

Spotify-ed

Music recommendation and discovery in Spotify

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Matthew Davies *mdavies@inescporto.pt*



Music Recommendation and Discovery

Music Recommendation and Discovery

music services

last.fm

google play

if you dig

iTunes

pandora

spotify

grooveshark

8tracks

awdio

tastekid

thesixtyone

plugdj

slackster

stereogum

gigfi

pitchfork

myspace

rdio

jango

hypem

soundcloud

Music Recommendation and Discovery

recommendations

Spotify: related artists

The screenshot shows a Spotify artist profile for "Machinae Supremacy". At the top, there's a circular profile picture of four men. Below it, the text "ARTIST · VIEW PROFILE" and the artist name "Machinae Supremacy". To the right of the name are three buttons: "PLAY" (with a play icon), "FOLLOWING" (with a checkmark icon), and a three-dot menu icon. Below these are tabs for "OVERVIEW" (which is underlined in green), "RELATED ARTISTS", and "BIOGRAPHY".

POPULAR

	1	✓	Edge and Pearl	1,835,198
	2	✓	Indiscriminate Murder is Counter-Productive	838,074
	3	✓	All Of My Angels	465,841
	4	✓	A View From The End Of The World	766,213
	5	✓	Laser Speed Force	386,029

RELATED ARTISTS

	In Flames
	Killswitch Enga...
	All That Remains
	Scar Symmetry

Music Recommendation and Discovery

recommendations

Last.fm: similar artists

androp

Tracks Albums Pictures Videos Events Biography More...

On tour



Is androp misspelt? Suggest a correction

Similar Artists



RAMA Relational Artist MAps

RAMA Relational Artist MAs

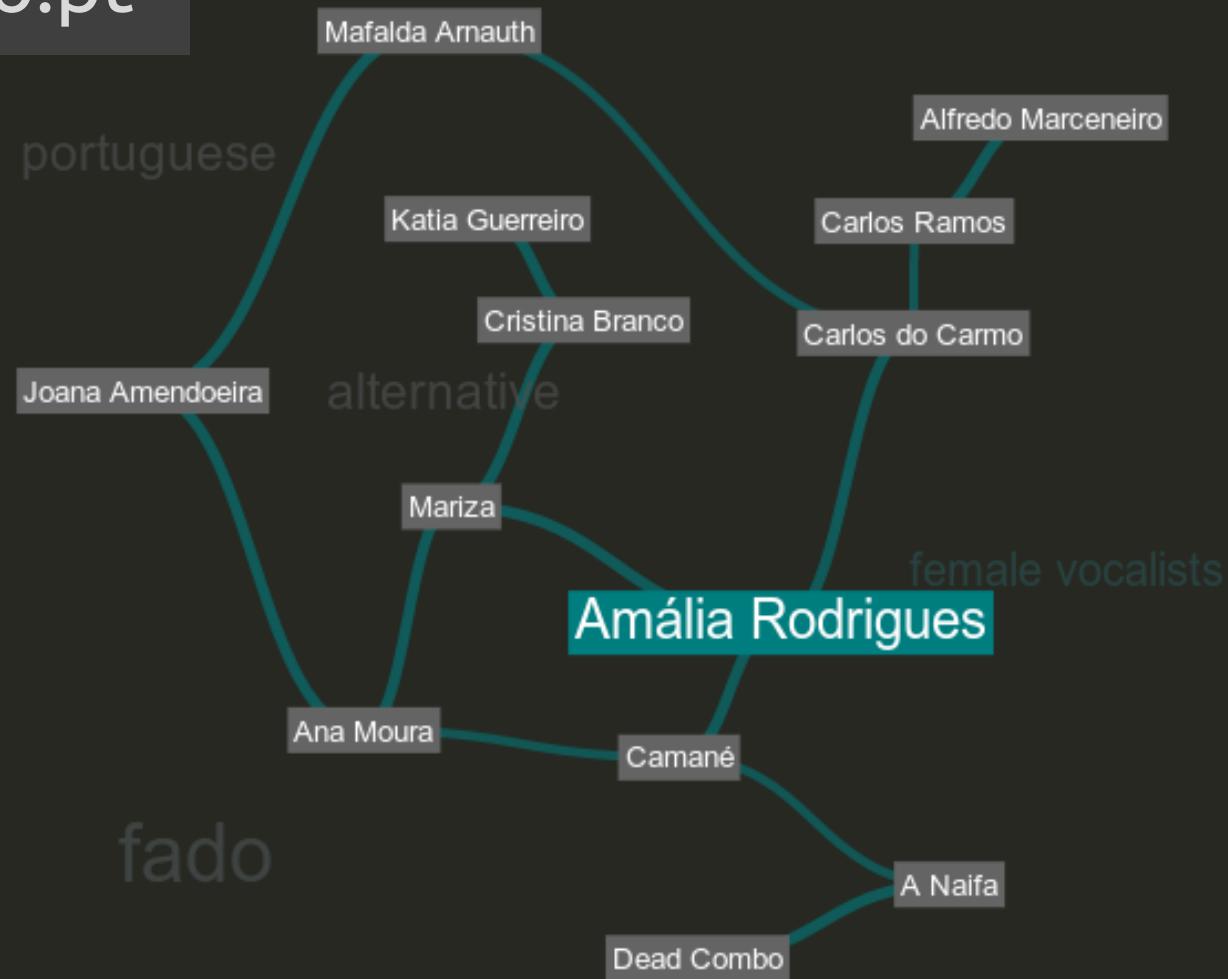
What is RAMA?

rama.inescporto.pt

RAMA Relational Artist MAs

What is RAMA?

rama.inescporto.pt



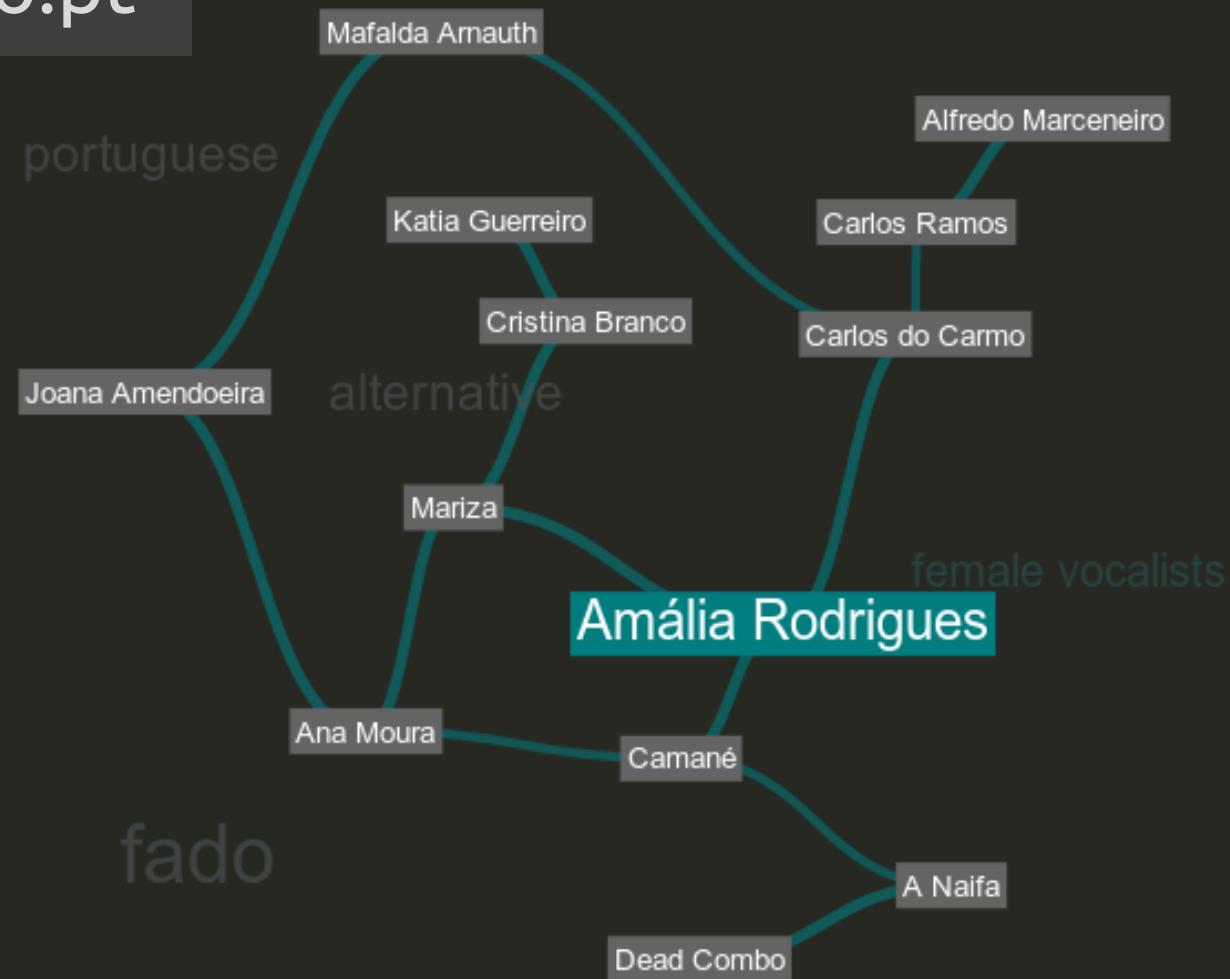
RAMA Relational Artist MAs

What is RAMA?

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music metadata from

last.fm



RAMA Relational Artist MAs

What is RAMA?

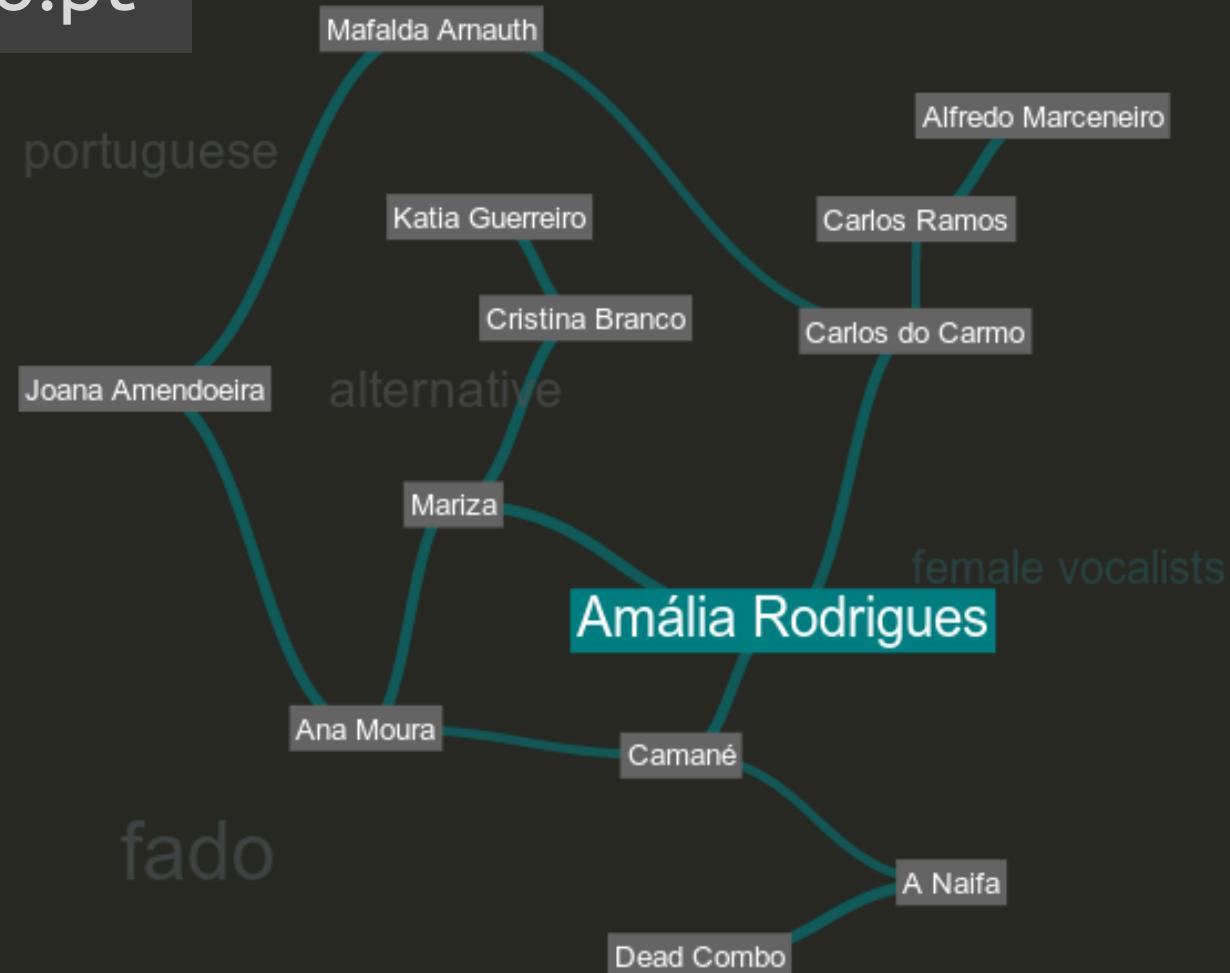
rama.inescporto.pt

music metadata from

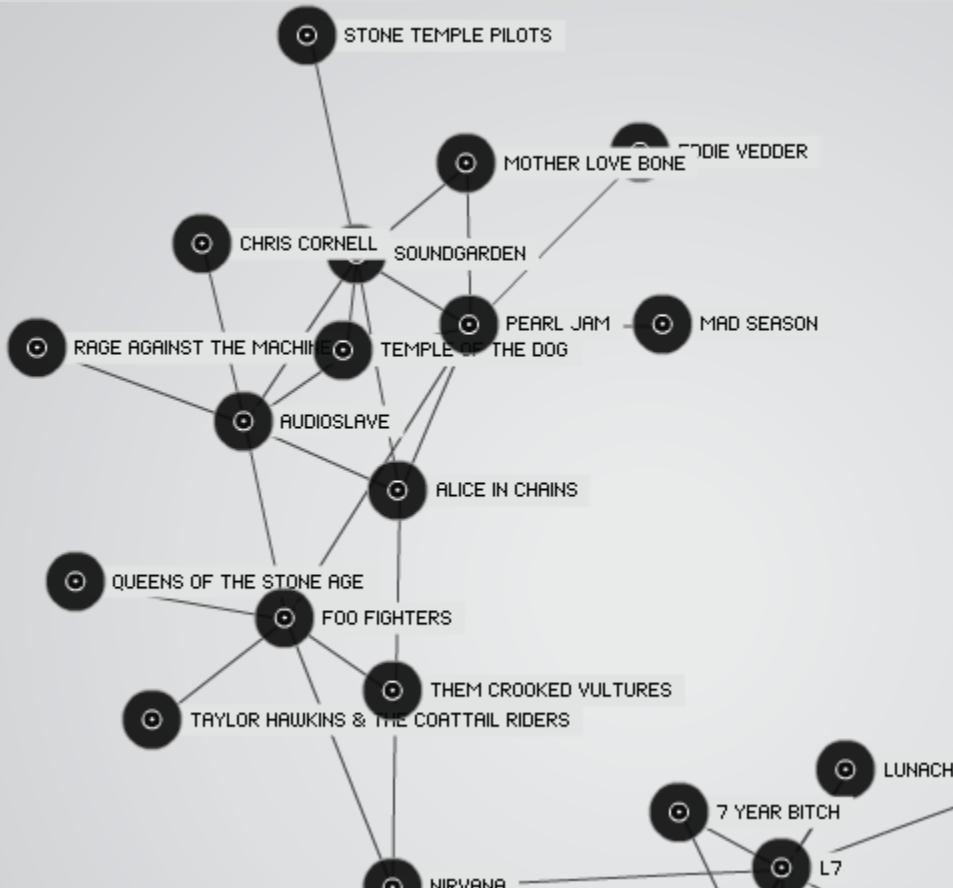
last.fm

music stream from

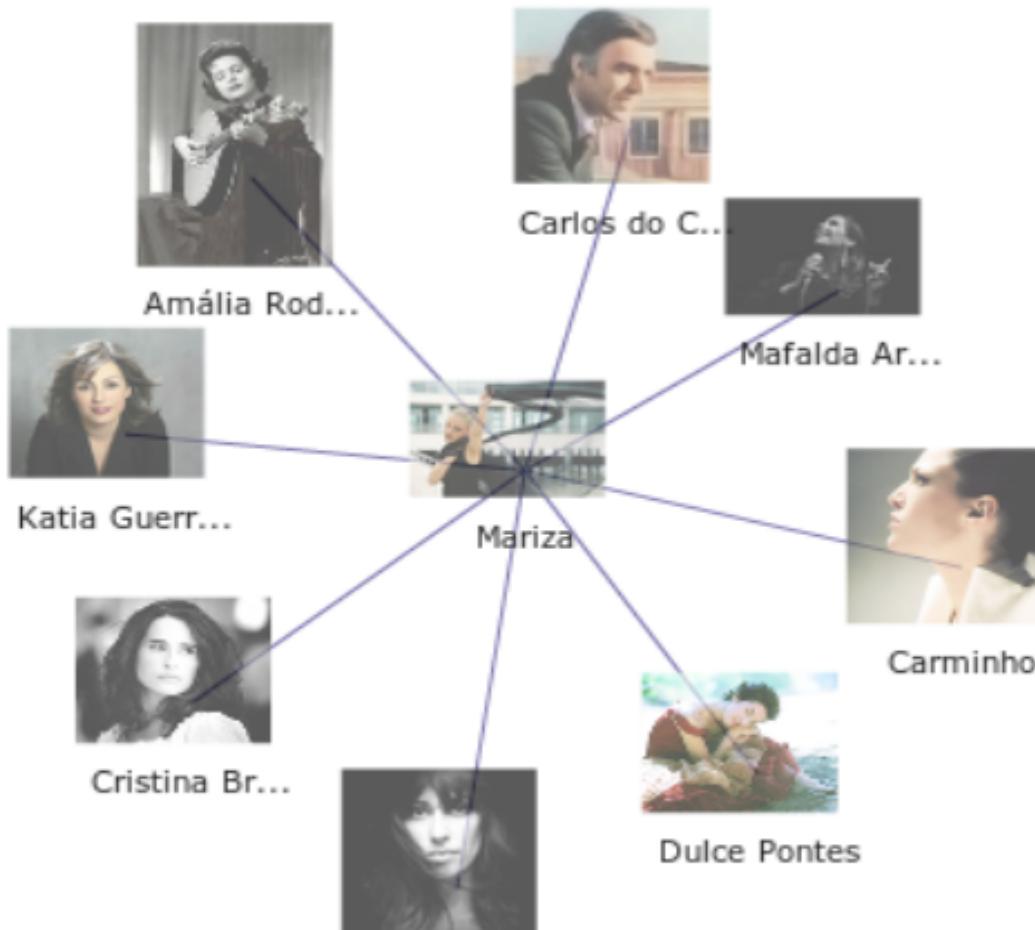
YouTube



audiomap.tuneglue.net

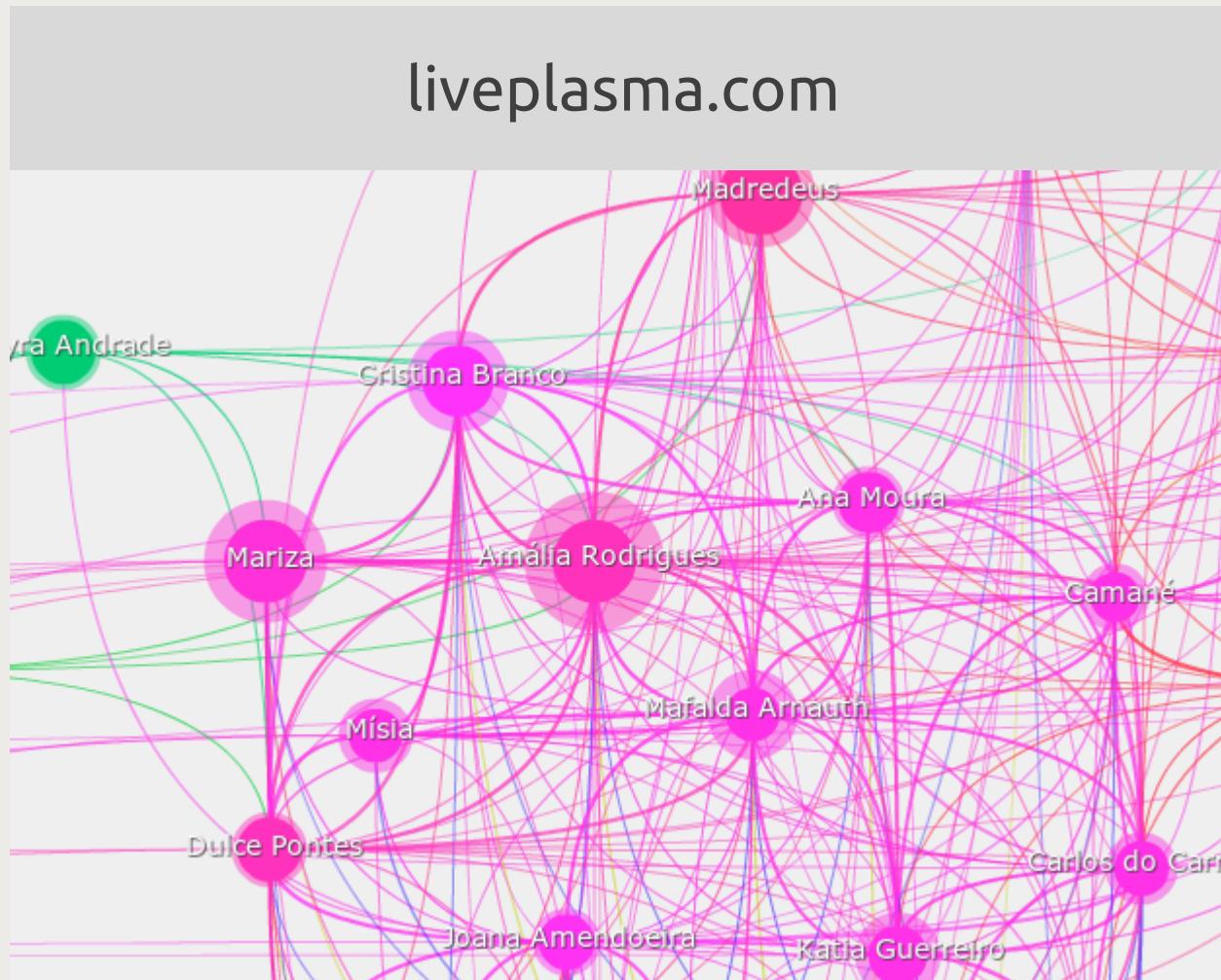


musicroamer.com



RAMA Relational Artist MAs

State of the art



music stream from



music stream from

Problems?



RAMA Relational Artist MMaps

where it falls short

music stream from

Problems?



user-managed content

music stream from



Problems?

user-managed content

video's sound quality is not
adequate

music stream from



Problems?

user-managed content

video's sound quality is not
adequate

no music specific metadata

music stream from



Problems?

user-managed content

video's sound quality is not
adequate

no music specific metadata

Youtube is not a music streaming service

Spotify

Spotify

a real music streaming service

music streaming service

Spotify

a real music streaming service

music streaming service

metadata and digital content managed by Spotify

Spotify

a real music streaming service

music streaming service

metadata and digital content managed by Spotify

just hit play and you're ready to rock

Spotify

a real music streaming service

music streaming service

metadata and digital content managed by Spotify

just hit play and you're ready to rock

Spotify has browse/discovery mode and related artists

Spotify

why Spotify?

Spotify

Search

Upgrade Zé Batela

MAIN

- Browse
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- musiXmatch

YOUR MUSIC

- Songs
- Albums
- Artists
- Local Files

+ New Playlist

★ Starred

♫ Most played albums - L...

iTunes

Heightmap Darren Korb +

0:47 4:23

Discover

You listened to Gajin Games and Chipzel. Here's an album you might like.

Super Entertainment System
Entertainment System

Have you heard Monaco: The Gentleman's Private Collection by Austin Wintory? Give it a try.

Monaco: The Gentleman's Private Collection
Austin Wintory

You listened to Sum 41. Check out Goldfinger.

The Best of Goldfinger
Goldfinger

Recommended for you. Professor Shyguy.

Professor Shyguy
164 FOLLOWERS

Recommended for you. Leeni.

Leeni

If you like Ari Pulkkinen, we recommend Nobuo Uematsu.

2008: A New Digital Music Experience
Nobuo Uematsu

You listened to Anamanaguchi and Dubmood. Check out she.

she.
Anamanaguchi and Dubmood

Recommended for you. ヒゲドライバー Hige Driver.

Hige Driver
ヒゲドライバー

Heightmap Darren Korb +

0:47 4:23

Spotify

why Spotify?

Spotify

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The Gentleman's Private Collection
MONACO - Austin Wintory
Presented by
Clive Gallo
Laura Matuska
Makoto Kaneko
Peter Hollens
Tina Gao
Tomokazu Matsuyuki
Videt Strano
Zachary Young
Jesús Williams Rago

You listened to Sum 41. Check out Goldfinger.

The Best of Goldfinger
Goldfinger
Parental ADVISORY EXPLICIT LYRICS
Presented by
Clive Gallo
Laura Matuska
Makoto Kaneko
Peter Hollens
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Tomokazu Matsuyuki
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Superman

Goldfinger

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Professor Shyguy
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Ari Pulkkinen and Nobuo Uematsu

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she
Anamanaguchi and Dubmood

Recommended for you. ヒゲドライバー Hige Driver.

Hige Driver
ヒゲドライバー

2008 A new digital music experience

2008
A new digital music experience
Various Artists
MP3 DOWNLOAD
VINTAGE MP3 CLASSICS
Included in the original MP3 file
in hi-fi stereo 44.1kHz
Selected artists from the 2008 series
CALIGARI FX.com

THIGGEUS Instrumental Edition

THIGGEUS
Instrumental Edition
Various Artists

0:47 4:23

Spotify

Spotify Apps

Spotify

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+ New Playlist

Starred

Most played albums - L...

iTunes

Heightmap Darren Korb +

Spotify

TOP APPS

DISCOVERY ▾

	3. Last.fm Personalised recommendations based on the music you play Discovery		5. Lazify Tired of creating playlists? Lazify, the app for the lazy. Discovery
	7. Playlists.net Over 150,000 quality playlists, charts, reviews & more. Discovery		10. Digster Fresh playlists by your favourite artists, for any occasion. Discovery
	13. Classify Easy Access to the World of Classical Music. Discovery		14. Music of the World Easy Access to the Music of the World. Discovery
	15. Bluesify Easy Access to the World of Blues. Discovery		17. Hard & Heavy Easy Access to the World of Rock Music. Discovery
	18. Find My Festival Follow to discover festival line-ups as they are announced Discovery		19. Twitter Music Discover the hottest new music on Twitter right now. Discovery
	20. Jazzify Easy Access to the World of Jazz Music. Discovery		21. Hype Machine Discover new music curated by music bloggers. Discovery

0:47 4:23

Spotify

Spotify Apps

The screenshot shows the Spotify desktop application interface. On the left, there's a sidebar with various menu items like 'Browse', 'Activity', 'Discover', and 'App Finder'. The 'App Finder' item is highlighted with a yellow bar at the top. The main area is titled 'TOP APPS' and lists several apps:

- 3. Last.fm: Personalised recommendations based on the music you play. Category: Discovery.
- 7. Playlists.net: Over 150,000 quality playlists, charts, reviews & more. Category: Discovery.
- 13. Classify: Easy Access to the World of Classical Music. Category: Discovery.
- 15. Bluesify: Easy Access to the World of Blues. Category: Discovery.
- 18. Find My Festival: Follow to discover festival line-ups as they are announced. Category: Discovery.
- 20. Jazzify: Easy Access to the World of Jazz Music. Category: Discovery.

At the bottom of the screen, there's a track player showing 'Heightmap' by Darren Korb, currently at 0:47.

App Finder: built-in app store
(all apps are free)

most are of the “Discovery” category

app runs inside spotify desktop client

web development (html, css, javascript)

Spotify

Spotify Apps

Spotify

Search Upgrade Bell Zé Bateira

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+ New Playlist

Starred

Most played albums - L...

iTunes

Heightmap Darren Korb +

Spotify

TOP APPS

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0:47 4:23

Spotify

Spotify Apps

Spotify

Search

Upgrade Zé Batela

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+ New Playlist

- Starred
- Most played albums - L...
- iTunes

Heightmap Darren Korb +

Spotify

Overview Now Playing Recommended Albums

last.fm

carsy — 38,124 scrobbles
[Open profile on Last.fm](#)

Recommended for you

Glitch Pop Monodeer
Similar to anOva and kanagawa

Rise of the Obsidian Interstellar Disasterpeace
You've scrobbled Disasterpeace, but not this release

Super Eurobit And The Seventh Enochian Key Rainbowdragoneyes
You've scrobbled Rainbowdragoneyes, but not this release

Dot Matrix Melodiator USK
Similar to Anamanaguchi and Random

Good Luck Robot Science
Similar to Gaijin Games and Lifeformed

Palm Trance Henry Homesweet
Similar to Anamanaguchi and Bit Shifter

More recommended albums

Albums played in the last 3 months

Runner2: Future Legend of Rhythm Alien (The Original Soundtrack)
Circuithead Kubbi 59 scrobbles

Get Born Jet
C418 40 scrobbles

Minecraft - Volume Alpha
C418 42 scrobbles

2012 Singles Kubbi
Anamanaguchi 52 scrobbles

Airbrushed Anamanaguchi
Anamanaguchi 52 scrobbles

More albums

0:47 4:23

Spotify

Spotify Apps

Spotify

Search

Upgrade Zé Batela

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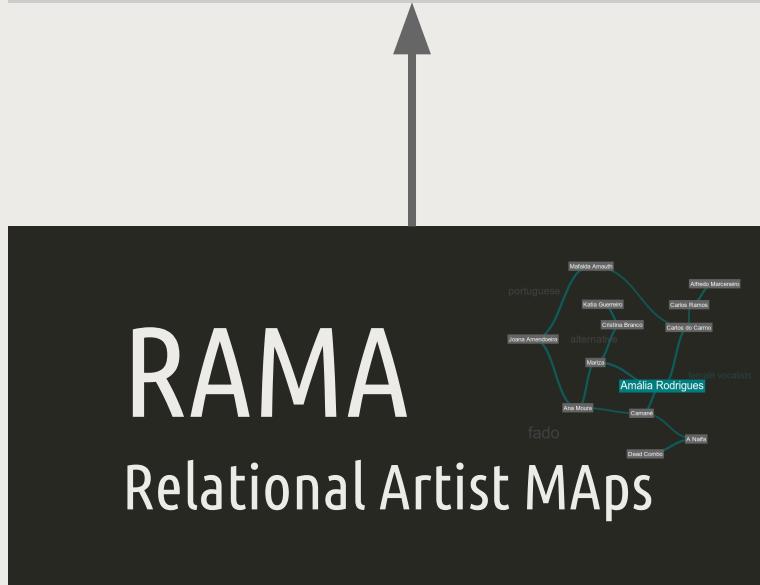
2012 Singles Kubbi
Airbrushed Anamanaguchi 52 scrobbles

[More albums](#)

0:47 4:23

Spotify

Solution



Spotify-ed

RAMA's Spotify App

Spotify-ed RAMA's Spotify App

proposal

Connect Spotify and RAMA



Through a Spotify App

Spotify-ed RAMA's Spotify App

without rama

Spotify

Upgrade Zé Batela

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+ New Playlist

Starred

Most played albums - L...

iTunes

Traces Darren Korb +

Search

DARREN KORB

ARTIST

Darren Korb

PLAY FOLLOW ...

FOLLOWERS 15,102

OVERVIEW RELATED ARTISTS

LATEST RELEASE

Transistor Original Soundtrack 2014

POPULAR

Rank	Song	Artist	Streams
1	Old Friends	+	154,018
2	Build That Wall (Zia's Theme)	✓	1,014,105
3	We All Become (feat. Ashley Barrett)	+	95,780
4	Setting Sail, Coming Home (End Theme)	✓	759,838
5	The Spine (feat. Ashley Barrett)	+	71,193

SHOW 5 MORE

ALBUMS

Spotify

2:03

Spotify-ed RAMA's Spotify App

with rama

Spotify

rama.inescporto.pt

Upgrade Zé Bateira

MAIN

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- musiXmatch
- RAMA**

YOUR MUSIC

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+ New Playlist

★ Starred

🎵 Most played albums - L..

iTunes

Spotify

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RAMA

POWERED BY echonest

ambient classical contemporary classical music easy listening electronic experimental indie

instrumental modern classical pop rock soundtrack

Devin Taylor

Jonathan Coulton

Nobuo Uematsu

Video Games Live

Play Orchestra

Anamanaguchi

Aperture Science Psychoacoustic Laboratories

Jim Guthrie

Darren Korb

Brian Tyler

Henry Jackman

Clint Mansell

Max Richter

Ólafur Arnalds

Neil Davidge

Martin O'Donnell

Jeremy Soule

Stephen Rippy

leave feedback!

Traces

Darren Korb

More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

0:54 2:03

Spotify-ed RAMA's Spotify App

prototype

Spotify

Search

Upgrade Zé Batela

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rama.inescporto.pt

Spotify

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Traces Darren Korb

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Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

0:54 2:03

```
graph TD; DarrenKorb[Darren Korb] --- Anamanaguchi[Anamanaguchi]; DarrenKorb --- NobuoUematsu[Nobuo Uematsu]; DarrenKorb --- ClintMansell[Clint Mansell]; DarrenKorb --- NeilDavidge[Neil Davidge]; DarrenKorb --- MartinODonnell[Martin O'Donnell]; DarrenKorb --- JeremySoule[Jeremy Soule]; DarrenKorb --- StephenRippy[Stephen Rippy]; DarrenKorb --- MaxRichter[Max Richter]; DarrenKorb --- OlafurArnalds[Ólafur Arnalds]; DarrenKorb --- BrianTyler[Brian Tyler]; DarrenKorb --- HenryJackman[Henry Jackman]; DarrenKorb --- JonathanCoulton[Jonathan Coulton]; DarrenKorb --- DevinTaylor[Devin Taylor]; DarrenKorb --- VideoGamesLive[Video Games Live]; DarrenKorb --- PlayOrchestra[Play Orchestra]; DarrenKorb --- ApertureScience[Aperture Science Psychoacoustic Laboratories]; DarrenKorb --- JimGuthrie[Jim Guthrie];
```

Spotify-ed RAMA's Spotify App

artist menu

Spotify

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Upgrade Zé Bateira

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+ New Playlist

★ Starred

🎵 Most played albums - L...

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iTunes

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0:54 2:03

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AMBASSADOR

Spotify

RAMA

POWERED BY echonest

Devin Taylor

Jonathan Coulton

Nobuo Uematsu

Play Orchestra

Video Games Live

Anamanaguchi

Darren Korb

Jim Guthrie

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rama.inescporto.pt

Spotify

AMBIENT CLASSICAL CONTEMPORARY CLASSICAL MUSIC EASY LISTENING ELECTRONIC EXPERIMENTAL INDIE

INSTRUMENTAL MODERN CLASSICAL POP ROCK SOUNDTRACK

RAMA

POWERED BY echonest

Darren Korb

Popularity: 31/100

Tags: instrumental, rock, soundtrack, trip hop

Albums:

Jonathan Coulton

Anamanaguchi

Jim Guthrie

Devon Taylor

Nobuo Uematsu

Video Games Live

Play Orchestra

Brian Tyler

Henry Jackman

Clint Mansell

Max Richter

Ólafur Arnalds

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Aperture Science Psychoacoustic Laboratories

Darren Korb

Leave feedback!

Traces Darren Korb

More popular tracks by Darren Korb

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+ New Playlist

★ Starred

🎵 Most played albums - L...

iTunes

Popularity: 40/100
Years active: 2000 – 2009
Tags:
folk rock
geek rock **indie**
pop

Albums:

expand

new map

leave feedback!

Gold Leaf
Darren Korb

More popular tracks by Darren Korb

- Old Friends
- Build That Wall (Zia's Theme)
- We All Become (feat. Ashley Barrett)
- Setting Sail, Coming Home (End Theme)
- The Spine (feat. Ashley Barrett)
- In Case of Trouble

0:45 2:43

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+ New Playlist

★ Starred

Most played albums - L...

iTunes

Search

ambient classical contemporary classical music easy listening electronic experimental indie
instrumental modern classical pop rock soundtrack

Jonathan Coulton

Popularity: 40/100
Years active: 2000 – 2009
Tags: folk rock, geek rock, indie, pop

Albums:

Anamanaguchi

Aperture Science Psychoacoustic Laboratories

Jim Guthrie

Devon Taylor

Nobuo Uematsu

Play Orchestra

Video Games Live

Darren Korb

Brian Tyler

Clint Mansell

Henry Jackman

Neil Davidge

Martin O'Donnell

Max Richter

Ólafur Arnalds

Jeremy Soule

Stephen Rippy

expand

new map

leave feedback!

Gold Leaf Darren Korb

More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

0:45 2:43

The screenshot shows the Spotify desktop application interface. On the left, there's a sidebar with various navigation options like 'Browse', 'Discover', and 'Artist' menus. The main area features a search bar at the top with the URL 'rama.inescporto.pt'. Below it, a large artist profile for 'Jonathan Coulton' is displayed, including his photo, popularity score (40/100), years active (2000–2009), and tags (folk rock, geek rock, indie, pop). A section for 'Albums' shows four thumbnail images. To the right of the profile is a complex network graph where 'Jonathan Coulton' is the central node. Other nodes include 'Anamanaguchi', 'Aperture Science Psychoacoustic Laboratories', 'Jim Guthrie', 'Darren Korb', 'Nobuo Uematsu', 'Play Orchestra', 'Video Games Live', 'Brian Tyler', 'Clint Mansell', 'Henry Jackman', 'Neil Davidge', 'Martin O'Donnell', 'Max Richter', 'Ólafur Arnalds', 'Jeremy Soule', and 'Stephen Rippy'. Lines connect Coulton to Anamanaguchi, Jim Guthrie, Darren Korb, Nobuo Uematsu, and Clint Mansell. Darren Korb is connected to Neil Davidge, Martin O'Donnell, Max Richter, and Stephen Rippy. Clint Mansell is connected to Brian Tyler, Henry Jackman, and Max Richter. Nobuo Uematsu is connected to Play Orchestra and Video Games Live. The bottom of the screen shows a playback bar with track information: 'Gold Leaf' by Darren Korb, and a list of tracks: 'Old Friends', 'Build That Wall (Zia's Theme)', 'We All Become (feat. Ashley Barrett)', 'Setting Sail, Coming Home (End Theme)', 'The Spine (feat. Ashley Barrett)', and 'In Case of Trouble'. The current track is 'Old Friends' at 0:45 of a 2:43 duration.

Spotify-ed RAMA's Spotify App

artist menu

Spotify

rama.inescporto.pt

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🎵 Most played albums - L...

iTunes

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instrumental modern classical pop rock soundtrack

Jonathan Coulton

Devin Taylor

Nobuo Uematsu

Play Orchestra

Video Games Live

Anamanaguchi

Aperture Science Psychoacoustic Laboratories

Jim Guthrie

Darren Korb

Brian Tyler

Clint Mansell

Henry Jackman

Max Richter

Ólafur Arnalds

Neil Davidge

Martin O'Donnell

Jeremy Soule

Stephen Rippy

expand

new map

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Gold Leaf
Darren Korb

More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

0:45 2:43

Spotify-ed RAMA's Spotify App

artist menu

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★ Starred

🎵 Most played albums - L...

iTunes

Popularity: 40/100
Years active: 2000 – 2009
Tags:
folk rock
geek rock **indie**
pop

Albums:

expand

new map

More popular tracks by Darren Korb

- Old Friends
- Build That Wall (Zia's Theme)
- We All Become (feat. Ashley Barrett)
- Setting Sail, Coming Home (End Theme)
- The Spine (feat. Ashley Barrett)
- In Case of Trouble

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Gold Leaf
Darren Korb

0:45 2:43

Spotify-ed RAMA's Spotify App

artist menu

Spotify

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rama.inescporto.pt

Jonathan Coulton

Popularity: 40/100
Years active: 2000 – 2009
Tags: folk rock, geek rock, indie, pop

Albums:

- Flight Of The Conchords
- Miracle Of Sound
- Anamaneguchi
- Aperture Science Psychoacoustic Laboratories
- Darren Korb
- Clint Mansell
- Martin O'Donnell
- Neil Davidge
- Stephen Rippy
- Bo Burnham
- Devin Taylor
- Nobuo Uematsu
- Brian Tyler
- Henry Jackman
- Ólafur Arnalds
- Max Richter

alternative ambient classical contemporary classical music easy listening electronic experimental indie instrumental pop rock soundtrack

Video Games Live

Play! Orchestra

new map

Heightmap Darren Korb

More popular tracks by Darren Korb

- Old Friends
- Build That Wall (Zia's Theme)
- We All Become (feat. Ashley Barrett)
- Setting Sail, Coming Home (End Theme)
- The Spine (feat. Ashley Barrett)
- In Case of Trouble

leave feedback!

0:47 4:23

Spotify-ed RAMA's Spotify App

artist menu

Spotify

rama.inescporto.pt

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YOUR MUSIC

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+ New Playlist

★ Starred

🎵 Most played albums - L...

iTunes

Heightmap Darren Korb

More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

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★ Starred

🎵 Most played albums - L...

iTunes

Heightmap Darren Korb

More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

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Spotify

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★ Starred

🎵 Most played albums - L...

iTunes

Heightmap Darren Korb

More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

0:47 4:23

Spotify-ed RAMA's Spotify App

artist menu

Spotify

Search Upgrade Bell Zé Bateira

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★ Starred

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Heightmap Darren Korb

More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

0:47 4:23

Spotify

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Jonathan Coulton

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Years active: 2000 – 2009
Tags: folk rock, geek rock, indie, pop

Albums:

- Miracle Of Sound
- Flight Of The Conchords
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- Henry Jackman
- Ólafur Arnalds
- Max Richter
- Stephen Rippy
- Martin O'Donnell
- Neil Davidge
- Darren Korb
- Clint Mansell
- Jim Guthrie
- Aperture Science Psychoacoustic Laboratories
- Video Games Live
- Play! Orchestra

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leave feedback!

```
graph TD; JC[Jonathan Coulton] --- BC[Bo Burnham]; JC --- FT[Flight Of The Conchords]; JC --- AN[Anamaneguchi]; JC --- M[Miracle Of Sound]; JC --- D[Devin Taylor]; JC --- NU[Nobuo Uematsu]; JC --- BT[Brian Tyler]; JC --- HJ[Henry Jackman]; JC --- OA[Ólafur Arnalds]; JC --- MR[Max Richter]; JC --- SR[Stephen Rippy]; JC --- MO[Martin O'Donnell]; JC --- ND[Neil Davidge]; JC --- DK[Darren Korb]; JC --- CM[Clint Mansell]; JC --- JG[Jim Guthrie]; JC --- ASPL[Aperture Science Psychoacoustic Laboratories]; JC --- VGL[Video Games Live]; JC --- PO[Play! Orchestra];
```

Spotify-ed RAMA's Spotify App

artist menu

The screenshot shows the Spotify interface with a custom 'RAMA' theme. On the left, the main sidebar includes 'Browse', 'Activity', 'Discover', 'Radio', 'Follow', 'Top Lists', 'Messages', 'Play Queue', 'Devices', 'App Finder', 'Last.fm', 'musiXmatch', and the 'RAMA' section. The 'RAMA' section contains links to 'Songs', 'Albums', 'Artists', 'Local Files', and a 'New Playlist' button. Below these are 'Starred', 'Most played albums - L...', and 'iTunes' links. At the bottom, there are sections for 'Heightmap' (Darren Korb), 'More popular tracks by Darren Korb' (Old Friends, Build That Wall (Zia's Theme), We All Become (feat. Ashley Barrett)), and playback controls.

The central area displays a network graph centered on 'Jonathan Coulton'. Nodes include 'Bo Burnham', 'Flight Of The Conchords', 'Miracle Of Sound', 'Anamaneguchi', 'Aperture Science Psychoacoustic Laboratories', 'Jim Guthrie', and 'Neil Davidge'. The graph shows connections between these entities. Above the graph, a search bar shows 'rama.inescporto.pt' and a list of genres: alternative, ambient, classical, contemporary, experimental, indie, indie rock, metal, pop, rock, and world.

show information from selected node

action buttons: *expand*, *delete* and
new map

metadata from Spotify's DB

tags from Echonest as fallback mode

Spotify-ed RAMA's Spotify App

tags overlay

Spotify

rama.inescporto.pt

Upgrade Zé Bateira

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★ Starred

🎵 Most played albums - L..

iTunes

Heightmap Darren Korb +

More popular tracks by Darren Korb

- Old Friends
- Build That Wall (Zia's Theme)
- We All Become (feat. Ashley Barrett)
- Setting Sail, Coming Home (End Theme)
- The Spine (feat. Ashley Barrett)
- In Case of Trouble

leave feedback!

alternative ambient classical contemporary classical music easy listening electronic experimental indie instrumental pop rock soundtrack

Video Games Live

Play! Orchestra

Brian Tyler

Henry Jackman

Ólafur Arnalds

Max Richter

Stephen Rippy

Martin O'Donnell

Neil Davidge

Darren Korb

Anamaneguchi

Aperture Science Psychoacoustic Laboratories

Jim Guthrie

Jonathan Coulton

Bo Burnham

Flight Of The Conchords

Miracle Of Sound

Nobuo Uematsu

Devin Taylor

Play! Orchestra

Video Games Live

RAMA

POWERED BY echonest

Jonathan Coulton

Popularity: 40/100

Years active: 2000 – 2009

Tags:

- folk rock
- geek rock
- indie
- pop

Albums:

- Flight of the Conchords
- Miracle of Sound
- Jonathan Coulton
- Jonathan Coulton
- Jonathan Coulton
- Jonathan Coulton

new map

Heightmap Darren Korb

More popular tracks by Darren Korb

- Old Friends
- Build That Wall (Zia's Theme)
- We All Become (feat. Ashley Barrett)
- Setting Sail, Coming Home (End Theme)
- The Spine (feat. Ashley Barrett)
- In Case of Trouble

0:47 4:23

Spotify-ed RAMA's Spotify App

tags overlay

Spotify

rama.inescporto.pt

Upgrade Zé Batela

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★ Starred

🎵 Most played albums - L...

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Heightmap Darren Korb +

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Spotify

rama.inescporto.pt

RAMA

POWERED BY echonest

alternative ambient classical contemporary classical music easy listening electronic experimental indie instrumental pop rock soundtrack

Jonathan Coulton

Bo Burnham

Flight Of The Conchords

Miracle Of Sound

Anamaneguchi

Darren Korb

Jim Guthrie

Neil Davidge

Martin O'Donnell

Stephen Rippy

Bo Burnham

Devin Taylor

Nobuo Uematsu

Video Games Live

Play! Orchestra

Brian Tyler

Henry Jackman

Ólafur Arnalds

Max Richter

Darren Korb

Clint Mansell

Aperture Science Psychoacoustic Laboratories

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Spotify-ed RAMA's Spotify App

tags overlay

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★ Starred

🎵 Most played albums - L..

iTunes

Heightmap Darren Korb + More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

0:47 4:23

The screenshot shows a Spotify interface with a network graph overlay. The central node is 'Jonathan Coulton', highlighted with a green border. Other nodes include 'Bo Burnham', 'Flight Of The Conchords', 'Miracle Of Sound', 'Anamaneguchi', 'Aperture Science Psychoacoustic Laboratories', 'Jim Guthrie', 'Darren Korb', 'Martin O'Donnell', 'Neil Davidge', 'Stephen Rippy', 'Clint Mansell', 'Max Richter', 'Ólafur Arnalds', 'Brian Tyler', 'Henry Jackman', 'Nobuo Uematsu', 'Devin Taylor', 'Play! Orchestra', and 'Video Games Live'. The network is interconnected by lines representing relationships. Above the graph, a row of tags is displayed: alternative, ambient, classical, contemporary classical music, easy listening, electronic, experimental, indie, instrumental, pop, rock, and soundtrack. The interface also includes a search bar, a sidebar with account and music navigation options, and a footer with playback controls.

Spotify-ed RAMA's Spotify App

tags overlay

Spotify

rama.inescporto.pt

Upgrade Zé Bateira

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+ New Playlist

★ Starred

🎵 Most played albums - L..

iTunes

Heightmap Darren Korb +

More popular tracks by Darren Korb

- Old Friends
- Build That Wall (Zia's Theme)
- We All Become (feat. Ashley Barrett)
- Setting Sail, Coming Home (End Theme)
- The Spine (feat. Ashley Barrett)
- In Case of Trouble

leave feedback!

alternative ambient classical contemporary classical music easy listening electronic experimental indie instrumental pop rock soundtrack

Flight Of The Conchords

Bo Burnham

Jonathan Coulton

Miracle Of Sound

Anamanaguchi

Aperture Science Psychoacoustic Laboratories

Jim Guthrie

Darren Korb

Neil Davidge

Martin O'Donnell

Stephen Rippy

Video Games Live

Play! Orchestra

Brian Tyler

Henry Jackman

Ólafur Arnalds

Clint Mansell

Max Richter

Spotify-ed RAMA's Spotify App

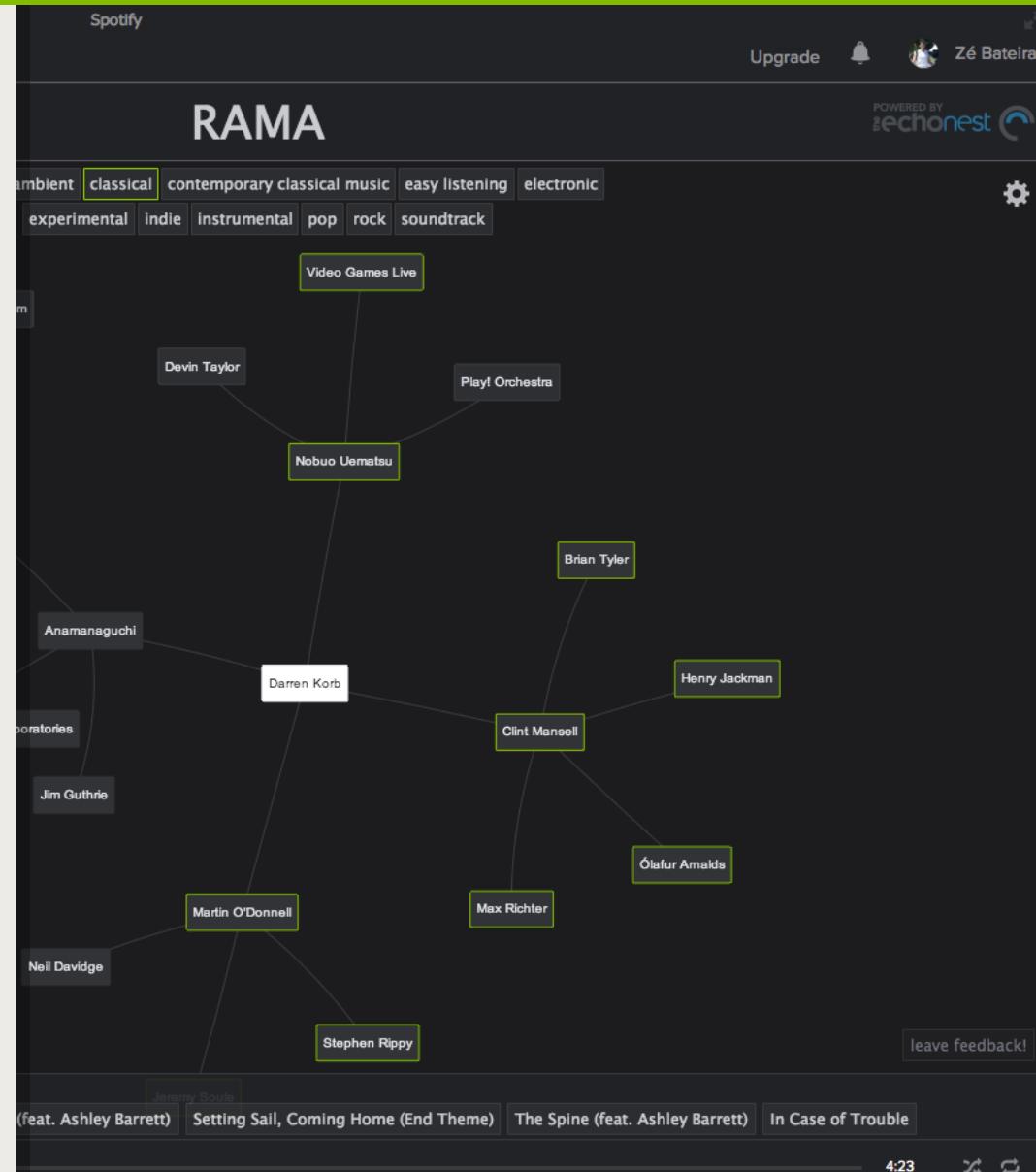
tags overlay

highlight nodes with the selected tag

helps to create a mind map of tags

explains the edges between the nodes

tags from Echonest as fallback mode



Spotify-ed RAMA's Spotify App visualization parameters

Spotify

darren korb

Upgrade Zé Batela

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- RAMA

rama.inescporto.pt

Spotify

RAMA

POWERED BY echonest

equalizer

branching 4 0

depth 2 0

tree mode

Popularity: 31/100

Tags:

- Instrumental
- rock
- soundtrack
- trip hop

Albums:

```
graph TD; DarrenKorb[Darren Korb] --- Anamanaguchi[Anamanaguchi]; DarrenKorb --- NobuoUematsu[Nobuo Uematsu]; DarrenKorb --- ClintMansell[Clint Mansell]; DarrenKorb --- JimGuthrie[Jim Guthrie]; DarrenKorb --- JonathanCoulton[Jonathan Coulton]; DarrenKorb --- JeremySoule[Jeremy Soule]; DarrenKorb --- StephenRippy[Stephen Rippy]; DarrenKorb --- NeilDavidge[Neil Davidge]; DarrenKorb --- BrianTyler[Brian Tyler]; DarrenKorb --- HenryJackman[Henry Jackman]; DarrenKorb --- MaxRichter[Max Richter]; DarrenKorb --- OlafurArnalds[Ólafur Arnalds]; Anamanaguchi --- JimGuthrie; Anamanaguchi --- JonathanCoulton; Anamanaguchi --- NobuoUematsu; Anamanaguchi --- ClintMansell; NobuoUematsu --- DevinTaylor[Devin Taylor]; NobuoUematsu --- PlayOrchestra[Play! Orchestra]; NobuoUematsu --- VideoGamesLive[Video Games Live]; NobuoUematsu --- ClintMansell; ClintMansell --- MaxRichter; ClintMansell --- HenryJackman; ClintMansell --- BrianTyler; ClintMansell --- OlafurArnalds; MartinODonnell[Martin O'Donnell] --- StephenRippy; MartinODonnell --- NeilDavidge; MartinODonnell --- ClintMansell; JeremySoule --- MartinODonnell; StephenRippy --- NeilDavidge; NeilDavidge --- BrianTyler; NeilDavidge --- HenryJackman; BrianTyler --- HenryJackman; MaxRichter --- HenryJackman; OlafurArnalds --- ClintMansell;
```

leave feedback!

Old Friends Darren Korb + More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

Spotify-ed RAMA's Spotify App visualization parameters

Spotify

darren korb

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+ New Playlist

★ Starred

Most played albums - L..

iTunes

Spotify

rama.inescporto.pt

Upgrades

Zé Batela

POWERED BY echonest

equalizer

branching 4 0

depth 2 0

tree mode

RAMA

ambient classical contemporary classical music easy listening electronic experimental indie

instrumental modern classical pop rock soundtrack

Darren Korb

Popularity: 31/100

Tags:

- Instrumental
- rock soundtrack
- trip hop

Albums:

Aperture Science Psychoacoustic Laboratories

Jim Guthrie

Video Games Live

Play! Orchestra

Anamanaguchi

Jonathan Coulton

Nobuo Uematsu

Devin Taylor

Jeremy Soule

Martin O'Donnell

Stephen Rippy

Neil Davidge

Brian Tyler

Ólafur Arnalds

Clint Mansell

Max Richter

Henry Jackman

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Old Friends Darren Korb

More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

Old Friends

Build That Wall (Zia's Theme)

We All Become (feat. Ashley Barrett)

Setting Sail, Coming Home (End Theme)

The Spine (feat. Ashley Barrett)

In Case of Trouble

Old Friends

Build That Wall (Zia's Theme)

We All Become (feat. Ashley Barrett)

Setting Sail, Coming Home (End Theme)

The Spine (feat. Ashley Barrett)

In Case of Trouble

Spotify-ed RAMA's Spotify App visualization parameters

Spotify

darren korb

Upgrade Zé Batela

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Spotify

RAMA

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equalizer

branching 4 0

depth 2 0

tree mode

Popularity: 31/100

Tags:

- Instrumental
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- trip hop

Albums:

```
graph TD; DarrenKorb[Darren Korb] --- Anamanaguchi[Anamanaguchi]; DarrenKorb --- NobuoUematsu[Nobuo Uematsu]; DarrenKorb --- ClintMansell[Clint Mansell]; DarrenKorb --- JimGuthrie[Jim Guthrie]; DarrenKorb --- JonathanCoulton[Jonathan Coulton]; DarrenKorb --- JeremySoule[Jeremy Soule]; DarrenKorb --- StephenRippy[Stephen Rippy]; DarrenKorb --- NeilDavidge[Neil Davidge]; DarrenKorb --- BrianTyler[Brian Tyler]; DarrenKorb --- HenryJackman[Henry Jackman]; DarrenKorb --- MaxRichter[Max Richter]; DarrenKorb --- OlafurArnalds[Ólafur Arnalds]; Anamanaguchi --- JonathanCoulton; Anamanaguchi --- NobuoUematsu; Anamanaguchi --- ClintMansell; Anamanaguchi --- JimGuthrie; NobuoUematsu --- DevinTaylor[Devin Taylor]; NobuoUematsu --- PlayOrchestra[Play! Orchestra]; NobuoUematsu --- VideoGamesLive[Video Games Live]; NobuoUematsu --- ClintMansell; NobuoUematsu --- OlafurArnalds; ClintMansell --- MaxRichter; ClintMansell --- HenryJackman; ClintMansell --- BrianTyler; ClintMansell --- OlafurArnalds; MartinODonnell[Martin O'Donnell] --- StephenRippy; MartinODonnell --- NeilDavidge; MartinODonnell --- ClintMansell; MartinODonnell --- BrianTyler; MartinODonnell --- HenryJackman; MartinODonnell --- OlafurArnalds; JimGuthrie --- JonathanCoulton; JimGuthrie --- NobuoUematsu; JimGuthrie --- ClintMansell; JimGuthrie --- OlafurArnalds; JonathanCoulton --- NobuoUematsu; JonathanCoulton --- ClintMansell; JonathanCoulton --- OlafurArnalds; JeremySoule --- MartinODonnell; JeremySoule --- ClintMansell; JeremySoule --- OlafurArnalds; StephenRippy --- NeilDavidge; StephenRippy --- ClintMansell; StephenRippy --- OlafurArnalds; NeilDavidge --- ClintMansell; NeilDavidge --- OlafurArnalds; BrianTyler --- ClintMansell; BrianTyler --- OlafurArnalds; HenryJackman --- ClintMansell; HenryJackman --- OlafurArnalds; OlafurArnalds --- ClintMansell; OlafurArnalds --- BrianTyler; OlafurArnalds --- HenryJackman; OlafurArnalds --- MaxRichter; MaxRichter --- ClintMansell; MaxRichter --- HenryJackman; MaxRichter --- OlafurArnalds; PlayOrchestra --- VideoGamesLive; PlayOrchestra --- NobuoUematsu; PlayOrchestra --- ClintMansell; PlayOrchestra --- OlafurArnalds; VideoGamesLive --- NobuoUematsu; VideoGamesLive --- ClintMansell; VideoGamesLive --- OlafurArnalds;
```

Old Friends
Darren Korb

More popular tracks by Darren Korb

- Old Friends
- Build That Wall (Zia's Theme)
- We All Become (feat. Ashley Barrett)
- Setting Sail, Coming Home (End Theme)
- The Spine (feat. Ashley Barrett)
- In Case of Trouble

leave feedback!

Spotify-ed RAMA's Spotify App visualization parameters

Spotify

darren korb

Upgrade Zé Batela

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- Last.fm
- musiXmatch
- RAMA**

rama.inescporto.pt

Spotify

RAMA

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Visualization parameters:

- equalizer
- branching 4
- depth 4
- tree mode

Clint Mansell

Popularity: 47/100

Tags: classical, electronic, industrial, soundtrack

Albums:

- NOAH
- FILTH
- FILTH
- FILTH
- STOKER

new map

More popular tracks by Darren Korb

- Old Friends
- Build That Wall (Zia's Theme)
- We All Become (feat. Ashley Barrett)
- Setting Sail, Coming Home (End Theme)
- The Spine (feat. Ashley Barrett)
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leave feedback!

Spotify-ed RAMA's Spotify App visualization parameters

Spotify

darren korb

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- Top Lists
- Messages
- Play Queue
- Devices
- App Finder
- Last.fm
- musiXmatch
- RAMA

rama.inescporto.pt

Clint Mansell

Popularity: 47/100

Tags:

- classical
- electronic
- Industrial
- soundtrack

Albums:

- NOAH
- FILTH
- FILTH
- FILTH
- FILTH

new map

Spotify

RAMA

alternative ambient classical easy listening electronic electronica experimental indie

instrumental pop rock soundtrack

equalizer branching 4 depth 4 tree mode

leave feedback!

The screenshot shows the RAMA interface integrated with Spotify. On the left, a sidebar provides navigation through MAIN, RAMA, and other Spotify features like Songs, Albums, Artists, and Playlists. The central area displays a network graph where nodes represent artists or tracks. A specific node, 'Clint Mansell', is highlighted with a green box. Above the graph, a series of genre tags are listed: alternative, ambient, classical, easy listening, electronic, electronica, experimental, indie, instrumental, pop, rock, and soundtrack. To the right of the graph, there are settings for equalizer, branching (set to 4), depth (set to 4), and tree mode (checked). At the bottom, a row of tracks by Darren Korb is shown, including 'Old Friends', 'Build That Wall (Zia's Theme)', 'We All Become (feat. Ashley Barrett)', 'Setting Sail, Coming Home (End Theme)', 'The Spine (feat. Ashley Barrett)', and 'In Case of Trouble'. The overall theme is dark, matching the Spotify interface.

Spotify-ed RAMA's Spotify App visualization parameters

Spotify

darren korb

Upgrade Zé Batela

rama.inescporto.pt

Thomas Newman

RAMA

POWERED BY echonest

MAIN

- Browse
- Activity
- Discover
- Radio
- Follow
- Top Lists
- Messages
- Play Queue
- Devices
- App Finder
- Last.fm
- musiXmatch

RAMA

YOUR MUSIC

- Songs
- Albums
- Artists
- Local Files

+ New Playlist

Starred

Most played albums - L...

iTunes

Old Friends Darren Korb + More popular tracks by Darren Korb Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

Spotify

Thomas Newman

RAMA

Powered by echonest

Clint Mansell Popularity: 47/100 Tags: classical, electronic, industrial, soundtrack Albums: NOAH, FILTH, FILTH, FILTH, FILTH

Steve Jablonsky

Ramin Djawadi

Patrick Doyle

Anthony Gonzalez

Johann Johannsson

Müm

equalizer branching depth tree mode

Olafur Arnalds

Nils Frahm

Jon Hopkins

Efterklang

Max Richter

Henry Jackman

Hans Zimmer

Hans Zimmer & James Newton Howard

The Last Samurai

Ilan Eshkeri

Clint Mansell

Alan Silvestri

Leave feedback!

Martin O'Dowd

Diagram illustrating the connections between various composers and their works. Clint Mansell is the central node, connected to Ramin Djawadi, Brian Tyler, Olafur Arnalds, Max Richter, Henry Jackman, Hans Zimmer, Ilan Eshkeri, and Alan Silvestri. Ramin Djawadi is connected to Steve Jablonsky and Hans Zimmer & James Newton Howard. Brian Tyler is connected to Johann Johannsson. Olafur Arnalds is connected to Nils Frahm and Jon Hopkins. Max Richter is connected to Henry Jackman. Henry Jackman is connected to Ilan Eshkeri. Hans Zimmer is connected to Alan Silvestri. Ilan Eshkeri is connected to The Last Samurai. Alan Silvestri is connected to Silvestri. The Last Samurai is connected to Hans Zimmer & James Newton Howard.

Spotify-ed RAMA's Spotify App

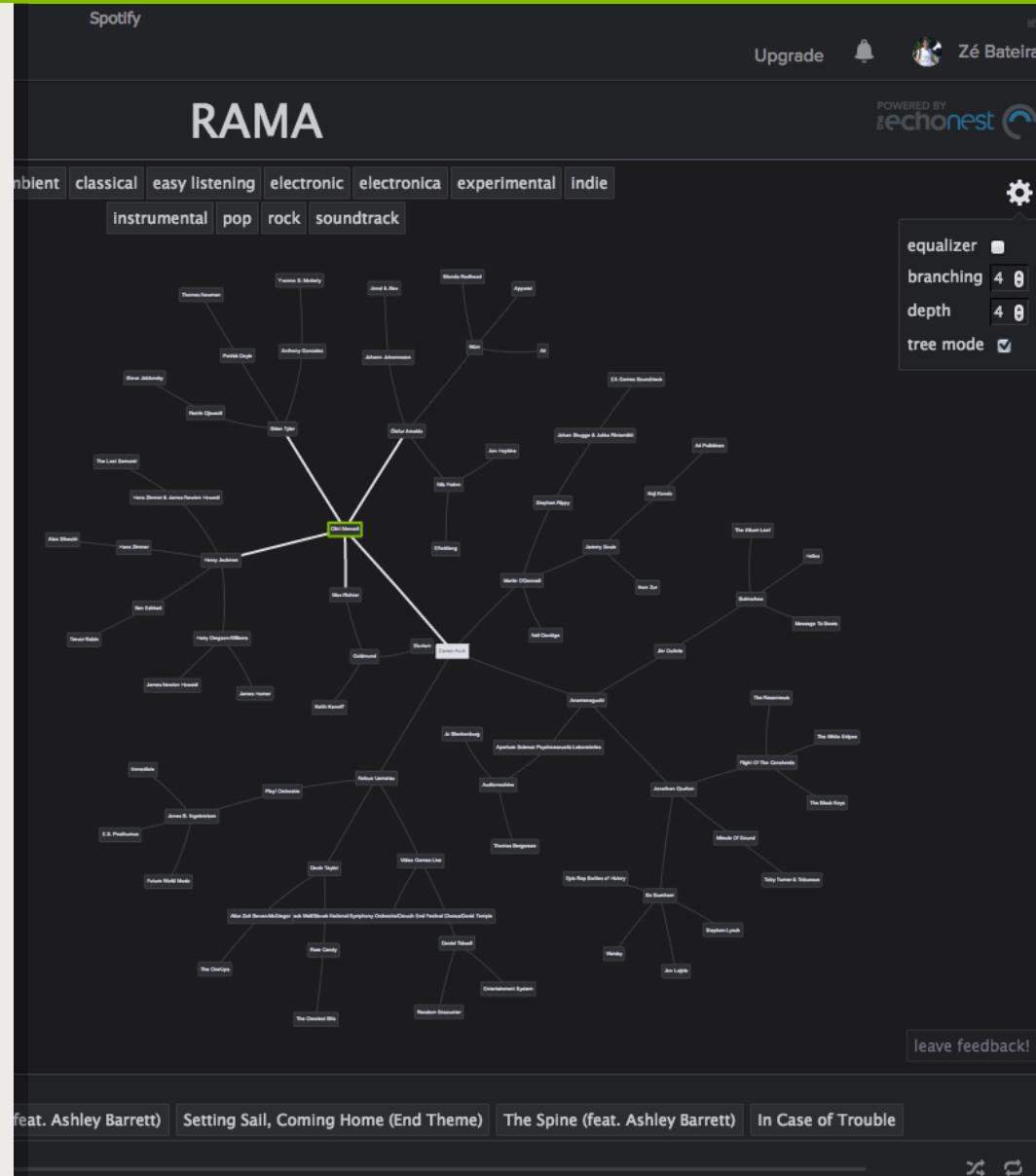
visualization parameters

personalize the graph's complexity

visualization parameters
branching, depth and tree mode

zoom in and out

flexible graph visualization



Spotify-ed RAMA's Spotify App prototype development

Spotify

darren korb

Upgrade Zé Batela

MAIN

- Browse
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- RAMA

rama.inescporto.pt

Spotify

RAMA

POWERED BY echonest

equalizer
branching 4 0
depth 2 0
tree mode

ambient classical contemporary classical music easy listening electronic experimental indie
instrumental modern classical pop rock soundtrack

Darren Korb (Popularity: 31/100)
Tags: instrumental, rock, soundtrack, trip hop
Albums:

Anamanaguchi

Aperture Science Psychoacoustic Laboratories, Jim Guthrie, Jonathan Coulton, Nobuo Uematsu, Devin Taylor, Clint Mansell, Ólafur Arnalds, Max Richter, Henry Jackman, Brian Tyler, Neil Davidge, Stephen Rippy, Jeremy Soule, Martin O'Donnell, Darren Korb, Clint Mansell, Ólafur Arnalds, Max Richter, Henry Jackman, Brian Tyler, Neil Davidge, Stephen Rippy, Jeremy Soule, Martin O'Donnell, Darren Korb

leave feedback!

Old Friends Darren Korb + More popular tracks by Darren Korb

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

Old Friends Build That Wall (Zia's Theme) We All Become (feat. Ashley Barrett) Setting Sail, Coming Home (End Theme) The Spine (feat. Ashley Barrett) In Case of Trouble

Spotify-ed

RAMA's Spotify App

prototype development

`github.com/carsy/rama-spotify`

Spotify-ed

RAMA's Spotify App

prototype development

github.com/carsy/rama-spotify

Documentation, code, wiki, demos and installation instructions

Spotify-ed

RAMA's Spotify App

prototype development

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Documentation, code, wiki, demos and installation instructions

issue management: new features, improvements and bugs

Spotify-ed RAMA's Spotify App

prototype development

github.com/carsy/rama-spotify

Documentation, code, wiki, demos and installation instructions

issue management: new features, improvements and bugs

18 downloadable releases (from v0.1.0 to the most updated - v1.0.1)

Spotify-ed RAMA's Spotify App

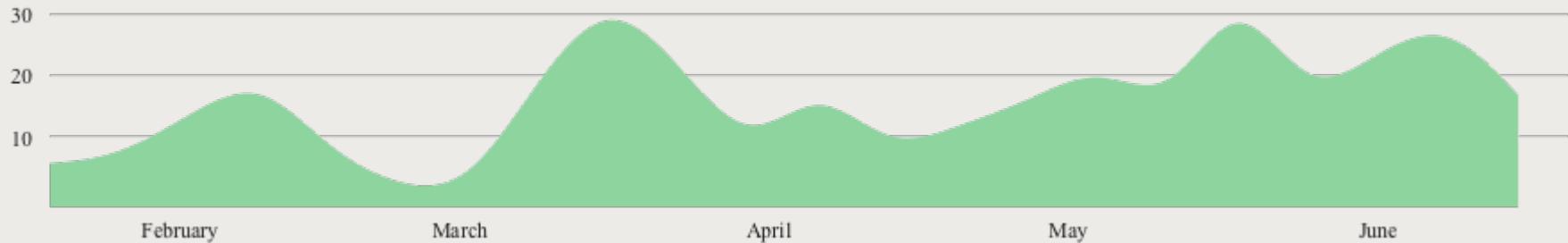
prototype development

github.com/carsy/rama-spotify

Documentation, code, wiki, demos and installation instructions

issue management: new features, improvements and bugs

18 downloadable releases (from v0.1.0 to the most updated - v1.0.1)



Spotify-ed

RAMA's Spotify App

prototype development

github.com/carsy/rama-spotify

Documentation, code, wiki, demos and installation instructions

issue management: new features, improvements and bugs

18 downloadable releases (from v0.1.0 to the most updated - v1.0.1)

~18 testing cycles with a constant small group of users

Spotify-ed

RAMA's Spotify App

user tests results

24 test users

Spotify-ed RAMA's Spotify App

user tests results

24 test users

Did the RAMA application help you discover new interesting artists?

Spotify-ed RAMA's Spotify App

user tests results

24 test users

Did the RAMA application help you discover new interesting artists?

Yes: 23 No: 1

Spotify-ed RAMA's Spotify App

user tests results

24 test users

Did the RAMA application help you discover new interesting artists?

Yes: 23 No: 1

Was the application well integrated with Spotify? (1-5 scale)

Spotify-ed RAMA's Spotify App

user tests results

24 test users

Did the RAMA application help you discover new interesting artists?

Yes: 23 No: 1

Was the application well integrated with Spotify? (1-5 scale)

1 - I felt the app was out of place

5 - I felt the app was part of Spotify

Spotify-ed RAMA's Spotify App

user tests results

24 test users

Did the RAMA application help you discover new interesting artists?

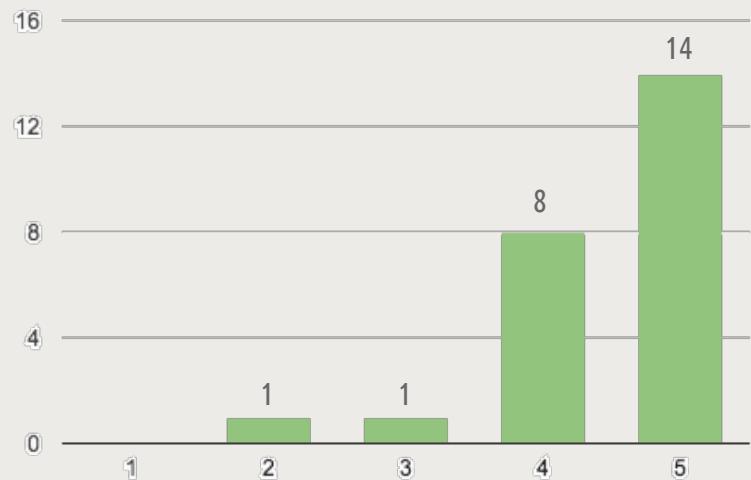
Yes: 23 No: 1

Was the application well integrated with Spotify? (1-5 scale)

Yes: 92%

1 - I felt the app was out of place

5 - I felt the app was part of Spotify



Spotify-ed RAMA's Spotify App

conference submissions

15th International Society for Music Information Retrieval Conference
ISMIR 2014
Late-Breaking/Demo accepted

INForum Simpósio de Informática
INFORUM 2014
Communication

Spotify-ed RAMA's Spotify App

future work

segmented testing with a larger number of users

Spotify-ed RAMA's Spotify App

future work

segmented testing with a larger number of users

include tags in the graph as a second layer

Spotify-ed RAMA's Spotify App

future work

segmented testing with a larger number of users

include tags in the graph as a second layer

make the edges reflect how strong the connections are

Spotify-ed RAMA's Spotify App

future work

segmented testing with a larger number of users

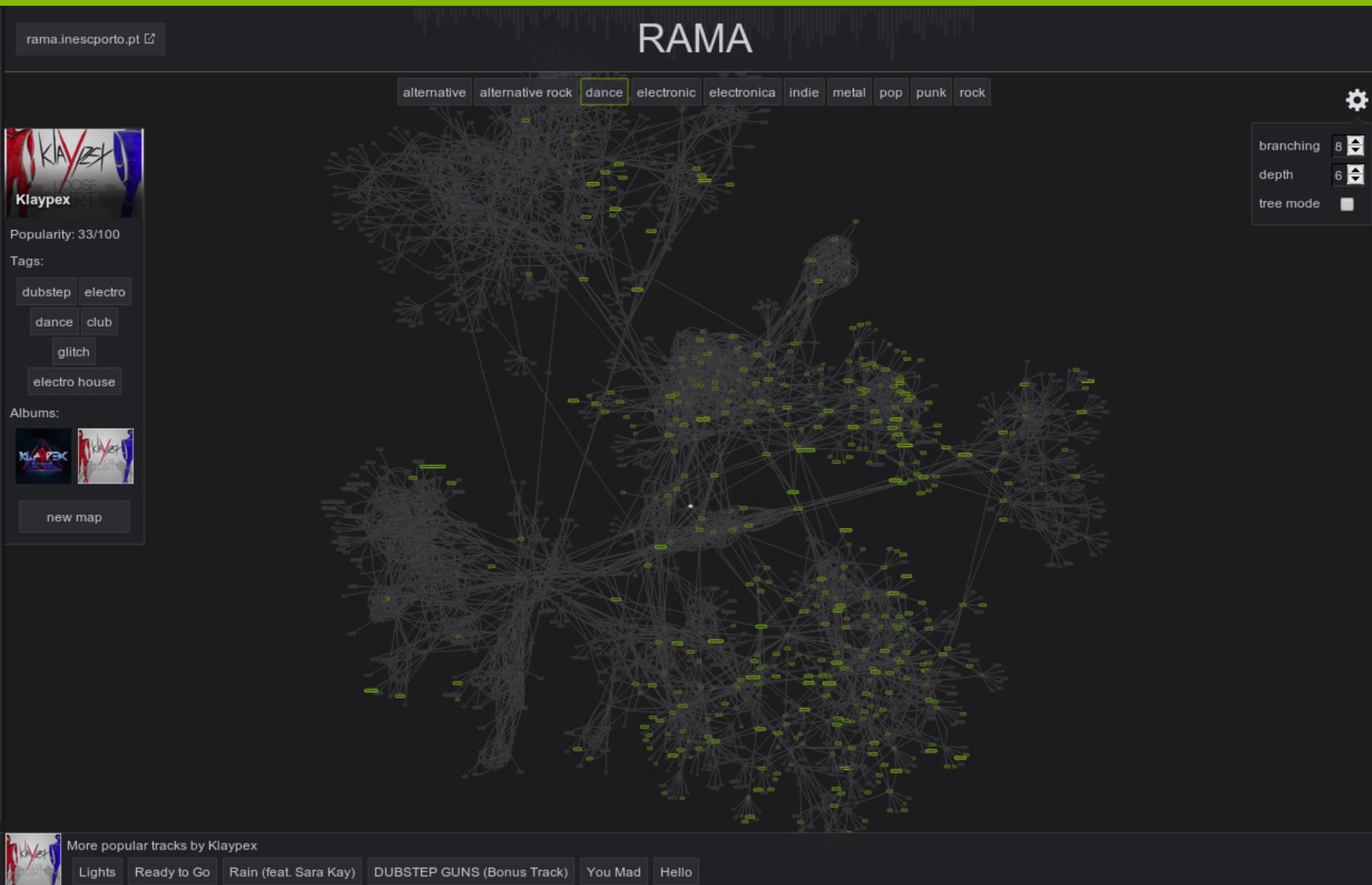
include tags in the graph as a second layer

make the edges reflect how strong the connections are

clustering nodes with tags

Spotify-ed RAMA's Spotify App

future work



Spotify-ed

Music recommendation and discovery in Spotify

José Bateira *ei10133@fe.up.pt*

Fabien Gouyon *fgouyon@inescporto.pt*

Matthew Davies *mdavies@inescporto.pt*



Spotify-ed

RAMA's Spotify App

prototype development

tools used

Spotify Desktop Client, Sublime Text 3

git, npm, bower

javascript frameworks:
vis.js, gruntjs, jasmine, jshint, compass

gemnasium.com/carsy/rama-spotify

travis-ci.org/carsy/rama-spotify