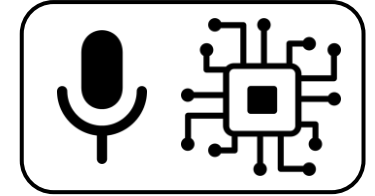

Computational Analysis of Sound and Music

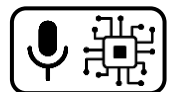


Research Project – Literature Research

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Fraunhofer IDMT

jakob.abesser@idmt.fraunhofer.de



Literature Research

Sources

- https://scholar.google.de/

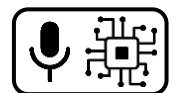
The screenshot shows a Google Scholar search for "acoustic anomaly detection survey". The search bar contains the text "acoustic anomaly detection survey" and a magnifying glass icon. Below the search bar, it indicates "Ungefähr 55.000 Ergebnisse (0,14 Sek.)".

On the left side, there are filters for "Artikel" (Articles) and "Zeitraum wählen..." (Select time range...). The "Zeitraum wählen..." filter is highlighted with a red box and shows options: "Bellebige Zeit" (Any time), "Seit 2024", "Seit 2023", "Seit 2020", and "Zeitraum wählen...".

Below the filters, there are options for sorting: "Nach Relevanz sortieren" (Sort by relevance), "Nach Datum sortieren" (Sort by date), and "Bellebige Sprache" (Any language) with "Seiten auf Deutsch" (Pages in German).

There are also options for "Alle Typen" (All types) with "Übersichtsarbeiten" (Survey papers) selected, and checkboxes for "Patente einschließen" (Include patents) and "Zitate einschließen" (Include citations), with "Zitate einschließen" checked. There is also an "Alert erstellen" (Create alert) option.

The search results are listed in a table-like format with columns for article title, author, and source. The first result is "Anomalous sound event detection: A survey of machine learning based methods and applications" by Z Mnasri, S Rovetta, F Masulli, published in Multimedia Tools and Applications, 2022 - Springer. The second result is "Anomalous sound detection with machine learning: A systematic review" by EC Nunes, published in arXiv preprint arXiv:2102.07820, 2021 - arxiv.org. The third result is "Anomaly detection: A survey" by V Chandola, A Banerjee, V Kumar, published in ACM computing surveys (CSUR), 2009 - dl.acm.org. The fourth result is "Acoustic anomaly detection using convolutional autoencoders in industrial processes" by TB Duman, B Bayram, G Ince, published in Conference on Soft Computing Models in ..., 2020 - Springer.



Literature Research

Sources

- <https://ieeexplore.ieee.org/Xplore/home.jsp>

Showing 1-25 of 345 results for **acoustic anomaly detection** ✕

Conferences (262) Journals (74) Magazines (8) Early Access Arti

Search

Documents Images(Beta)

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- All Results
- Subscribed Content ?
- Open Access Only

Year ^

Range Single Year

1980 2024

Clear Apply

Author v

Affiliation v

Publication Title v







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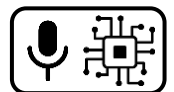
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Select All on Page Sort By: Relevance v

- Design and development of an acoustic sensor array for anomaly detection** 
Dibyendu Roy; V. Ramu Reddy; Parijat Deshpande; Ranjan Dasgupta
2016 10th International Conference on Sensing Technology (ICST)
Year: 2016 | Conference Paper | Publisher: IEEE
Cited by: Papers (1)
v Abstract HTML  
- Marine mammal sound anomaly and quality detection using multitaper spectrogram and hydrophone big data** 
Farook Sattart; Colter McQuay; Peter F. Driessen
2017 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM)
Year: 2017 | Conference Paper | Publisher: IEEE
v Abstract HTML  



Literature Research

Sources

- <https://arxiv.org/>

Showing 1–50 of 50 results for all: acoustic anomaly detection

Search v0.5.6 released 2020-02-24

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acoustic anomaly detection

All fields



Search

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50 results per page. Sort results by Announcement date (newest first) [Go](#)

1 2

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1. [arXiv:2403.00379](#) [[pdf](#), [other](#)] [eess.AS](#) [cs.SD](#)

The Impact of Frequency Bands on Acoustic Anomaly Detection of Machines using Deep Learning Based Model

Authors: Tin Nguyen, Lam Pham, Phat Lam, Dat Ngo, Hieu Tang, Alexander Schindler

Abstract: In this paper, we propose a deep learning based model for Acoustic... [More](#)

Submitted 1 March, 2024; originally announced March 2024.

2. [arXiv:2402.07691](#) [[pdf](#), [other](#)] [cs.RO](#)

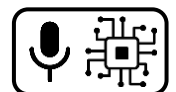
Evaluation of a Smart Mobile Robotic System for Industrial Plant Inspection and Supervision

Authors: Georg K. J. Fischer, Max Bergau, D. Adriana Gómez-Rosal, Andreas Wachaja, Johannes Gräter, Matthias Odenweller, Uwe Piechottka, Fabian Hoeflinger, Nikhil Gosala, Niklas Wetzel, Daniel Büscher, Abhinav Valada, Wolfram Burgard

Abstract: ...system designed for comprehensive plant inspection. This innovative system comprises a robotic platform equipped with a diverse array of sensors integrated to facilitate the detection of various process and infrastructure parameters. These sensors encompass optical (LiDAR, Stereo, UV/IR/RGB cameras), olfactory (electronic nose), and... [More](#)

Submitted 12 February, 2024; originally announced February 2024.

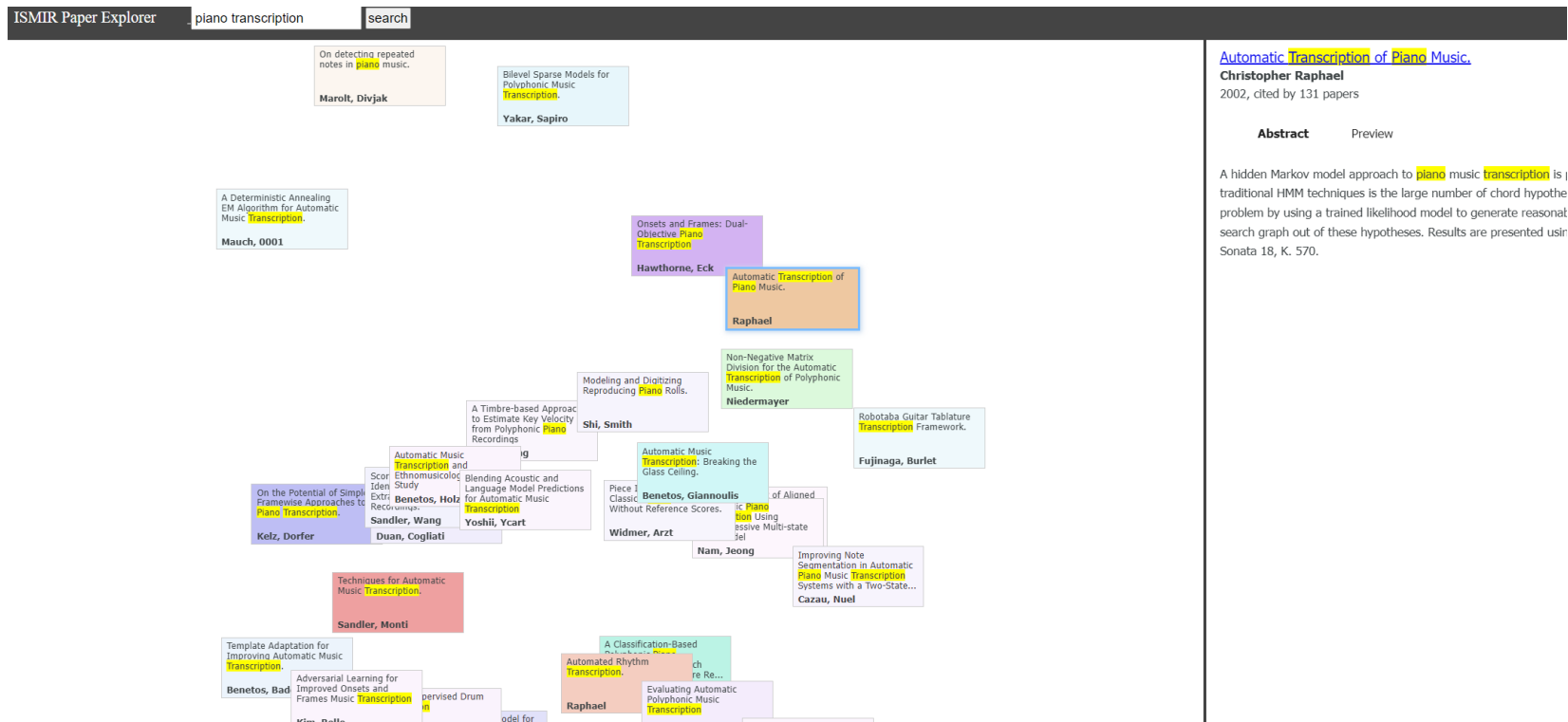
Comments: Submitted for publication in IEEE Sensors Journal



Literature Research

Sources

- <https://ismir-explorer.ai.ovgu.de/app/>



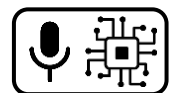
Automatic Transcription of Piano Music.

Christopher Raphael

2002, cited by 131 papers

Abstract Preview

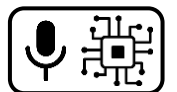
A hidden Markov model approach to piano music transcription is a traditional HMM technique is the large number of chord hypotheses problem by using a trained likelihood model to generate reasonable search graph out of these hypotheses. Results are presented using Sonata 18, K. 570.



Literature Research

General recommendations

- Focus first on most recent publications (2020-2024)
- Reverse literature research (check references of references)
- Focus on conference papers (high-ranked conferences: ISMIR, DAFx, ICMC, IEEE ...)
- Articles are around 8-12 pages -> more comprehensive review
- Look for “review paper” / “survey paper” as a starting point

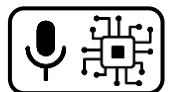


Literature Research

How to (quickly) read a paper?

- First skim through (fast read-through)
 - Introduction
 - Conclusion
 - Figures

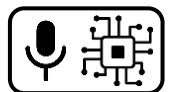
- Second (more detailed) read (if promising)
 - (Methodology)
 - (Evaluation & Results)



Literature Research

How to take notes

- Mark passages using PDF reader (Acrobat Reader)
- Save reference metadata (be thorough once, and relaxed later)
- Rename PDF files consistently (e.g. using the BibTeX key)
- Take bullet point notes in text file (or LaTeX project)



Literature Research

How to take notes (continued)

- Think of categories/criteria to compare different methods

	Feature	Dataset	Model
Author1	MFCC	AudioSet	CNN
Author2	Mel Spec	AudioSet	Transformer
Author3	Mel Spec	FSD50k	CRNN

- This can give your related work section a structure later (one paragraph for each column)

