME: 17:58 SOURCE: 131444 ADDRESS: 23 Allan Street, Blacktown RP: Sally Nickles 0435678638 RP states neighbours are arguing - heard female yelling "I'm going to stab you", followed by crashing/banging. Female seen leaving address 2 mins ago, headed north on Allan St. Male can be heard "yelling out in pain". Nil weapon sighted on female. Nil known re male's injuries, RP unwilling to attend. Female wearing black short dress, cauc, blonde hair, nil shoes. Carrying red backpack. Checks to follow: Female registered to 23 Allan St - Simone Jones SHIELD: No WBTS PIMS: Not wanted Nil bail No contact IO with Jake Hill. Jake Hill SHIELD: No WBTS PIMS: 

JOB CODE: 106 DOMESTIC DISTURBANCE

PRIORITY: 1 TIME: 17:58 SOURCE: 131444

ADDRESS: 23 Allan Street, Blacktown

RP: Sally Nickles 0435678638

RP states neighbours are arguing – heard female yelling "I'm going to stab you", followed by crashing/banging. Female seen leaving address 2 mins ago, headed north on Allan St. Male can be heard "yelling out in pain". Nil weapon sighted on female. Nil known re male's injuries, RP unwilling to attend. Female wearing black short dress, cauc, blonde hair, nil shoes. Carrying red

backpack.
Checks to follow:

Female registered to 23 Allan St - Simone Jones

SHIELD: No WBTS

PIMS: Not wanted Nil bail

No contact IO with Jake Hill.

Jake Hill SHIELD: No WBTS

PIMS: Not wanted Nil bail

JOB CODE: 182 VIOLENT DISTRUBANCE

PRIORITY: 1 TIME: 18:10 SOURCE: 000

ADDRESS: Hindley Street

RP: Nikki Smith 0498735628

RP STATES LARGE FIGHT OUTSIDE MCDONALDS HINDLEY, MULTIPLE PERSONS SEEN WITH KNIVES - ONE PERSON APPEARS TO HAVE BEEN STABBED IN STOMAHCH. VICTIM OS MCDONALDS ON BANK STREET.

EAST10 DISPATCHED

POSS OFFENDER NOW RUNNING NORTH ON BANK STREET – DARK SKIN, RED CHECKED SHIRT, BACK PACK. TURNING WEST ON NORTH TCE.

YELLOW HAT AND GREEN PANTS.

EAST11 DISPATCHED

SECOND MALE SEEN WITH KNIFE RUNNING WEST ON HINDLEY PAST CRAZY HORSE, ABORIGINAL APPEARANCE, BLACK HOODIE AND PANTS.

NOW TURNING NORTH DOWN VICTORIA STREET.

VICTIM TRYING TO LEAVE SCENE, HEADING EAST ON HINDLEY -

APPROACHING HSPS.

STATION MEMBER DISPATCHED

VIC IS ABORIGNINAL APP, WEARING GREEN SHIRT, BLACK PANTS, STAB

WOUND TO ABDOMEN.

REST OF GROUP DISPURSING OS MCDONALDS.

JOB CODE: 123 MISSING PERSON

PRIORITY: 3 TIME: 18:19

SOURCE: 131444

ADDRESS: RAH North Tce

RP: Donald Turner

0437897272

RP is nurse from RAH – reporting that Stanley Smith (DOB 12/12/1984) has left the hospital grounds during a pass out and has not returned – Smith is on a 6 month ITO, RP has concerns for his mental health/welfare. Smith is 28 y/o, caucasian, last seen wearing a red jumper and black ripped jeans, thongs. Smith has long dark hair. RP believes he may be attending his mother's house in Blacktown – details to follow.

Real-life examples from police database



### **Example**

RP states male is out front of his address, throwing glass bottles at passing cars/pedestrians. Appears drug affected. Male described as cauc, wearing a grey hoodie, black track pants, addidas sneakers, red cap.

#### WHAT SEEMS TO BE THE PROBLEM?

# Humans are bad at recognition from text

"[It] has become clear that such abilities have more to do with picture recognition than face recognition and that our ability to remember, or even to match, unfamiliar faces is rather poor." - Hancock, P.J., Bruce, V. and Burton, A.M

Hancock, P.J., Bruce, V. and Burton, A.M., 2000. Recognition of unfamiliar faces. Trends in cognitive sciences, 4(9), pp.330-337.

### So how about images?

### EVIDENCE

### The research supports it

90%

recognition accuracy with images

L Standing, J Conezio, R N Haber *Psychon Sci* 19, 73–74 (1970).

60X

times faster through visuals than interpreting words

of information is transmitted through brain is visuals

### What?

We are building a system that can take a textual description of a person's appearance and convert it into an image.

### Why?

It is difficult for police officers to quickly read these descriptions while they are driving and making radio calls .etc.

### Challenges?

The text that relates to appearance description is often hidden in amongst the general description about the job.



OUR MISSION

# Using machine learning to assist human in visual identification



### Features extractions

Description of suspect

Cloths, accessories, hair, tops, bottoms, shoes and more

### Image generation

An image of suspect is generated according the features

### Web application

A simple user interface that fetch the image in API



### Features Extraction

RP states <u>male</u> is out front of his address, throwing glass bottles at passing cars/pedestrians. Appears drug affected. Male described as cauc, wearing a <u>grey hoodie</u>, <u>black track pants</u>, <u>addidas sneakers</u>, <u>red cap</u>.



### Image Generation

Gender

male

**Shoes** 

none

**Jacket** 

grey hoodie

**Bottom** 

black track pants

Shoes

addidas sneakers Accessories

red cap



### Visual ID concept

#### Input your descriptipn

\*\*\*\*\*\*\*\*\*\*

JOB CODE: 101 DISTURBANCE

PRIORITY: 2 TIME: 17:52

SOURCE: 000

ADDRESS: 49 Robbies Rd, Cockle Bay

RP: Michael Jones

0424496491

A dark skin man with black jacket and white t-shirt, he also wears a black jeans and has

a backpack

\*\*\*\*\*\*\*\*\*\*\*\*

Start Visualisation



### Visual ID concept

### Input your description

JOB CODE: 101 DISTURBANCE PRIORITY: 2

TIME: 17:52 SOURCE: 000

ADDRESS: 49 Robbies Rd, Cockle Bay

RP: Michael Jones 0424496491

A dark skin man with black jacket and white t-shirt. he also wears a black jeans and has

a backpack

Start Again?

### **Appearence Description**

A dark skin man with black jacket and white t-shirt. he also wears a black jeans and has a backpack

### Gender Skin

man

dark

### Hair

Jacket

none

black

### Shirt

white

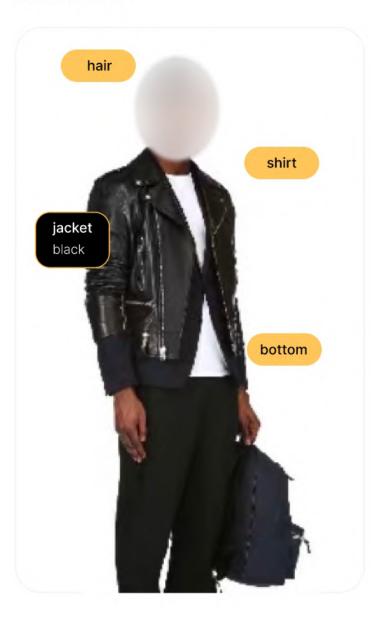
### **Bottom (Jeans or Shorts)**

black jeans

#### **Accessories**

backpack

#### Generated





Use Machine Learning to recognise description and match them against real life photos to generate the closest representation

### Our team



Thomas Rowntree

SUPERVISOR AND

CLIENT



Pham Gia "Alan" Nghi WEB APPLICATION A1808891



Kelin "Colin" Zhu
MACHINE LEARNING
A1805827



Kelvin Ting
DEEP LEARNING
A1829445

### **Our Strategy**

MINIMUM VIABLE PRODUCT

May - Jun

TESTING & REFINE

Early Jun

FINALISE

Late Jun



### VisualID

Decriptions to images made easy



# nankyou

Team 15

Skyward

