The Digital *Underground* Economy: A Social Network Approach to Understanding Cybercrime

Michael Yip
University of Southampton

Supervised by:
Nigel Shadbolt
Thanasssin Tiropanis
Craig Webber

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Content

• Digital underground economy

• Social network analysis (SNA):
  – *Qualitative*: social psychology and criminology
  – *Quantitative*: network science, statistical modelling

• Future Work
DIGITAL UNDERGROUND ECONOMY
Carding forums

- Cybercrime is becoming increasingly organised
- Emergence of division of labour
- Competitive online black markets
- Drives innovation and new entrants into crime
Dumps VISA/MC/AMEX/DISCOVER (Track1+Track2+Address+ZIP+Phone+SSN)
from 1 to 19 dumps : 200$
from 20 to 49 dumps : 150$
from 50 to 99 dumps : 130$
from 100 dumps : 100$

Dumps whis know:
- Balance
- Available Credit for Purchases
- Available Credit for Cash Advances
- Credit Limit

Include Track1+Track2+Address+ZIP+Phone+SSN and online access to a statement

Price - 15% from Available Credit

We send dumps after receiving money.
We do not offer free dumps for testing.
We sell only USA dumps.
We sell dumps that where checked before.
We can change declined dumps within 5 days of dumps delivery. We guarantee the minimal sum for classic dumps - 100$, and for dumps GOLD/PLATINUM/PURCHASING/SIGNATURE/BUSINES - 300$. If you could not take off from a dump so much - dump it is considered bad and exchanged.

For loyal customers who have their own merchant account for dumps checking, we can work in the following way:
1. You send us payment.
2. We send PAN=EXP from dump only.
3. You check numbers.
4. You send us list of numbers you want to get.
5. We send the dumps you requested.
If you prefer above scheme, please note that we do not replace declined dumps.

We accept Webmoney, E-Gold, WesternUnion, Bank WIRE.
SOCIAL NETWORK ANALYSIS
SNA on cybercrime

• The least common denominator of organised crime is human relationships (McIllwain 1999).

• SNA focuses on the study of relationships between criminals

• No a-priori assumptions about the structure/pattern of interactions

• An interdisciplinary framework for:
  – reasoning behaviour (qualitative analysis)
  – capturing social dynamics (quantitative analysis)
Interdisciplinary approach

Qualitative
- Social Psychology
- Criminology

Quantitative
- Network Science
- Statistical Modelling
Qualitative analysis

• A unique insight into the underworld based on their daily conversations

• Captures aspects of their lives, personalities and attitudes

• A host of well-known theories to reason observed behaviour
Role of carding forums

- Crime is learnt (Sutherland 1949; Burgess and Akers 1966):
  - Skills and techniques
  - Slangs
  - Positive reinforcement from peers
- Neutralisation (Sykes and Matza 1957)
  - Denying responsibilities and injury
  - Justification for actions
- Carding forums facilitates a community that reinforces their actions
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<thead>
<tr>
<th>Author</th>
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<td>Posted: Wed Oct 20, 2004 9:35 pm</td>
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|        | Posted: Wed Oct 20, 2004 10:14 pm  | I wish I had a normal life. Turn back the clock and all, but fuck it I am where I am. |

|        | Posted: Wed Oct 20, 2004 10:26 pm  | Are you kidding me! ?? Normal life with no stress. No such thing, there will always be stress unless you live in fantasy land. There may be different types of stress but it will always be there. As far as regret, I regret being honest and living the so called normal for far too long before I found out how much money could be made in this business. |

|        | Posted: Wed Oct 20, 2004 10:33 pm  | There is a HUGE difference between ‘normal life stress’ and this business’s stress.. I think you just started out this business.. i wanna hear ur thoughts after 5 months 😊 |
Do you regret?

It gets addictive.
Most people only quit after they get busted, what other reason is there?
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I don't agree. It's like if you would say that only cancer make smokers quit. One usually needs a wighty reason to quit, but it does not have to be the cancer. When you're strapped, you don't give a fuck. But when you get to the real nice living, you will value it. Especially when you know that easy money are not easy. And we all get tired at some point... Thai massage and jacuzzi would be nice right now.
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I agree with it gets addictive.

There is always that feeling of trying to be the best between your shady friends but appear as the second (because the number one always get caught). As for the friends, in my own experience, many time those "good guys" friends simply get away when you have some problem and the people who is there, with you, is the shady one. Anyway we are free to choose our lifestyle for a while, and most of us are here because we like what we do or what we get from it.

That's my opinion
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In a lot of ways I regret where I am at today. When I was younger I didn't realize the consequences of the shit I was doing - easy money was great. But once you get a record and your chances of a good legit life slip further away the less choice you have in the matter. Now that I am older I wish I had done things differently, but this is the life I chose & am long as I have to live it - I am going to try to take it as far as I can. I am hooked on the rush - there have been times when I could have resumed normal living with a 9 - 5 job, but I could never bring myself to do it. I need the excitement & the fast cash. The stress is just something I have to live with - that and the isolation from everyone else. With the amount of time that I put into my "job" there is hardly any time to enjoy life - but it's addictive.
Will you scam college kids?

pretty fucked up to scam college kids.

Damn...I thought this was going to be a new and improved version of scamming on ebay.

I agree, scamming college children is plain and simply wrong... that's their real hard earned money and there's no way for them to get it back... CC fraud, the victim gets all his money back... it's a victimless crime, but this is just plain wrong... I'm not flaming you, I'm just saying, I'd feel better if you see my point of view and please do not do that again. Sorry to put you on the spot like that, but it's just my opinion.

Yeh I see your point. It is fucked up. But I mean if you really need money this is a way to do it. That's all.
Will you scam college kids?

morals don't pay the bills

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morals don't pay bills.
Scamming is scamming.
blah blah blah blah!

Truth is, if you have the brains and the balls to be a carder or a scammer, why not use those brains and those balls to fuck the corporate giants and big companies. If you steal $3,000 from 2 kids who are barely able to pay their tuitions and eat... you’re going to fuck them and possibly cause serious damage. If you fuck over BestBuy, or OfficeDepot, or Walmart...... they won't even feel anything and will basically just let it fly.

So to scam a college kid... he’s not the dumbass to fall for it... the scammer is because he’s too much of a PUSSY or LACK OF BRAINS to actually come up with a plan to scam a company.

Not to boast, but i have never scammed a “regular joe” or college kids or any regular person.... And i’ve been making $10k a week for over 2 months!

( brains and balls --- they go hand and hand...but some apparently just don't know any better )
Trust and carding forums

Diagram showing relationships between transaction costs, quality of goods and services, uncertainties, identity, review and escrow, hierarchy and network boundary, and social networking.
Network analysis

- Social networks are dynamic as humans learn, change and adapt (Carley 2006)

- The use of network science provides:
  - Topological insights into the behavioural patterns of the members
  - Identify key players or groups
  - Implications on disruption strategies
Degree Distribution
Scale-free? No!

(a) Random network

(b) Scale-free network

Rich-club Phenomenon?

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Overall, rich-club phenomenon does not exist (except for CP).

Furthermore, a strong opposing force occurs for nodes with approx. $30 < k < 110$.

Vendors are most likely to be among this range.
Rich-club Phenomenon?

Future work

• Examine the evolution of the social networks
• Link prediction
• Multi-agent Social simulation
References


THANK YOU!

Slides are available on iamresearcher.com/profiles/michael.yip/

Email: my2e09@ecs.soton.ac.uk

Twitter: @michael_yip

The More Knowledge We Share
The More We Have