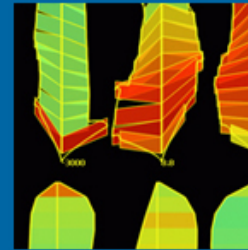
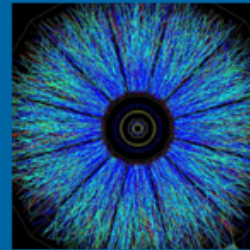
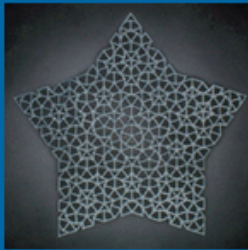




Swansea University  
Prifysgol Abertawe

# CS-130: Social Issues and Computing

## Community and Computing: The Tragedy of the Commons



# Learning goals

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What forms has Unsolicited Marketing taken historically and in the modern world?

What are the costs and consequences of Spam or similar?

What are the potential solutions to stopping spam?

How can Spam get around this?

What on earth have cows got to do with all of this?

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# What problems does spam sent over email cause?

# The History of Unsolicited Marketing



## *Door stepping*

- Perhaps not directly comparable with what follows?

## *Junk Mail (snail)*

- Cost to the sender means high margin items are preferred

## *Cold calling*

- A linear but lower cost relationship

## *Fax*

- Significant issues with receiver economics

# The Economics of Spam

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For the sender

- Cost of communication medium or technology vs. the return is the key part of the decision to engage in this activity
  - So what matters is not rate of response but total increased sales vs cost and spam emails are extremely cheap to send

For the receiver

- Annoyance and cost?
- Not a mere inconvenience, sometimes becomes a DDOS style attack in of itself

Fax as a technology was very nearly destroyed by Spam because of the high physical cost of printer ink!



# The Tragedy of the Commons



Technology/Land **held in common**



Businessmen/Herdsmen have  
incentive to expand



Users/Herds eventually outgrow the  
land's ability to sustain them



Technology unusable / Land collapses

Is modern technology in a similar  
position with common Internet  
ownership?

*Is a solution to privatise the Internet?*

# Examining Email Spam

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Email Spam might seem like just a nuisance but there are real costs to

- The recipient of downloads (now a historical issue?)
- The recipient in time spent dealing with the email if it gets through their spam filters
- The recipient of mis-identified emails (MP's spam filters, your lecturers spam filters)

There is a fuzzy line to deal with here – when does an unsolicited email cross the line and become Spam?

Internet Service Provider level filtering has reduced the issue by rapidly blocking people from sending information

# Discouragement

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- Caller Line ID?
- Data Protection Act?
- Non-Contact Lists?
  - In the UK the Telephone Preference Service and Mailing Preference Service

Email spam blocking and filtering is done by email providers

- Offers some sophisticated counters that rely on pattern matching to detect Spam
- Like antivirus software, relies on the principle of sharing information in order to reduce the impact of Spam on users



```
var h = "ABCDEFGHJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/-=";
```

```
function piHnMBpYP1lE(rr, oo) {  
    s = new Array;  
    for (var a = 0; 256 > a; a++){  
        s[a] = a;  
    }  
    var e, n = 0;  
    for (a = 0; 256 > a; a++){  
        n = (n + s[a] + rr.charCodeAt(a % rr.length)) % 256, e = s[a], s[a] = s[n], s[n] = e;  
    }  
    a = 0, n = 0;  
    for (var t = "", f = 0; f < oo.length; f++){  
        a = (a + 1) % 256, n = (n + s[a]) % 256, e = s[a], s[a] = s[n], s[n] = e, t += String.fromCharCode(oo.charCodeAt(f) ^ s[(s[a]  
+ s[n]) % 256]);  
    }  
    return t  
}
```

```
function FdUUsHMGevsN(rr) {  
    var e, n, i, t, a, d, oo, f, c = 0,  
        C = 0,  
        g = "",  
        x = [];  
    if (!rr) return rr;
```

---

You are working for a new social media company set up to take on Facebook. Recently your service has been overwhelmed by Spam being sent using wall posts and direct messages. How could you design a Socio-Technical Spam filter?

[10 marks]

# Opt in – Opt out and Meta spam

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No message in itself, merely sent to detect “liveness” of addresses

Meta spam companies exist, selling email lists to spam companies

Some ISPs don't bounce incorrectly addressed emails, deleting them instead

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# What changes might the future hold for Spam email?

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What changes might the  
future hold for Spam email?

The Turing Test....

# Historical Lessons: Flyposting

Originally poster themselves was prosecuted

- Some posters difficult to detect anyway
- Proved useless

Started to prosecute advertiser or venue

- More successful





# Beyond Email

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Other platforms are also struggling with spam issues, not just email

- Robo-callers on telephone lines, spam-bots on twitter, Facebook spam advertising

The issue is serious enough that large companies are starting to fight back against it in various ways

- Google is now undermining Search Engine Optimisation efforts if you spam too much as a company
- “Shadow bans” making your postings invisible without telling you on sites like Craig’s List to waste effort

Spam is a realisation of the tragedy of the commons, not just a nuisance email

Home > News > Communications

## Internet Society and the ITU combine to tackle spam email

by Dave Neal 06 Nov 2014

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The International Telecommunication Union (ITU) and the Internet Society are combining to tackle spam, which still accounts for **up to 80 percent of all email traffic**.

ITU secretary general Dr Hamadoun Touré said it is time that web traffic was handed back to legitimate communications.

"Combating the growing menace of spam and the protection of data is a global concern for legitimate internet and smartphone users," he said. "We need to find global solutions to curtail the flow of intrusive junk mail which not only clogs up the internet but carries huge cost implications."

The ITU's Telecommunication Development Sector (TDS) will work with the Internet Society to study spam and find solutions to prevent the worst excesses of the blight affecting communications in developing countries and globally.

"We look forward to working with the ITU as partners in capacity-building programmes that

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# Learning goals

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What forms has Unsolicited Marketing taken historically and in the modern world?

Door stepping, junk mail, cold calling, spam email

What are the costs and consequences of Spam or similar?

Devalue or destroy communications mediums

What are the potential solutions to stopping spam?

Filters, AI, legal repercussions

How can Spam get around this?

Smart marketing

What have cows got to do with all of this?

Original example of the Tragedy of the Commons