

# Welcome to NEMISIG at Brooklyn College

Michael I Mandel

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Brooklyn College, CUNY

NEMISIG

February 9, 2019

WIFI password: UwrqVh6On



# Outline

- 1 Welcome to Brooklyn College
- 2 Welcome to NEMISIG
- 3 Speechlab at Brooklyn College
- 4 Labeling environmental recordings

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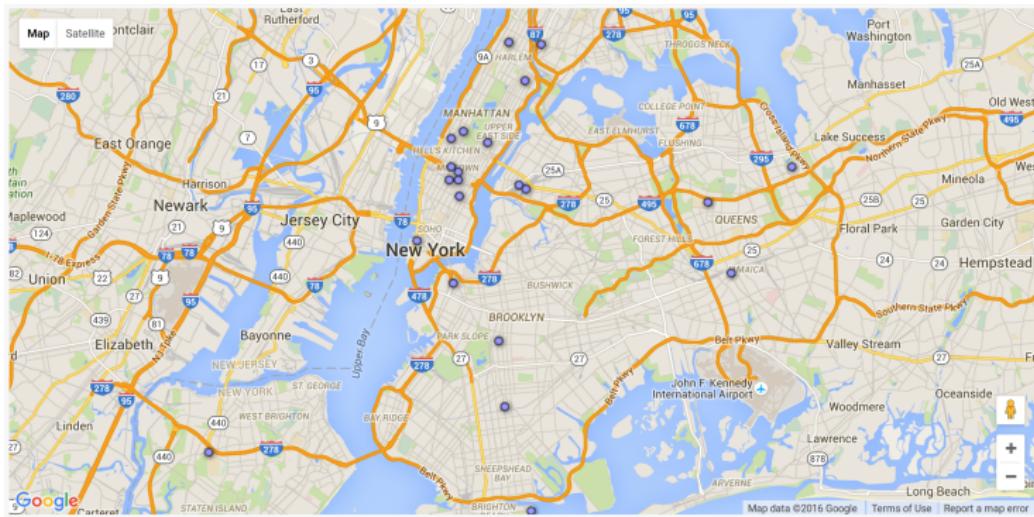
# Welcome to Brooklyn College

- Brooklyn College – 17,000 students, undergrad and masters
- CUNY – 19 colleges, 540,000 students
- CUNY Graduate Center – PhD students and profs from all campuses



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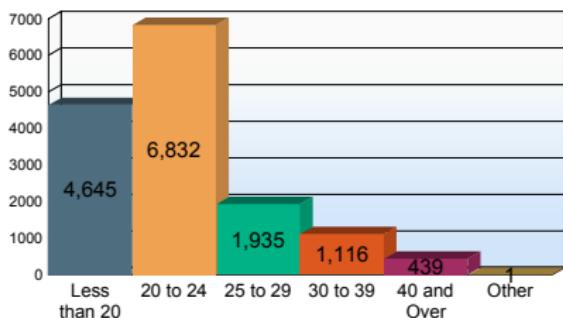


# Brooklyn College students

## Age

### Undergraduate Students

Less than 20	4,645	31%
20 to 24	6,832	46%
25 to 29	1,935	13%
30 to 39	1,116	7%
40 and Over	439	3%
Other	1	0%

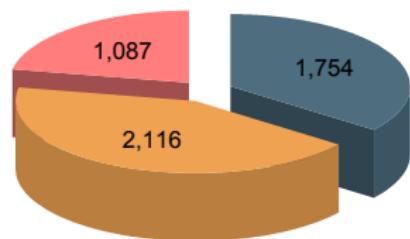


- Born in over 150 countries (33% outside US mainland)
- Speak over 105 different languages (37% other than English at home)
- 31% are first generation in college

# Brooklyn College students

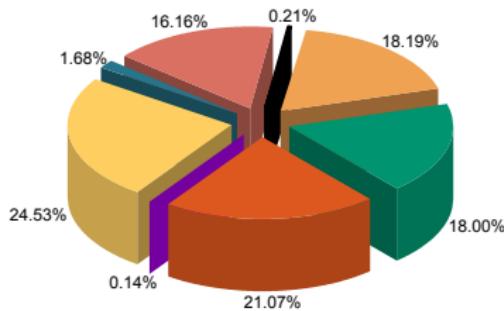
## Admissions

First-time Freshmen	1,754
New Transfers	2,116
New Graduate Students	1,087



■ Freshmen ■ Transfers ■ Graduate

## Ethnicities



■ AIAN ■ Asian ■ Black  
■ Hispanic ■ NHPI ■ White  
■ Two or More ■ Missing/Unknown

# Brooklyn College students

**USNews** Education » Colleges Grad Schools Online Colleges Global Universities

HIGHER EDUCATION / COLLEGES / CAMPUS ETHNIC DIVERSITY

## Campus Ethnic Diversity Regional Universities

[See the Campus Ethnic Diversity Methodology](#)

National Universities Liberal Arts Colleges Regional Universities Regional Colleges

School	City, State	Diversity Index
CUNY-Brooklyn College	Brooklyn, NY	0.76
CUNY-Baruch College	New York, NY	0.73
CUNY-Queens College	Queens, NY	0.73
Nyack College	Nyack, NY	0.73
SUNY College–Old Westbury	Old Westbury, NY	0.73
CUNY–City College	New York, NY	0.72
CUNY–Hunter College	New York, NY	0.72

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National Universities Liberal Arts Colleges Regional Universities Regional Colleges

School	City, State	Diversity Index
Rutgers University–Newark	Newark, NJ	0.76
University of Nevada–Las Vegas	Las Vegas, NV	0.76
Andrews University	Berrien Springs, MI	0.75
Stanford University	Stanford, CA	0.74
University of Houston	Houston, TX	0.74
University of San Francisco	San Francisco, CA	0.74
San Francisco State University	San Francisco, CA	0.73

# Brooklyn College and social mobility

## THE CHRONICLE OF HIGHER EDUCATION

NEWS

SECTIONS

DATA: COLLEGES WITH THE HIGHEST STUDENT-MOBILITY RATES, 2014

### 4-year public institutions

Filter

Rank	Institution	Median	Median	Mobility rate
		parent household income	child earnings, 2014	
1.	City U. of New York Bernard M. Baruch College	\$42,800	\$57,600	12.94%
2.	City College of City U. of New York	\$35,500	\$48,500	11.72%
3.	California State U. at Los Angeles	\$36,600	\$43,000	9.92%
4.	City U. of New York John Jay College of Criminal Justice	\$41,800	\$45,200	9.69%
5.	Stony Brook U.	\$73,600	\$60,100	8.41%
6.	City U. of New York, New York City College of Technology	\$33,500	\$37,000	8.33%
7.	City U. of New York Brooklyn College	\$52,200	\$44,300	8.07%

# CUNY and social mobility

## The New York Times

JANUARY 22, 2017

### *America's Great Working-Class Colleges*

**T**HE heyday of the colleges that serve America's working class can often feel very long ago. It looks like it did for many years, when City College of New York cost only a few hundred dollars a year and was known as the "Harvard of the proletariat." One West, California, had a public system that was both accessible and excellent.

More recently, these universities have seemed to struggle, with unprepared students and rising tuition rates and out-of-pocket expenses. To some New Yorkers, "City College" is now mostly a byword for nostalgia.

It should not be.

While it continues to educate students from modest backgrounds, few big challenges, particularly state budget cuts. But many of them are performing much better than their new stereotype suggests. They remain cheap, and they are still the best bet for careers, to push many Americans into the middle class and beyond — many more, in fact, than those who attend the nation's most selective schools.

Where does optimal condescension come from? The most comprehensive study of college graduates yet conducted, based on millions of anonymous tax filings and financial aid applications, Public Works, found the study tracked students from nearly every college in the country (including those who failed to graduate), measured their earnings years later and left no stone unturned. The latest is a burst of economic research made possible by the availability of huge data sets and powerful computers.



The City University of New York's City College campus of Brooklyn and 138th Street in New York.

**"CUNY propels 'almost six times as many low-income students into the middle class and beyond as all eight Ivy League campuses, plus Duke, M.I.T., Stanford and Chicago, combined.' "**

New Tow center for the performing arts  
Not quite ready for us



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# Past NEMISIGS

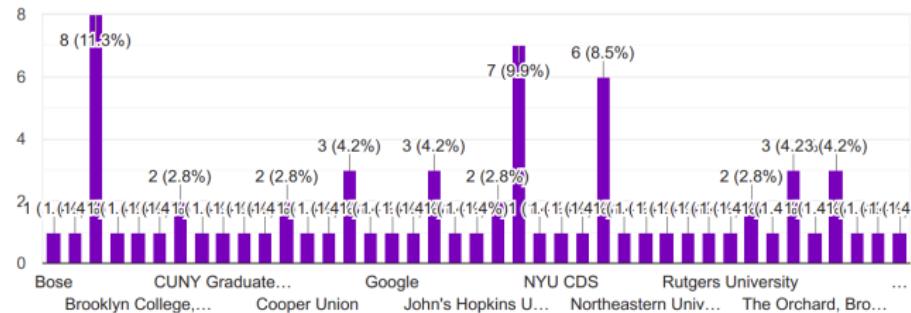
- 2018 Brown University, RI
- 2017 University of Rochester, NY
- 2016 Drexel University, PA
- 2015 Ithaca College, NY
- 2014 Columbia University, NY
- 2013 The EchoNest, MA
- 2012 Dartmouth College, NH
- 2011 Drexel University, PA
- 2010 New York University, NY
- 2009 ...?
- 2008 Columbia University, NY

# Attendee affiliations

## Affiliation

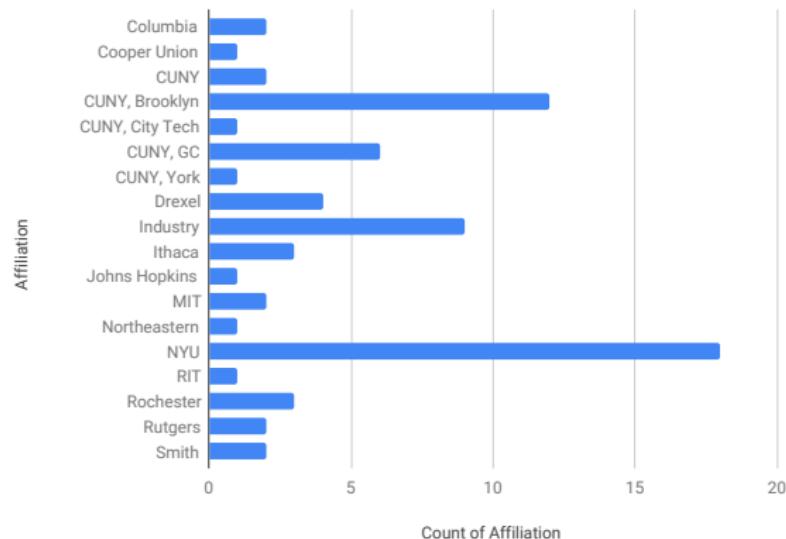


71 responses



# Attendee affiliations (normalized)

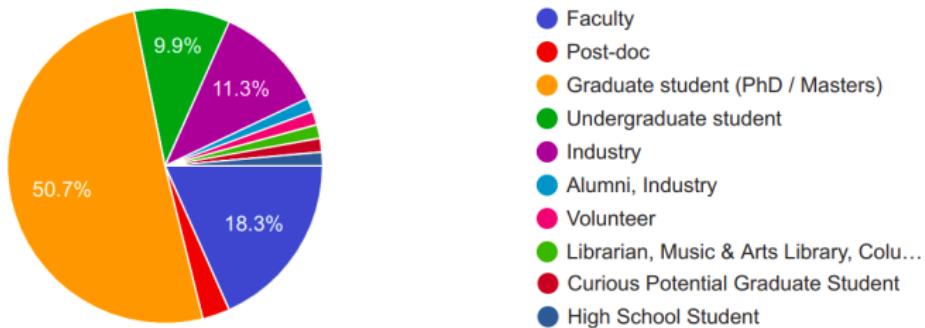
Count of Affiliation



# Attendee titles

## Occupation / title

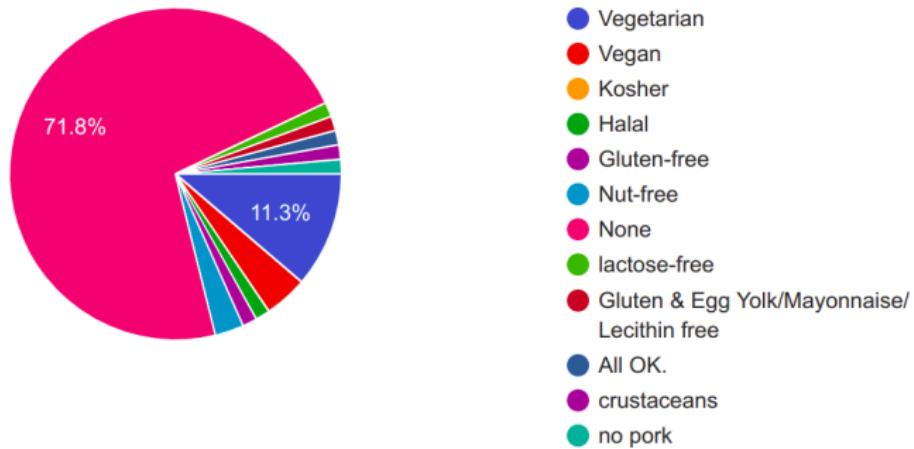
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# Attendee dietary preferences/allergies

## Dietary preferences/allergies

71 responses

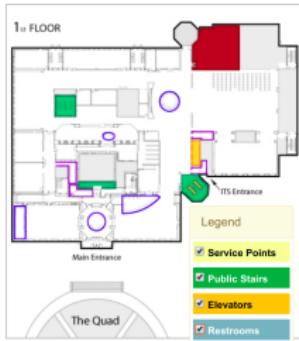


# Schedule

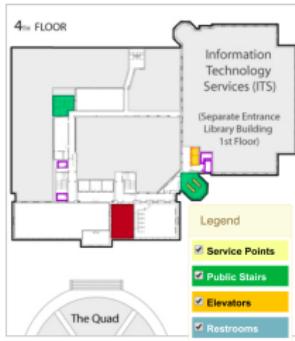
- 11:00 Lab overview talks (Woody Tanger auditorium)
- 12:45 Lunch (Room 411)
- 13:45 Posters (Room 411)
- 15:00 Coffee + Unconference planning (Room 411)
- 15:30 Unconference session 1 (Rooms 241, 242, 411)
- 16:15 Unconference session 2 (Rooms 241, 242, 411)
- 17:00 Unconference recap and closing remarks (Woody Tanger Auditorium)
- 17:30 Drinks at Dallas BBQ?

# Rooms we'll use in the Library

Tanger Auditorium  
Floor 1  
Talks



Gottlieb room (411)  
Floor 4  
Food and posters



Rooms 241 & 242  
Floor 2  
Unconference



# Food

Breakfast & snack: Lord's Bakery



Lunch: Hunger Pang



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# Speechlab at Brooklyn College: Profs



Michael Mandel



Rivka Levitan

# Speechlab at Brooklyn College: PhD students



Ali Raza Syed



Andreas Weise



Felix Grezes



Zhaoheng Ni



Hussein Ghaly



Rachel Rakov

Denys Katerenchuk  
Hassan Salami

Soumi Maiti

Trinh Viet Anh

# Speechlab at Brooklyn College: Alumni



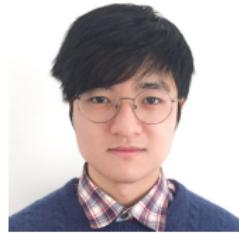
Min Ma  
PhD



Alex Loyko  
BS



Dzmitry Kasinets  
BS



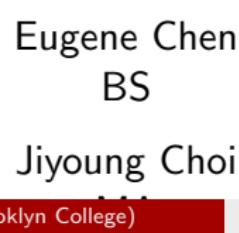
Eugene Chen  
BS



Xiaowen Huang  
BS



Guozhen An  
PhD



Jiyoung Choi



Danny Chait

# Some current projects

- Applying crowdsourcing and autotagging to environmental recordings
- Source separation by synthesis
- Understanding human and machine perception using bubble noise and the bubble cooperative network
- Creating conversational agents that entrain to their users
- Deep learning-based beamforming
- Using prosody to improve parsing and other natural language tasks

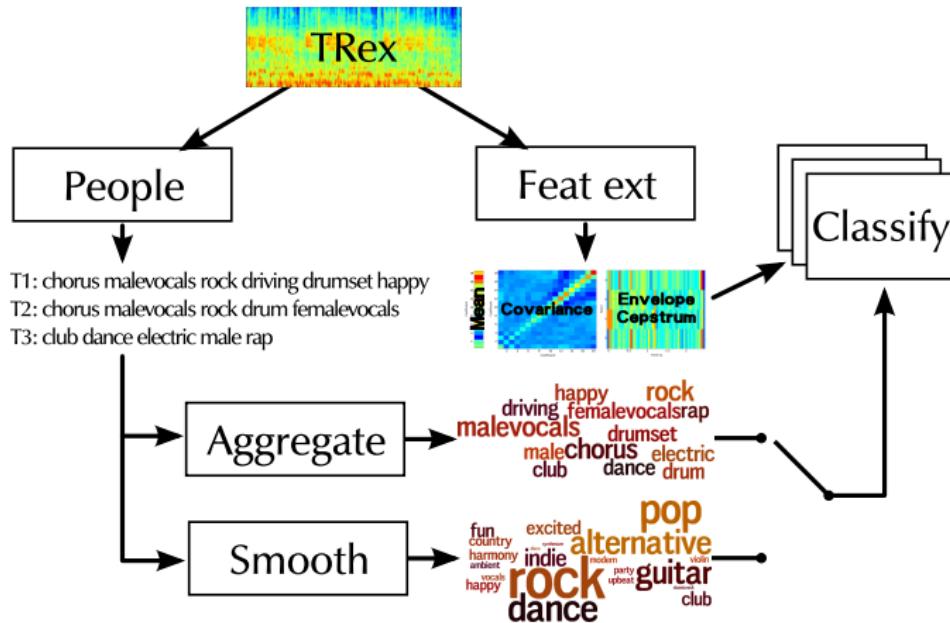
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# Automatically describing music like a human<sup>1,2</sup>



<sup>1</sup> Michael I. Mandel, Douglas Eck, and Yoshua Bengio. Learning tags that vary within a song. In *Proceedings of the International Society for Music Information Retrieval conference*, pages 399–404, August 2010

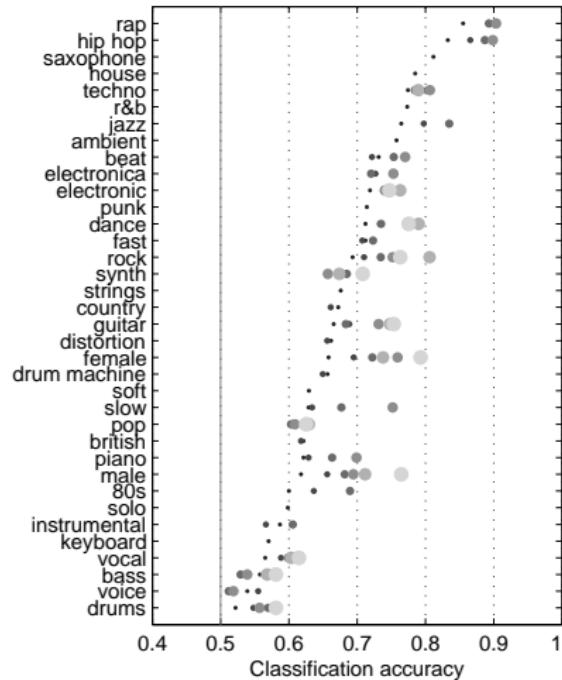
<sup>2</sup> Michael I. Mandel, Razvan Pascanu, Douglas Eck, Yoshua Bengio, Luca M. Aiello, Rossano Schifanella, and Filippo Menczer. Contextual tag inference. *ACM Transactions on Multimedia Computing, Communications and Applications*, 7S(1):32:1–32:18, October 2011

# MajorMiner collects descriptions from people in a game<sup>3</sup>

The screenshot shows a web browser window with the URL <http://majorminer.org/main/clip>. The page title is "MajorMiner" and the main heading is "Describe this clip". A user's score is displayed as "mim's score: 1335". On the left, there is a sidebar with links: New clip, Summary, Change password, Admin, Logout, Leaders, and Search. The main content area contains a text input field with the placeholder "Your tags: slow, harp, female, sad, love, fiddle, violin". Below this is a button labeled "New clip Game summary". A note below the input field says "Tag colors: 2 points, 1 point, no points yet (but could be 2), 0 points.". At the bottom of the page are links to "Blog", "Intro", "FAQ", "Contact", and "Privacy Policy", along with copyright information: "© 2008-2009 Musically Intelligent Machines LLC". The browser status bar at the bottom right shows icons for file operations like "Done", "Save", "Print", and "S3Fox".

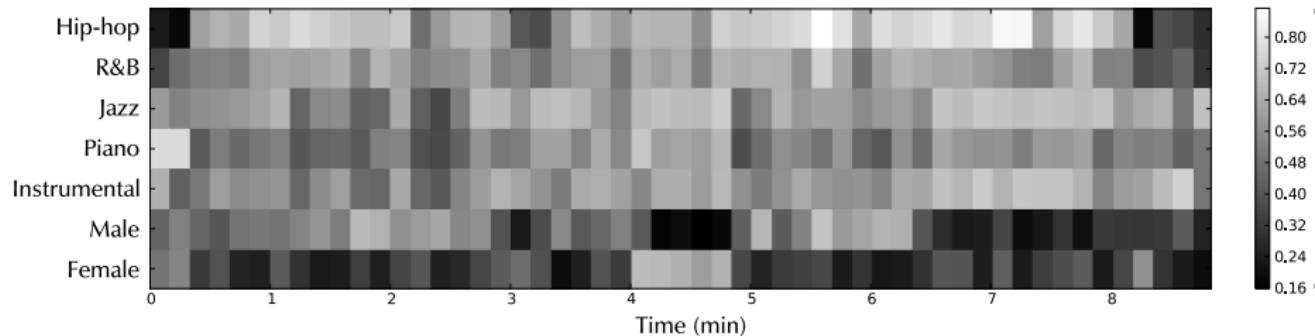
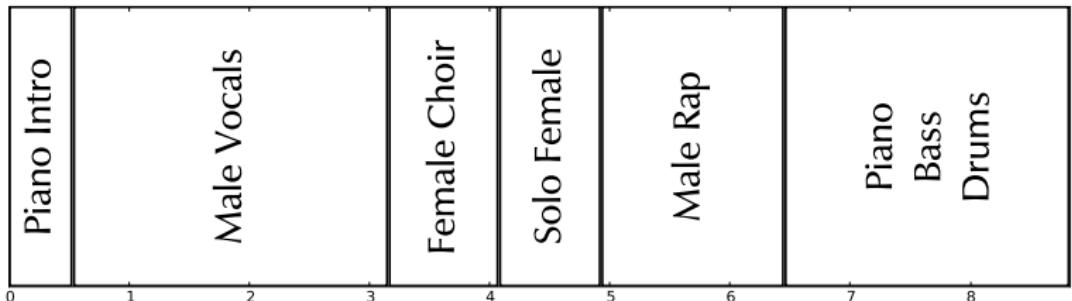
<sup>3</sup> Michael I. Mandel and Daniel P. W. Ellis. A web-based game for collecting music metadata. *Journal of New Music Research*, 37(2):151–165, 2008

# Human descriptions can be learned by machines



# Automatic descriptions within a song

Outkast – Liberation

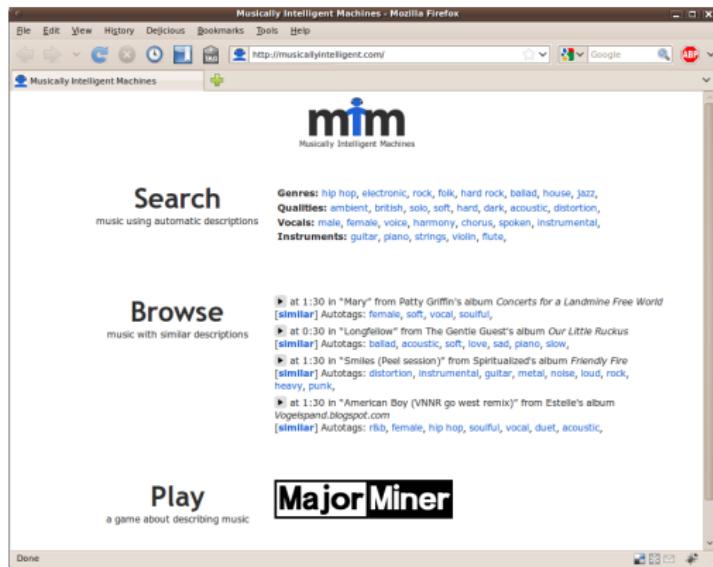


1:50

4:10

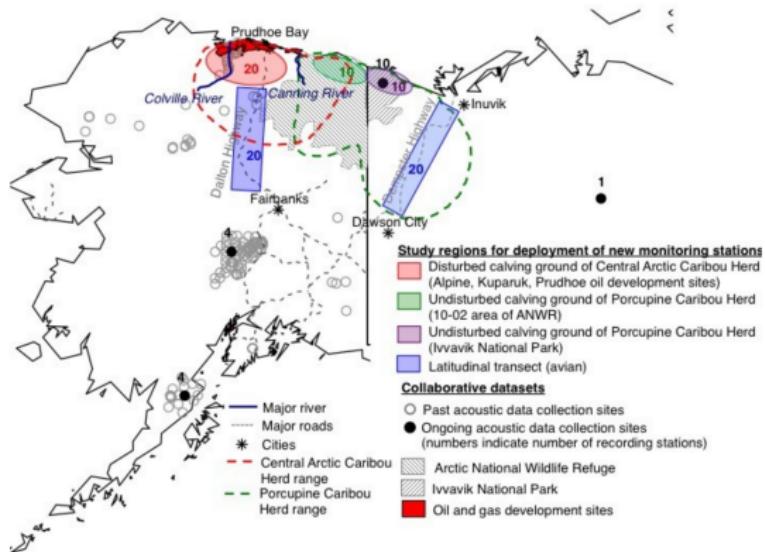
7:20

# Can index music collections for search and browsing



- Crawled music blogs, downloaded 15,000 tracks
- Tagged them with 75-100 tags trained from MajorMiner

# Now with recordings from the Alaskan wilderness



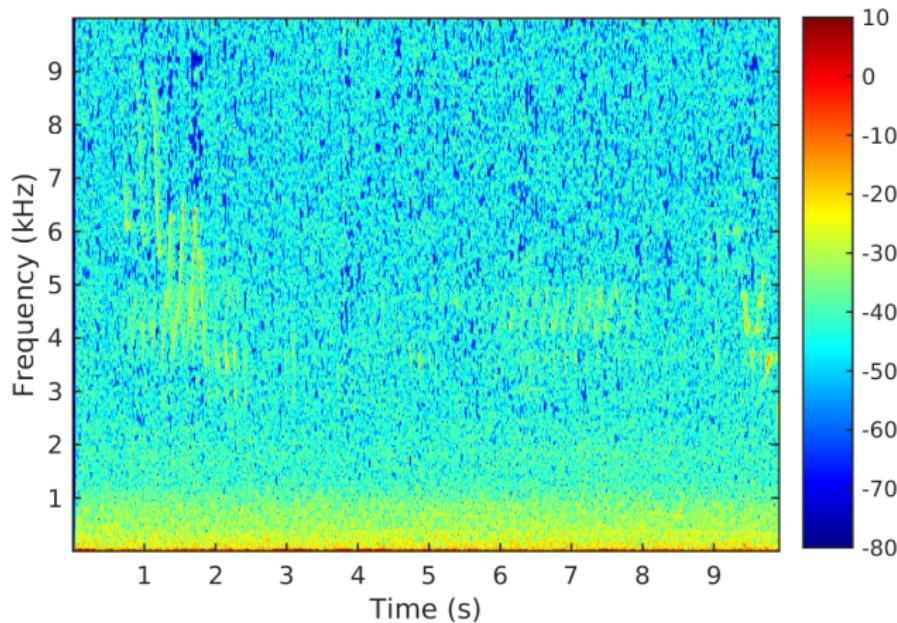
- Have continuous recordings from 20 sites over 1 summer ( $\sim 1\text{TB}$ )
- Will collect 50%-on recordings from 80 sites over 5 summers  
(50 years of audio  $\approx 400\text{TB}$ )

# Now with recordings from the Alaskan wilderness

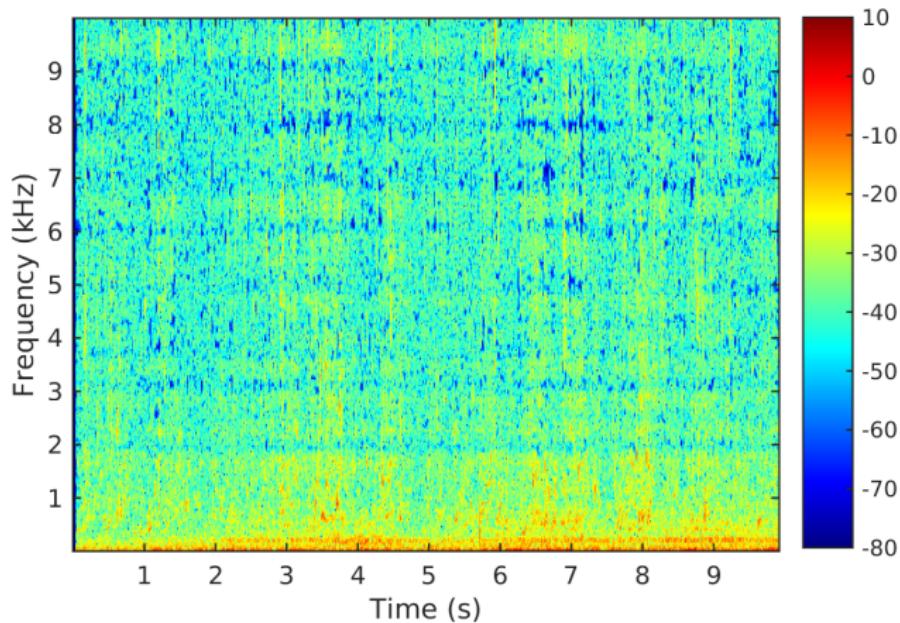
The screenshot shows a web browser window for "Major Miner's tagging gal..." at [alaska.majorminer.org](http://alaska.majorminer.org). The page has a dark header with the "Major Miner" logo. Below it, a "Summary" section displays "mim's score: 55". A "Your last 10 clips" section lists ten recorded clips, each with a play button, duration, timestamp, file path, and album information. Each clip also shows "Your tags" and "Someone else's tags".

Clip Details	Your tags	Someone else's tags
▶ 0:00 ● at 0:30 in "./ROCKY_20160612_130124_00m_00s_00m_10s.mp3" from 's album	quiet, birds	bird
▶ 0:00 ● at 0:50 in "./OCNPT3_20160608_151838_00m_00s_00m_10s.mp3" from 's album	wind, bird, bird, tweet, birdsong, clipping, distortion, songbird	wind
▶ 0:00 ● at 0:10 in "./OCNPT3_20160608_151158_00m_00s_00m_10s.mp3" from 's album	clipping, distortion, wind, chirping, birds, close, bird, very close	
▶ 0:00 ● at 0:10 in "./OCNPT3_20160701_045138_00m_00s_00m_10s.mp3" from 's album	wood, clacking, ptarmigan, woodie, trill, willow ptarmigan	bird, loon
▶ 0:00 ● at 0:50 in "./OCNPT3_20160608_174038_00m_00s_00m_10s.mp3" from 's album	loud, wind, distortion, gale, clacking, rattling	
▶ 0:00 ● at 1:30 in "./OCNPT3_20160608_155318_00m_00s_00m_10s.mp3" from 's album	loud, distortion, gale, wind	

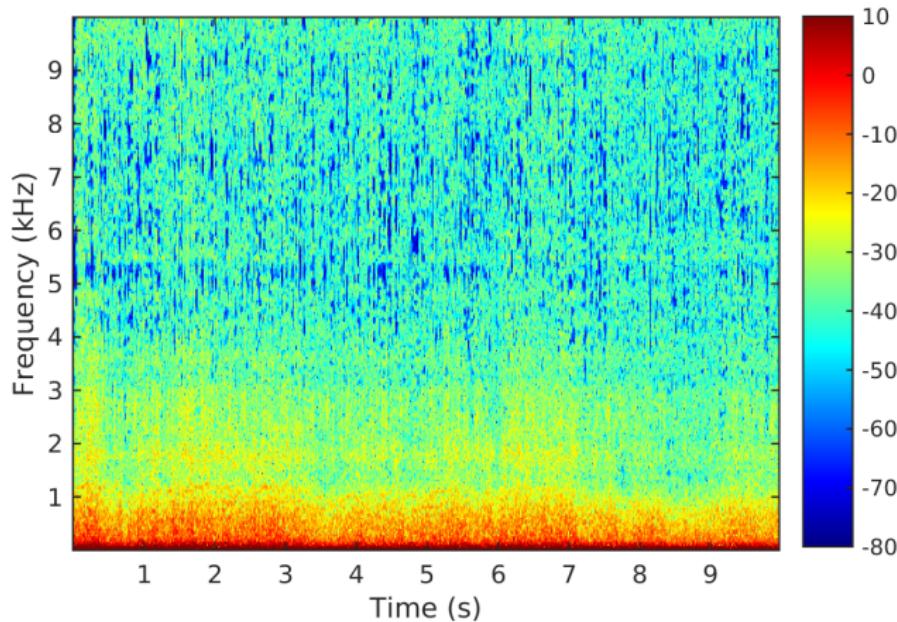
# Top “birds” clip



# Top “water” clip



# Top “wind” clip



# Summary

- Ecologists want to know where animals are and when, sources of human-generated noise, and their effects
- Crowdsourcing and autotagging make this feasible
- How can we best gather data from different groups of people?
- Which parts of our recordings should we show them?
- Try it out: <http://alaska.majorminer.org>

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Thanks!

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Any questions?

# Acknowledgements

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- Brooklyn College School of Behavioral and Natural Sciences

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Have fun!