

1. Background [0 min]

- Over 100 CDs of music performed by the English pianist Joyce Hatto were produced from 2003 to 2006, with about 20 more CDs in the production pipe-line after her death in the summer of 2006.
- She retired from public performance in the 1970's and these 100 CDs were the industrious product of her seclusion over the past 14 or so years. The reason for this productivity is that she was able to devote all of her time to practicing and recording.
- Music critics were starting to hail her as an undiscovered gem who had been maligned by the music establishment and forced into seclusion by a fight with cancer.
- For example, Richard Dyer writing in the Boston Globe called her his "great discovery" of 2005.
- Jeremy Nichols writing in the January 2006 Gramophone issue called her the "world's unrivaled authority on classical music since 1923".
- However by the end of 2007, most if not all of her recordings have proven to be fakes. Currently 81 out of approximately 100 of her CDs have been identified as completely or partially coming from other commercial releases.
- Farhan Malik has been keeping an excellent list of the identifications on his website, which currently lists 90 different pianists whose performances have been borrowed to create Joyce Hatto's CDs.
- So -- if you are interested in more background on the Joyce Hatto story, I would recommend this article by Mark Singer in the September 17th issue last year of the New Yorker.

2. William Barrington-Coupe

- Joyce Hatto, however, is not the central character of this hoax, but rather her husband, William Barrington-Coupe.
- He has been in and out of the recording industry in England since the 1950's.
- Over the past 20 or so years, he has run a small recording label called "Concert Artist", issuing recordings on cassette tape and minidisks in the 80's and 90's, and switching over exclusively to CDs by at least the beginning of 2003.
- The primary focus of the label was piano music. Listed here are a few of the pianists represented on the Concert Artist label, which includes, of course, Joyce Hatto.

3. Mazurka Project

- In the meantime, I have been working for the past two years with the musicologist Nicholas Cook on the Mazurka Project at Royal Holloway, University of London.
- I am working on developing computational methods for comparing different performances of Chopin mazurkas -- so that, for example, gradual changes in performance style over the last century of recording history can be characterized.
- We have collected about 3,000 mazurka performances, which amounts to about 56 performances for each of Chopin's mazurkas.
- This includes 157 performers and over 120 hours of recordings.

- The oldest performance is by the Swiss pianist Alfred Gruenfeld from 1902, and most recently I analyzed recordings by Italian piano students who had posted videos of themselves on Youtube.
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4. Performance Extraction [3:30]

- What I do is measure the timings and loudness in each recording as illustrated on this slide.
 - This shows a measure of music as I view it in an audio editor called Sonic Visualiser that is being developed at Queen Mary which is another college in the University of London system.
 - [Play audio example]
 - I listen to the music in real-time and tap to the beats which are shown here in pink.
 - I then use audio analysis plug-ins I wrote for Sonic Visualizer to correct myappings in order to measure precisely the pianists' performance timings.
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5. Beat Tempo Data

- Currently, I have been focusing on extracting the duration between beats which I store as a list of tempo values for each performance.
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6. Performance Comparison Plots

- With this beat-by-beat tempo information, I can numerically analyze how close each performance is to all others for a particular mazurka.
 - The triangular plot on this slide is nicknamed a timescape. In this case the plot is for Yaroshinsky who is a pianists from Russia.
 - Time is represented from left to right in the plot, and the height in the plot indicates the amount of music that is being compared.
 - Each pixel in the plot compares Yaroshinsky's performance to all other pianists for mazurka in B minor opus 30 number 2 for which I have extracted tempo data.
 - Each performer is represented by a different color, and you can see in the plot where I mark out some of the more prominent neighbors in Yaroshinsky's performance space.
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7. Correlation Calculation

- Going briefly into technicalities, I use this equation to measure how similar each performance is to another. The equation gives values closer to 1.0 if two sequences are similar to each other, or it will give values closer to zero if two sequences are not similar to each other.
- Going back to the Yaroshinsky timescape, notice the small white dot I placed on the plot. This point represents the two phrases marked underneath in the tempo graph.
- These two phrases can be correlated to other performances, as I illustrate here. The correlation values are the big orange numbers after each performer's name.
- Notice that tempo curves which look more similar to Yaroshinsky's curve have larger correlation values. The lowest correlation occurs when he is compared to Brailowsky's performance. Notice how different these two curves appear -- as compared to Yaroshinsky and Uninsky which have a much higher correlation value.

- Since Uninsky is the best match for Yaroshinsky's performance in this region of the music, the blue color representing Uninsky fills in the point on the plot represented by the white circle.

8. Mazurka 17/4 Correlations [7:00]

- One of my analysis techniques is to generate this sort of picture for every performance of a particular mazurka. Here are 18 such timescapes of one of the mazurkas.
- Notice that the first two plots are solid fields of color. These two timescape represent two recordings which are actually of the same performance by Magaloff in 1977. It just happens that this performance was reissued on two different CDs: one is from his complete collection of Chopin piano music issued by Phillips, and the other is from the 100-volume collection called "Great Pianists of the 20th Century" also released by Philips.
- I also ended up with this matching pair in the second row. Again the timescapes are a single solid color, which would indicate to me that they are the two rereleases of the same original performance.

9. Hatto/Indjic

- However, in this case the two recordings are NOT by the same performer, nor do they have the same performance date, and not even issued on same recording label or even in the same country.
- Performances by the same pianists are never not so similar to each other. The three pairs of plots at the bottom of the slide show what is usually expected in plots of performances by the same pianists. Note the flecks of color which come from other pianists occasionally showing up in the plots.
- Looking directly at the audio waveforms, it is also clear that these two recordings are the exact same performance, so there is not doubt that one of these pianists did not really play their recording.
- I came across this unusual situation several months before the Hatto Hoax was unveiled by using iTunes on a different Hatto CD.
- Looking up both Hatto and Indjic on the web it was not that difficult to figure out what might be happening.
- Hatto had not given public performances in the last 30 years. She had produced more recordings of music in 4 years than Artur Rubinstein had done in his entire prolific performance career. She had also been playing some of the most difficult piano music which would challenge a pianist half her age, yet she was being treated for cancer at the time...
- Meanwhile, Indjic has had well-documented experience in performing the music of Chopin. For example, he was a former participant in the Chopin International Piano competition in Warsaw. And he was even scheduled for a series of recitals throughout Poland at the time, which included works by Chopin.

10. Hatto Mazurka Cassette [9:00]

- An interesting aspect to the story is that mazurka performances by Hatto can be found on some 1993 Concert Artist cassettes which was circulated after the hoax was revealed.
- These cassettes also turn out to be borrowed completely from Indjic's 1988 mazurka CD.
- But, there are interesting differences. For example in Mazurka Op. 7, No. 2, the original Indjic performance does not take the written repeat of measures 1 to 16. However, Hatto's cassette performance actually takes the repeat at this point in the score.
- I suspect that Hatto's husband was busy researching his techniques in the 90's by being more conservative in his plagiarism, by altering the music, such as in this case where a repeat is not taken in the original, but occurs in the copy.
- This cassette also demonstrates that the Hoax is much deeper than just Hatto's prolific output from the past 4 or 5 years.

11. Mazurka 17/4 Correlations

- In the meantime, I am minding my own business, and another impossible paring pops up in the set of timescapes.

12. Fiorentino / Olejniczak

- Again, we have two performers on different labels who have identical performances.
- But wait – one of these labels is Concert Artist, so there is no need to bother figuring out this time who is copying whom.
- Also, listening and looking at the two CDs in an audio editor, I quickly find 5 more mazurkas performed by Olejniczak on the Concert Artist CD.
- It is interesting to note here that for two weeks after the Hatto Hoax was uncovered, her husband insisted that her recordings were legitimate, and he had personally witnessed her performing for these recordings.
- It wasn't until two weeks later after overwhelming evidence of over 20 plagiarised CDs that he finally admitted what had happened. He justified his actions because he wanted to make his wife happy, since she felt ignored and unappreciated by the classical music scene.
- Yet, now I find that he has been plagiarizing some of Sergio Fiorentino's performances. I wonder what his explanation of this would be this time...

13. AudioDB

- After finding the match between Fiorentino and Olejniczak, there were still 21 mazurka tracks on Fiorentino's CD which didn't match to any by Olejniczak. Are these authentic Fiorentino performances, or are they taken from some other pianist's commercially released CDs?
- We enlisted the help of Michael Casey at Goldsmiths College, University of London. (not the same, by the way, as Mike Casey from Indiana University who is here at the conference). Michael is working on an open-source audio database system, called audioDB, which can identify similar recordings in a large collection of audio data.

- Here is example output from his system for one of the Fiorentino/Olejniczak pairs. The bold numbers are the similarity score to Fiorentino's recording. Olejniczak's score is much higher than other mazurka performances.

14. Fiorentino Ghost Performers [13:00]

- Using Michael's analysis results, I find that five more tracks by two more performers are present on the Concert Artist Fiorentino CD as shown in this slide.
- Som there are at least three other pianists from three different countries represented on this CD: Olejniczak from Poland, Biret from Turkey, and Malikova from Russia.
- A question still remains as to whether the other 15 tracks are actually Fiorentino or some other pianists for which I do not yet have the source CD.

15. Performance Features

- I have been examining several musical features, not just tempo. Here are example plots for 5 musical features for one of Horowitz's performances of mazurka 17/4. In every case, his 1985 performance of the mazurka matches better to his 1971 performance than to any of 60 or so other performances of the same mazurka by other pianists.
- This is an interesting occurrence, because I can fairly well identify a performer if I have another performance by that pianists to compare with.

16. Same Performer Identification

- Here is a table showing how well a performer will match to themselves in another performance out of a multitude of other recordings of the same work.
- For example, Czerny-Stefanska's two 1949 performances match best to each other for all 5 musical features I examine, as compared to all other performances of mazurka 17/4.
- Likewise for various Friedman, Horowitz, and Uninsky performances.
- The only performance I have found which doesn't match well for all 5 musical features is a pair by Fou Ts'ong. In this case the accentuation features do not match very well between his 1978 and 2005 performances.

17. Cortot Mazurkas

- The reason why all of this is interesting is that there is a complete set of mazurka recordings by Alfred Cortot was produced on the Concert Artist label in the mid-1980's. Idil Biret, the Turkish pianists found on Fiorentino's Concert Artist mazurka CD, studied with Cortot, and she specifically mentions this set of recordings on her webpage -- obviously not questioning their authenticity. And she acutally studied for two years with Cortot in Paris.

18. Cortot Mazurka Performances

- However, there is a problem. There are no other commercial recordings of Cortot playing Chopin mazurkas that we have yet to discover.

- Where did these recordings come from? Hatto's husband has had extensive connections with the recording industry, so perhaps he has uncovered some long-lost studio tapes of Cortot playing the mazurkas. Hatto herself claimed to have studied with Cortot, but we know how that story ends.
- Luckily a set of recordings from Cortot's 1950's masterclasses have been issued recently by Sony Classical which includes fragments of several mazurkas. None of them are complete performances, and he will interrupt his performance with commentary to a student from time to time, and there are lots of wrong notes as he is performing off the top of his head.

19. Cortot Similarity Ranks [17:00]

- I have compared mazurka in B minor Opus 30 No. 2 between the Concert Artist issue and the Cortot Masterclass CDs which is 75% of a complete performance.
- As you see in the bottom pair of lines I added to the previous table, these two performances are matching to each other with incredibly low rankings. There are 36 performances being compared in this mazurka, and basically the two recordings are as far apart from each other as is possible.
- Maybe William Barrington-Coupe actually recorded or acquired some authentic Cortot performances but borrowed recordings of other pianist to fill in the gaps, But I don't think there is much likelihood that he will ever give a straight answer.
- A popular conspiracy theory that I like is that these questionable Cortot recordings are actually authentic Joyce Hatto recordings. At least no other pianist I have been studying so far is a likely match to these recordings.

20. Summary [18:00]

- So, as demonstrated with these three cases of Hatto, Fiorentino and Cortot, Concert Artist recordings are not to be trusted at all. The copying has been going on long before the Hatto CDs started appearing in significant volume in early 2003.
- I think that Hatto's husband was planning on never being discovered during his lifetime, as well. For example, just before being uncovered last year, he had made a deal with IPO recordings to distribute Hatto's CDs in America.
- All Concert Artist mazurka recordings we collected for the Mazurka Project turned out to be either fakes or highly suspicious.
- The good news is that we haven't encountered any other labels with such a problem while we have been studying chopin mazurka recordings.
- But, in conclusion, if any of you record producers out there have been getting ideas during my talk, just make sure you steer clear of mislabeling performances of Chopin mazurkas.