

Prof. Pelle Snickars

Department of Culture and Media Studies / Humlab





With a user base now officially reaching **100 million—including 40 million paying subscribers**—the music streaming platform Spotify is today widely recognised as **the solution** to problems caused by last decades of digital disruption within the music and media industries.

Spotify®

Spotify resembles Netflix, YouTube—and lately Apple Music—as an **epitome of streaming's digital zeitgeist** envisioned to shape our future. Industry interviews, trade papers, academic books, and the daily press reiterate innumerous versions of this "**technological solutionism**" (Morozov 2013) in almost as many variations.

> I. situating our research project on Spotify

- > I. situating our research project on Spotify
- > II. lack of data & digital methods

- > I. briefly situate our research project on Spotify
- > II. lack of data & digital methods
- > III. research interventions & experiments



Streaming Heritage

Following Files in Digital Music Distribution



Humlab





While most previous scholarship on Spotify has primarily focused this service **role within the music industry**, its alterations of the **digital music economy**, or causing the eventual **end of piracy** (Wikström 2013; Wikström & DeFilippi 2016; Allen Anderson 2015; Galuszka 2015; Andersson Schwarz 2013) ... our project (mainly) takes a **software studies** and **digital humanities** approach towards streaming media.

Software Studies

An emerging interdisciplinary field that draws upon computational perspectives on software. The emphasis lies on analysing software sources and processes—rather than interfaces—something that often distinguishes software studies from new media studies.

Software Studies



The Imaginary App

Edited by Paul D. Miller and Svitlana Matviyenko

Mobile apps promise to deliver (h) appiness to our devices at the touch of a finger or two. Apps offer gratifyingly immediate access to connection and entertainment. The array of apps downloadable from the app store may come from the cloud, but they attach themselves firmly to our individual movement from location to location on earth. In *The Imaginary App*, writers, theorists, and arists--including Stephen Wolfram (in conversation with Paul Miller) and Lev Manovieh—explore the cultural and technological shifts that have accompanied the emergence of the mobile app.



Speaking Code

Coding as Aesthetic and Political Expression

By Geoff Cox and Alex McLean

Speaking Code begins by invoking the "Hello World" convention used by programmers when learning a new language, helping to establish the interplay of text and code that runs through the book. Interweaving the voice of critical writing from the humanities with the tradition of computing and software development, in Speaking Code Geoff Cox formulates an argument that aims to undermine the distinctions between criticism and practice and to emphasize the aesthetic and political implications of software studies.



10 PRINT CHR\$(205.5+RND(1)); : GOTO 10

By Nick Montfort, Patsy Baudoin, John Bell, Ian Bogost, Jeremy Douglass, Mark C. Marino, Michael Mateas, Casey Reas, Mark Sample and Noah Vawter

This book takes a single line of code--the extremely concise BASIC program for the Commodore 64 inscribed in the title--and uses it as a lens through which to consider the phenomenon of creative computing and the way computer programs exist in culture. The authors of this collaboratively written book treat code not as merely functional but as a text--in the case of 10 PRINT, a text that appeared in many different printed sources--that yields a story about its making, its purpose, its assumptions, and more.



Programmed Visions

Software and Memory

By Wendy Hui Kyong Chun and Wendy Hui Kyong Chun

New media thrives on cycles of obsolescence and renewal: from celebrations of cyber-everything to Y2K, from the dot-com bust to the next big things—mobile mobs, Web 3.0, cloud computing. In *Programmed Visions*, Wendy Hui Kyong Chun argues that these cycles result in part from the ways in which new media encapsulates a logic of programmability. New media proliferates "programmed visions," which seek to shape and predict—even embody— a future based on past data.









The project, "Streaming Heritage", broadly engages in **reverse engineering** Spotify's algorithms, aggregation procedures, metadata, and valuation strategies, all in order to study **platform logics, including underlying norms and structures**.

Reverse engineering starts with the final product (the music service Spotify in our case) and tries to take it apart—backwards, step by step.



Basically, the scholarly purpose of our project is to draw **a more holistic picture** by using Spotify as a lens to explore social, technical, and economic processes associated with digital media distribution.

The key research idea is to 'follow files'—rather than the people making, using, or collecting them—on their **distributive journey through the streaming ecosystem**, and hence to take empirical advantage of inherent data flows at media platforms (as Spotify).



Lack of Data

The major problem in doing contemporary research on streaming music is that **the specifics of Spotify's algorithms are proprietary**, and **statistics around listener data (more or less) a corporate secret**.

Some rudimentary data is available via the various **Spotify interfaces**—ranging from the amount of streams for popular songs to artist followers and listeners per month.



ÖVERSIKT LIKNANDE ARTISTER OM KONSERTER

Senaste releasen



Mercedes

26 OKTOBER 2016

Populära

1	+	Ska vi fira	52 599
2	+	Total Eclipse of the Heart	23 886
3	+	Plötsligt ful	24 211
4	+	Farväl utan läppar	20 741
5	+	Ljuset själv (feat. Isabel Neib)	20 475

Liknande artister



Vasas flora och fauna



Laser & bas



Jonas Bergsten



Stilla Havet



Vit Päls

Nord & Syd

Johan Airiioki

Lack of Data

At the site <u>yearinmusic.spotify.com</u> data with the most popular tracks, albums or playlists (divided, for example, geographically or by the period of the year) is also at hand. If a user logs in, **personal statistics** are displayed in a similar manner.

Yet, basically, **no specific data is available**.

Lack of Data

One point of departure within our project has hence been that Spotify resembles a **black boxed service**, metaphorically as well as practically, since the servie does not share data.

As a consequence, from a research perspective, Spotify user data has to be acquired and compiled through other means





Digital Methods

Media measurement methods

On a rudimentary level, **digital methods** differs from analogue methods since data and research evidence is **'found' rather than 'made'**.

Within traditional media studies **long-established techniques like questionnaires, surveys, interviews and focus groups** are still the methods that are most commonly used.

Swedish SOM-survey

	DE FÖRSTA FRÅGORNA GÄLLER VILKA MASSMEDIER DU TAR DEL AV
FRÅGA	 Hur ofta brukar Du titta på eller lyssna till följande typer av nyhetsprogram i radio och TV? Dagligen 5-6 ggr/ 3-4 ggr/ 1-2 ggr/ Mer Aldrig
(17) (18) (19) (20) (21)	Vecka vecka vecka sallan Nyheter i lokalradion
FRÅGA	 Hur mycket brukar Du se på av följande typer av TV-program? Allt/I stort Ganska Inte särskilt Ingenting/Nästan sett allt mycket mycket inget alls
(22) (23) (24) (25) (26)	Underhållningsprogram
FRÅGA (27) [3. Vilken morgontidning brukar Du läsa regelbundet? (Med regelbundet menas här minst ett nummer per vecka. Om Du läser mer än en morgontidning - ange vilken Du betraktar som <u>Din lokala morgontidning</u>). 1

1986

Swedish SOM-survey

	DE FÖRSTA FRÅGORNA GÄLLER VILKA MASSMEDIER DU TAR DEL AV
FRÅGA	 Hur ofta brukar Du titta på eller lyssna till följande typer av nyhetsprogram i radio och TV?
	Dagiigen 5-6 ggr/ 3-4 ggr/ 1-2 ggr/ Mer Aldrig vecka vecka vecka sällan
(17) (18) (19) (20) (21)	Nyheter i lokalradion
FRÅGA	 Hur mycket brukar Du se på av följande typer av TV-program? Allt/I stort Ganska Inte särskilt Ingenting/Nästan sett allt mycket mycket inget alls
(22) -	Underhållningsprogram
(24)	hällsprogram
(25) (26)	Sportprogram
FRÅGA	 Vilken morgontidning brukar Du läsa regelbundet? (Med regelbundet menas här minst ett nummer per vecka. Om Du läser mer än en morgontidning - ange vilken Du betraktar som Din lokala morgontidning).
(27) E	1 (Tidningens namn) 2 Läser ingen morgontidning regelbundet

NYHETER & MEDIER Fråga 1 Hur olta brukar du ta del av följande nyhetsprogram eller nyhetstjänster? 5-6 dagan' 3-4 dagan' 1-2 dagan' Mar Dagligen weeka weeks verka sallan Aldrig Lokala nyheter från Sweriges Radio (SR) Ekonyheter från SB. P3 Nyheter från SB AktuellbRapport från SVT 👘 🔲 Regionala nyheter fifth SVT 🛛 **TV4 Nybeterns** Fråga 2 Läser eller tittar du regelbundet i någon morgontidning på papper? 🗌 Jae lävet aldrig våsan moreautidning på normer

	Digliger	5–6 Capari vecka	3-4 daga/ vecka	1-2 dagan' vocha	Mea
(acreculations more)					

Fråga 3 Hur ofta brukar du ta del av nyheter från följande?

1 Guilde da	Dagligen	5-6 dagar/ vecka	3-4 dagan' vecka	1-2 dagat/ vecka	Mer sillar	Albig
på papper på internet						
Expressen/GT/Kvallsposte på papper på internet						

Fråga 4 Hur ofta brukar du ta del av nyheter från följande på internel?

Dagens Nyheter		5-6 dagan' Neska	3-4 dagari vecka	I-2 dager vecka	Mar sillan	
Svenska Dagbladet	U O	U				
Någen lokal mergonfidning Annan lokal nyhetssojt						
Sveriges Radio Sveriges Television						
Utländsk nyhetstjänst						

1986

2015



self-estimated media usage

Media measurement methods

I argue, however, that one should critically scrutinize and **question the relevance** of doing analogue surveys—**with self-estimated media usage of made data**—to understand the transformative consequences and effects of the digital media landscape.



PLACE

SEND YOUR QUERY TO: GOOGLE INC., 1600 AMPHITHEATRE PARKWAY, MOUNTAIN VIEW, CA 94043, UNITED STATES PLEASE ALLOW 30 DAYS FOR SEARCH RESULTS

Over the last ten years—within the extensive field of media and internet studies—different types of **digital methods** have been taken up as key instruments for developing pioneering ways to analyse and understand, 'the digital', 'the internet', as well as digital media production, distribution and consumption.

Following the catchphrase, "the system is the method" (Bruhn Jensen 2011), digital methodologies are increasingly deployed for performing social science or humanistic inquiries on, for example, big data and black-boxed media platforms (as Spotify) that today increasingly serve as **key delivery mechanisms for cultural materials**.

So—when interacting, searching and listening to music at Spotify, **user data is constantly being produced**—yet how to **capture** it?

DIGITAL METHODS RICHARD ROGERS



DIGITAL METHODS RICHARD ROGERS



"This book presents a **methodological outlook** for research with the web. As such it is a proposal to reorient the field of Internet-related research by studying and repurposing what I term **the methods of the medium**, or ... **methods embedded in online devices**. [...]

How may we learn from and reapply these and other online methods? [...] By continually **thinking along with the devices** and the objects they handle, digital methods, as a research practice, strive **to follow the evolving methods of the medium**."






Cool tools to navigate the network of conversations with ease



ind report interesting Tweets

Find, save, and schedule interesting conversations



See who's mentioning whom

Sign in

Find connections between users

Discover the Social Web

Twitter. See it. Explore it.

Get Started for Free

http://mentionmapp.com/

Problems with Digital Methods

Problems with Digital Methods

Naturally, there are a number of problems working with digital methods. "**Twitter determines what data are available** and how data can be accessed through [their] API", **David Gunnarsson Lorentzen** for example states in his new thesis, *Following Tweets Around*.

How Twitter and other similar platforms and services (like Spotify) provides access to data "in turn affects the analyses the researcher does. The **central problem [is hence] that researchers do not know what relevant data are not collected**" (Gunnarsson Lorentzen 2016: ii).

Problems with Digital Methods

In their article, "Interface methods: renegotiating relations between digital social research, STS and sociology", **Noortje Marres and Carolin Gerlitz** (2016) furthermore states:

"The prominence of such tools ... points to a wider problematic: digital analytics invoke a methodological uncanny for social research. [These] tools ... closely resemble the techniques and methods deployed in social inquiry, but we can certainly not call them 'our own'. 'Not our own' because ... the methods built into popular tools often prove to have more alien disciplinary provenances, and to serve the objectives of digital platforms rather than those of research."





... it is not a project about music listening and/or new forms of media usage

... rather a project about the ways that technology situates and regulates music consumption; i.e to "follow files"-rather than the Leng 29445946 collecting them—on distributive journey through the cosystem. distributive journel of the streaming ecosystem. I CLASS MILA CLASS I CLASS IF EXE

29445946-tuc-tu

Nam Class="

pan class="w-ty

CLARKER

CLASS=" DT. The second se

ali class=

Spotify & Digital Methods

Building on the tradition of so called "breaching experiments" in ethno-methodology (Garfinkel 1967), our project has tried (in different ways) via repeated and modified **interventions and experiments**, to 'break into' the hidden infrastructures of digital music distribution.

On the one hand, we have been interested in broadly studying different **data patterns and media processes** at Spotify. On the other hand, we have also been keen on **producing and obtaining research data**.



> What sounds are perceived as music (or not) according to Spotify and adjacent aggregating services?

> How is metadata generated, ordered, and valued—and what kind of metadata is actually available?

> What normative world views are promoted and materialized by streaming architectures?

> How is the social contract between listener communities, artists, and collecting societies changing?

> What kind of infrastructures proliferate behind the surfaces of on-demand services?

Spotify & Digital Methods

My research group has hence literally tried to **dig deep** 'under the hood' of Spotify—and, indeed, our project is informed by a **media archeological** attitude. What we wanted to achieve was basically a transdisciplinary account of today's media ecology undertaken from **the inside of black boxed music aggregation**.







So how to get inside the box?

We have tried to make things as simple as possible, setting up an interventionist approach that follows **the transformation of audio files into streamed experiences**, in the simple way a postman would follow the route of a parcel—from packaging to delivery.



MakeAGIF.com



Some examples of interventions ...





SINGLE

Frukost

By Fru Kost - 2014 - 2 songs, 2 min 14 sec



\backslash
7 /

#		SONG	Ō	16
1	+	Avplock	0:58	
2	+	Kaffe	1:16	H 11111

© 2014 Fru Kost © 2014 Fru Kost







Hi there,

Thanks for the form, I'm afraid this isn't the kind of content we're looking to sign up currently. Sorry about that. We wish you all the best.

Cheers,

Client Services Manager

Awal Digital Limited Registered in England & Wales Company Registration: 4430703 VAT Registration: GB774150334 Registered Office: 4 Valentine Place, London, SE1 8QH

www.awal.com



Från: Sroutenote.com Ärnne: FRUKOST Disapproved Detum: 20 oktober 2014 19:02 Till: strokultarv@gmail.com

Hi FruKost,

We're sorry, your release FRUKOST has had to be disapproved by RouteNote for the following reason(s):

RouteNote only distributes music content, we cannot distribute silent tracks etc.

This release has been cancelled and will need to be re-uploaded after the specified changes have been made

If you have any problems regarding this album please do not hesitate to contact our team at support@routenote.com. Make sure you include your username and UPC of the release you are inquiring about

Many warm regards,

The RouteNote Team

🕨 radio airplay

Sign up now and receive 10 free plays every week and even more as you gain popularity

Sign Up, It's Free!

Log In I English

Promote your music and get new fans



Guaranteed Airplay on Internet Radio

Get played to millions of listeners who like your style of music

You can even pick the popular artist you want to be featured with. Choose from Jay-Z to Coldplay to Lady Gaga and thousands of others.

» Next How Airplay Works

Guaranteed Airplay

How Airplay Works

Reports and Data

Listener Targeting

PopScore

Airplay Plus

Spotify & Digital Methods

Our explorations with uploading sounds and/or music, have resulted in different responses. The same music pass some aggregators—while others define it **not to be music content at all**.

When **rejection criteria** at music aggregators turn more or less arbitrary—depending on whether users pay a fee or not—the line between music and non-music, artist and machine becomes **increasingly blurred**. Principles as to what is considered music, in short, vary.





TARGETING

Reach your audience based on: What They're Listening To Who They Are When & How They're Listening



Use content targeting to reach users with particular habits,











CASE #8 Handtailored advertisement

Experiment manager: Patrick

Question/problem description:

- I. Set up of an handtailored Spotify user.
- II. Aggregate/multiply this hand tailored user
- III. Record advertisement sounds (that will later be used in the Spotify will eat itself – experiment)

C. Recording advertisement

To which extent does advertisements function as spam on Spotify? What does advertisements look like in different countries?

What does advertisement discourses around Spotify look like, and how does these advertisement ideals play out in the Spotify client?





... Mary Jane has already made more than 50 friends, and somewhat ironically, given her deliberately clichéd WASP millenial mom ,hey, I am fake' identity, all of them are super shady ...







	Home	About	Contac
--	------	-------	--------

Help •

Spotifiee Free OS X App For Muting Spotify Ads

Download Spotifree 🕰

PayPal Donate

HOME ABOUT CONTACT FAQ PREMIUM

SONG Blocker

DOWNLOAD NOW

ADS FOR EVERYONE

Songblocker is a Microsoft plug-in that gives you seamless access to all the ads you love.

IT'S EASY

Don't know what you want to listen to? Just relax and hit play.

DISCOVER

Enjoy new ads every day, minute by minute.

Spotify & Digital Methods



Another investigation/intervention has dealt with so called '**zombie music**'—i.e music (or sounds) that are available at Spotify, but that **never gets played**. I have personally been interested in the fact that one-fifth of Spotify's catalogue of some 30 million songs haven't once been listened to at all.

Q Weight Loss Hypnesis

Visar resultat för Weight Loss Hypnosis. HUVUDMENY 큥 Start Aktivitet <u>کو</u>لا ALBUM ARTISTER VISA ALLA SPELLISTOR Radio ((•)) Calded Self-Sygner Weight loss NaturalHyprosis veicht los Subliminal Hyprosis LOSE VEIGH DIN MUSIK Weight Loss Hypnosis Album LOSS Steve G. Jane Låtar O 441' WTW GULER 1814-471W0515 WEIGET LOIS INTNOSIS Weight Loss 0 Album Weight Loss-Weight Loss Weight Loss Weight Loss Weight Loss Weight Loss Subliminal Weight Loss Help with... Hypnosis,... Hypnosis Hypnosis Weight Loss- H... Hypnosis Now Hypnosis -... Artister Anna Thompson Personal Hypn... Steve G. Jones Natural Hypnosis Global Hypnosis Stationer $((\bullet))$ LÅT Ö ALBUM ٦ì. Lokala filer ARTIST ΙÉ Personal Hypnosis Progra... Self Hypnosis - Weight Loss +Weight Loss - Self Hypnosis 18:31 mmmm SPELLISTOR Affirmations For Weight Loss Weight Loss Hypnosis, Ap... 5:22 Anna Thompson Discover Weekly av S... Л Sommarhits 2016 ev S... Л +Weight Loss Hypnosis Personal Hypnosis Progra... Weight Loss Hypnosis 16:24 Life is good av Spotify Л Weight Loss Hypnosis Weight Loss Hypnosis +Natural Hypnosis 41:01 Sommar-Chill av Spotify Л Weight Loss - Guided Self-Hypnosis Weight Loss - Guided Self-... 13:53 Hypnosis Audio Center Numbers л Favoriter л Weight Loss Recording Weight Loss- Help with Hy... 1:02:16 +Weight Loss LEA л Weight Loss - Relaxer Personal Hypnosis Progra... Weight Loss Hypnosis 17:19 000000 +Play it forward Л Steve G. Jones Weight Loss Hypnosis Weight Loss Hypnosis 39:23 +July Flame Л Weight Loss Hypnosis Martina McKeough Weight Loss Hypnosis 30:01 Gillat från Radio Л Dreamy Eyes л Hypnosis - Weight Loss Hypnosis - Weight Loss Nicole Kangas 29:57



(FORGOTIFY





Forget Me Not.

Millions of songs on Spotify have been forgotten. Let's give them new life in new ears – yours.

Start Listening

Spotify & Digital Methods

Under the computational hood of streaming services all streams are equal, and **every stream means (potentially) increased revenue from advertisers**. Spotify (freemium) is hence likely to include—rather than reject—various forms of (semi-)automated music and sounds.
Spotify & Digital Methods

The issue is also related to controversies regarding the transition to streaming music platforms and **payouts to artists**. The sometimes heated discussion has, in short, been centered around the topic **if streaming music will be able to generate a sustainable income for musicians** —or not.

ETERNIF

Stream It Like You Mean It.

Music streaming's virtually worthless for artists. But we can change that.

Stream your favorite artist forever.



TECHNOLOGY

Eternify Claims To Trick Spotify Into Paying Artists More Through 30-Second Loops

Ľ2

By Saira Mueller 🔰 @ Saira Mueller 🕿 s.mueller @ ibtimes.com on June 23 2015 9:28 AM EDT





Taylor Swift stood up to Apple Music over royalty payments, but one photographer says her concert-photo policy limits the income of photographers. Renters



https://www.youtube.com/watch?v=KXvncV79LXk

Motern Media: About Motern Media

Section One of the section of the se

Matt Farley started Motern Media so he could release the music and movies he made with his friends. He makes a movie with Charles Roxburgh and Tom Scalzo every few years. (See the list of their movies below.) Farley and Scalzo have been part of a prolific songwriting duo called Moes Haven since 1996. They have 25 albums.

In 2008, Farley started writing songs about every topic imaginable. If someone might search for it, Farley will have a song about it. As of 2015, he has released more than 18,000 songs. He changes his name to correspond with the theme of the album. So, The Hungry Food Band does songs about food; Papa Razzi and the Photogs sing about celebrities; The Singing Animal Lover sings about animals; The Guy Who Sings Your Name Over and Over sings people's first names over and over; and so on. Below are all the names Farley uses to release music!

bout Mötern Media	
Movies	
Store	



Home

Press

TLWN

Guestbook

Contact





Moes Haven



Matt Farley – 18,000 songs under 60 different artist names.



ALBUM

Songs About Great Literary Giants (And Other Very Important People)

Av Papa Razzi and the Photogs - 2010 - 36 spår, 1 tim



#		LÅT	Ō	·•
1	+	Adam McCune is a Great Journalist!	1:51	
2	+	Melissa Theuriau, I Love You!	1:15	
з	+	Brooke Burke, I Love Your Work	1:18	
4	+	Ryan Gosling, You are a Great Singer and Actor. Will You Be My Friend?	2:19	
5	+	Lea Michele, I Have a Little Crush on You	1:48	
6	+	A Musical Tribute to Fyodor Dostoevsky	1:07	
7	+	A Song About My Favorite Hermann Hesse Novels	2:36	
8	+	Len Goodman, You are a Good Man.	1:42	
9	+	Samuel Johnson, What Did You Really Think of Boswell?	1:59	
10	+	I Like Franz Kafka	2:00	

10. More music is better music

Pelle Snickars

INTRODUCTION

In March 2014 the funk band Vulfpeck released the conceptual album, 'Sleepify', containing five minutes and 16 seconds of pure silence. The purpose was to crowdfund an upcoming world tour, and songs were specifically prompted to be available on the Swedish music streaming service Spotify – hence the title of the album. In a video posted at the same time on YouTube, band leader Jack Stratton stated that when he sat down with his band to talk about potential touring during the fall of 2014, 'they said that they would do it under one condition: that all the shows would be free.' Jokingly, he replied: 'That's not a problem – Yeah!'

In the video Stratton went on to explain 'how it works': Vulfpeck releases 'Sleepify' on Spotify, an album that 'is different from our previous albums. This album is much quieter. In fact, we believed it is the most silent album ever recorded.' Essentially, what Stratton was asking fans to do was to stream the silent album on repeat while sleeping -'make your sleep productive' - all in order to exponentially multiply royalties from Spotify. Since the latter are only disbursed once a song is registered as a play, which happens after 30 seconds, all songs on 'Sleepify' - ingeniously given the titles, 'Z' to 'Zzzzzzzzz' - were 31 or 32 seconds long. According to Stratton's announcement in the video, 800 streams would roughly generate four dollars in royalties to the band. 'If you stream "Sleepify" on repeat while you sleep every night, we will be able to tour without charging admission,' he concluded, all the while vividly exclaiming that if someone was unaware of what Spotify is - it's a service that's 'gonna through in the entire history of recorded music' (Sleepify 2014).

Vulfpeck's silent prank is illustrative of the fundamental changes the recording and music industry has gone through during the last 15 years. When music and listening behaviors are treated as discrete (and even silent) data in binary form, content literally starts to lose its meaning – at

Edited by PATRIK WIKSTRÖM ROBERT DEFILLIPPI



Business Innovation and Disruption in the Music Industry





Bots as Informants



The most **important research strategy** within our project, however, has been to use bots as a kind of virtual users that collect data for us.

A bot is a small **software application** that runs automated tasks (or scripts), and within interventions at Humlab we have repeatedly used **massive set-ups of bots**, sometimes working with up to 500 virtual listeners.

By employing bots—posing as users—we have been able to **systematically engage** with 'the Spotify system', running different kinds of dummy data through repeated interactions.



AbbaBot

AbbaBot

At Humlab we set up an experiment with the purpose to determine if it was possible to **provoke**—or even to some extent **undermine**—the **Spotify business model** (based on what is sometimes called, the 30 second royalty rule). Royalties from Spotify are disbursed once a song is registered as a play, which happens after 30 seconds.



The AbbaBots were used to play a single track, "**Dancing Queen**", during less and more than 30 seconds, and with a fixed repetition scheme running from 10 to *n* times, simultaneously with different bot accounts.

AbbaBot

Essentially, the experiment resembled a **Turing test**, where we asked ourselves what happens when—not if—**streaming bots approximate human listener behavior** in such a way that it becomes impossible to distinguish between a human and a machine.









<u>Figure 1</u>. Selenium_bot37 repeatedly plays ABBA's "Dancing Queen" for 35 seconds—with recurrent browser errors.



Tracking Gendered Streams

In another experiment we investigated **patterns in music recommendations**, focusing specifically on issues around **gender**. The purpose was, in short, to explore whether the Spotify music recommendation algorithms are (or aren't) **performative of gendered user identities** and taste constellations.

All bots were identical, except that half of them were 'male' and the other half 'female'. One results was that Spotify's music recommendations were heavily geared towards recommending music by male artists during the experiment.

Table 3.

Average percentage of recommendations for male artists, female artists, or bands with both males and females within each genre (irrespective of bot gender).



Tracking Gendered Streams

We also found that male bots in the rock and rnb/hiphop genres received a greater variation in their music recommendations as compared to the female bots.

The **female Gospel bots**, however, received a larger amount of unique recommendations as compared to the males.

Rnb/Hiphop





Dance/ electronic





Spotify Radio Looping

In yet another experiment we wanted to explore the possible limitations and restrains found within 'infinite archives' of music streaming services. Our hypothesis was that many streaming services' radio functions (like Spotify) appear to consist of an infinite series of songs. Spotify Radio claims to be personalised and never-ending, yet music seems to be delivered in limited loop patterns. What would such loop patterns look like? Are Spotify Radio's music loops finite—or endless (given that algorithm(s) can choose between more than 30 million songs)? How many tracks (or steps) does a 'normal' loop consist of?



Chart 1. Amounts of songs played by 40 Jane Lead bots that started a radio channel based on Abba's "Dancing Queen"—ranging from 185 to 249 tracks.





Chart 4. Amount of repetitions of Abba's "Dancing Queen" within playlists of 'obedient bot listeners'—that started a radio channel based on the same track.



Spotify Radio Looping

One conclusion to draw from our experiments with Spotify Radio is that **similar artists reappear frequently** within all bot playlists. It seems that music recommendation algorithms does **not really takes advantage of the archival infinity at Spotify**. In short, fans of Belinda Carlisle will be pleased, since a radio station based on "Dancing Queen" will repeatedly play her songs, basically no matter what kinds of interactions are executed.

Streaming Heritage

Following Files In Digital Music Distribution

Home

The blog About the project Participants Programmers Specific projects Publications Contact

http://streamingheritage.se

Culture Unbound: Journal of Current Cultural Research

Thematic Section on Spotify & Digital Methods

Articles (4,000-5,000 words)

"Introducing & Localizing Spotify" Rasma Fleischer, Pelle Snickars & Patrick Vonderau

"Streaming Gender" Maria Eriksson & Anna Johansson

"Radio Looping" Meria Eriksson, Rasmus Fleischer & Pelle Snickers

"The Music Commodity Reconsidered" Rasmus Fleischer

Interventions (1,000 words)

"#backaspotify" Rasmus Fleischer & Christopher Kulleberg

"Song Blocker Set Up" Roger Mähler & Johan von Boer

"What ever happened to Mary Jane" Patrick Vonderau

Spotify Teardown. Inside the Black Box of Streaming Music

The MIT Press



www.pellesnickars.se