

What do you struggle with most in terms of academic writing?

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PARENT TRAINING SCHOOL

KU LEUVEN

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KU LEUVEN **kulak**

Academic Writing


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Today's focus

- ✓ How to adopt an academic tone
- ✓ How to convey ideas clearly and efficiently
- ✓ How to build a coherent paragraph

- 
- ✓ *How to adopt an academic tone*

ESR example

In the previous works, every work is focused on an individual organ's disease or its dysfunctioning. The work supporting the crux of interrelated neuro-cardiac pathologies based on different imaging modalities is missing. In this regard, we have done a few experiments using ECGs to compute the neurological outcomes. Generally, everyone has used signal extraction techniques to use ECGs for their purposes. We have used a directly scale-invariant feature transform (SIFT) algorithm to extract features.

✓ How to adopt an academic tone

COMPILE A PERSONAL VOCABULARY

ATTRIBUTING IMPORTANCE

plays an important role in – highlights the importance of – should not be underestimated – the crucial question is – ...

EXPRESSING CONTRAST AND DIFFERENCE

X is unlike Y with respect to – what centrally distinguishes X from Y – is incompatible with – the divergence between the two is marked – the importance of X as opposed to Y – ...

✓ *How to adopt an academic tone*

USE AN ACADEMIC PHRASEBANK



Academic Phrasebank

www.phrasebank.manchester.ac.uk

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Academic Phrasebank

Academic Phrasebank / Compare and contrast

GENERAL LANGUAGE FUNCTIONS

- Being cautious
- Being critical
- Classifying and listing
- Compare and contrast**
- Defining terms
- Describing trends
- Describing quantities
- Explaining causality
- Giving examples
- Signalling transition

Compare and contrast

— Introducing differences

X is different from Y in a number of respects.
 X differs from Y in a number of important ways.
 There are a number of important differences between X and Y.
 Areas where significant differences have been found include X and Y.
 In contrast to earlier findings, however, no evidence of X was detected.
 A descriptive case study differs from an exploratory study in that it uses ...
 Jones (2013) found dramatic differences in the rate of decline of X between Y and Z.
 Women and men differ not only in physical attributes but also in the way in which they ...
 The nervous systems of Xs are significantly different from those of Ys in several key respects.

Smith (2003)

found
observed

major
notable
distinct
only slight
significant
considerable

differences between X and Y.

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✓ *How to adopt an academic tone*

THE LANGUAGE OF ...

... highlighting a problem or controversy in the field of study:

However, these rapid changes are having a serious effect ...

However, a major problem with this kind of application is ...

To date there has been little agreement on what ...

... describing the relevant literature:


A considerable amount of literature has been published on X. These studies ...

The first serious discussions and analyses of X emerged during the 1970s with ...

In recent years, there has been an increasing amount of literature on ...

Improving the example

In the previous works, every work is focused on an individual organ's disease or its dysfunctioning. The work supporting the crux of interrelated neuro-cardiac pathologies based on different imaging modalities is missing. In this regard, we have done a few experiments using ECGs to compute the neurological outcomes. Generally, everyone has used signal extraction techniques to use ECGs for their purposes. We have used a directly scale-invariant feature transform (SIFT) algorithm to extract features.




MANCHESTER
1824
The University of Manchester

Academic Phrasebank

Academic Phrasebank / Being critical

Being critical


Previous studies of X have not dealt with ...
 Researchers have not treated X in much detail.
 Such expositions are unsatisfactory because they ...
 Most studies in the field of X have only focused on ...
 Such approaches, however, have failed to address ...
 Previous published studies are limited to local surveys.
 Half of the studies evaluated failed to specify whether ...
 The research to date has tended to focus on X rather than Y.
 Although extensive research has been carried out on X, no single study exists which ...
 However, these results were based upon data from over 30 years ago and it is unclear if ...
 The experimental data are rather controversial, and there is no general agreement about ...

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ESR example

Although extensive research has been carried out on an individual organ's disease or dysfunctioning, no single study exists which addresses the fundamental issue of interrelated neuro-cardiac pathologies based on different imaging modalities. In this regard, we have done a few experiments using ECGs to compute the neurological outcomes. Generally, everyone has used signal extraction techniques to use ECGs for their purposes. We have used a directly scale-invariant feature transform (SIFT) algorithm to extract features.

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ESR example

Although extensive research has been carried out on an individual organ's disease or dysfunctioning, no single study exists which addresses the fundamental issue of interrelated neuro-cardiac pathologies based on different imaging modalities. In an attempt to bridge this research gap, we have conducted experiments using ECGs to compute the neurological outcomes. Generally, everyone has used signal extraction techniques to use ECGs for their purposes. We have used a directly scale-invariant feature transform (SIFT) algorithm to extract features.

ESR example

Although extensive research has been carried out on an individual organ's disease or dysfunctioning, no single study exists which addresses the fundamental issue of interrelated neuro-cardiac pathologies based on different imaging modalities. In an attempt to bridge this research gap, we have conducted experiments using ECGs to compute the neurological outcomes. Commonly, ECG experiments are conducted using signal extraction techniques. We, however, have used a directly scale-invariant feature transform (SIFT) algorithm to extract features.

ESR example

The global rate of preterm birth has been on a steady increase over the past years. Every year, more than 1 in 10 (approximately 15 million) babies are birthed prematurely [1]. Complications arising from pre-term babies are the leading cause of death amongst children within 5 years of life. ...

✓ How to adopt an academic tone

USE GOOGLE (SCHOLAR)

The screenshot shows the Google Scholar search interface. The search bar contains the text "are birthed prematurely". Below the search bar, the text "Articles" is visible. On the left, there are filters for "Any time", "Since 2022", "Since 2021", and "Since 2018". On the right, a suggestion says "Did you mean: 'are **birth** prematurely'". Below this, a message states: "Your search - 'are birthed prematurely' - did not match any articles." The footer of the slide shows "PARENT TRAINING SCHOOL" and "KU LEUVEN".

✓ *How to adopt an academic tone*

USE GOOGLE (SCHOLAR)

The screenshot shows the Google Scholar interface. The search bar contains the query "are born prematurely". Below the search bar, it indicates "Articles" and "About 5.390 results (0,04 sec)". The first result is titled "[HTML] Exercise and the child born prematurely" by H Hebestreit, O Bar-Or - Sports Medicine, 2001 - Springer. To the right of the title is a link "[HTML] spring Full View". Below the title, there is a snippet: "... By definition, children who are born before the 37th week of gestation **are born prematurely**. More than 1% of live births occur prematurely, and about 1% occur before 32 weeks of ...". The footer of the slide contains the text "PARENT TRAINING SCHOOL" and the "KU LEUVEN" logo.

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✓ *How to adopt an academic tone*

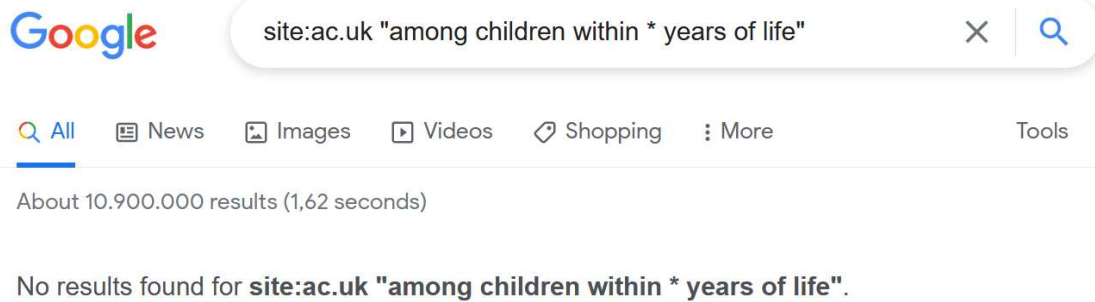
USE GOOGLE (SCHOLAR)

The screenshot shows the Google search interface. The search bar contains the query "site:ac.uk \"among children within * years of life\"". Below the search bar, it indicates "About 10.900.000 results (1,62 seconds)". The main content area displays the message "No results found for site:ac.uk \"among children within * years of life\"". The footer of the slide contains the text "PARENT TRAINING SCHOOL" and the "KU LEUVEN" logo.

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✓ *How to adopt an academic tone*

USE GOOGLE (SCHOLAR)



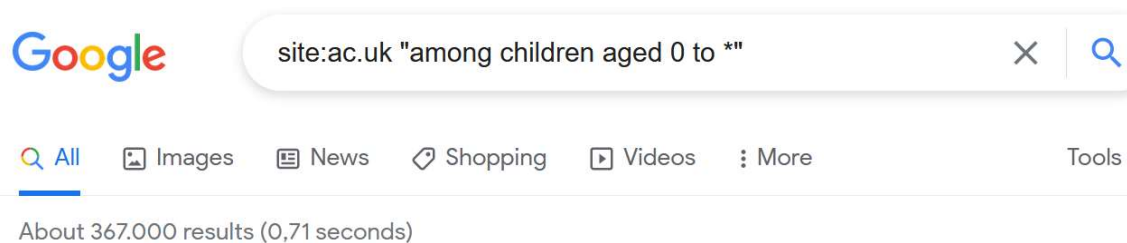
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✓ *How to adopt an academic tone*

USE GOOGLE (SCHOLAR)



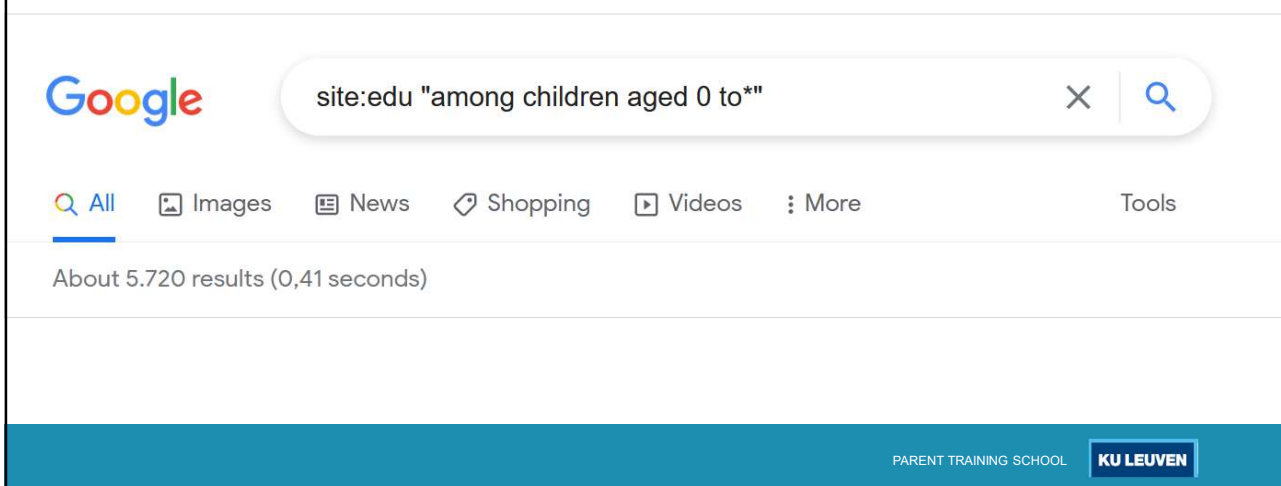
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✓ *How to adopt an academic tone*

USE GOOGLE (SCHOLAR)



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ESR example

The global rate of preterm birth has been on a steady increase over the past years. Every year, more than 1 in 10 (approximately 15 million) babies are born prematurely [1]. Complications arising from pre-term birth are the leading cause of death among children aged 0 to 5. ...

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Common issue: articles

In this review paper, the role of the non-coding RNA molecules in the neurodevelopmental disorders will be investigated.

The World Health Organization (WHO) divides the preterm infants into late and moderate, very and extremely preterm [2].

More recently, Saha and co-workers [3] studied MRI images of 77 infants born preterm using a deep learning convolutional neural network (CNN) model.

Common issue: articles

In this review paper, the role of ~~the~~ non-coding RNA molecules in the neurodevelopmental disorders will be investigated.

The World Health Organization (WHO) divides ~~the~~ preterm infants into late and moderate, very and extremely preterm [2].

→ Use no article when the noun is **unspecified** and **plural**

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Common issue: articles

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→ *Use no article when the noun is **unspecified** and **plural***

*More recently, Saha and co-workers [3] studied **the** MRI images of 77 infants born preterm using a deep learning convolutional neural network (CNN) model.*

→ *Use a definite article when the **specified** and **plural***



✓ *How to convey ideas clearly and efficiently*

“Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts. This requires not that the writer make all sentences short, or avoid all detail and treat subjects only in outline, but that every word tell.”

- William Strunk Jr., *The Elements of Style*

✓ *How to convey ideas efficiently*

OMIT NEEDLESS WORDS

The lack of association between visual skills and observed anatomical brain anomalies can be explained by the fact that conventional MRI techniques do not reveal all structural injuries within the visual pathways (Ortibus et al., 2009; 2019). Therefore, the application of new neuroimaging techniques is required.

✓ *How to convey ideas efficiently*

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The lack of association between visual skills and observed anatomical brain anomalies is due to conventional MRI techniques not revealing all structural injuries within the visual pathways (Ortibus et al., 2009; 2019). Therefore, the application of new neuroimaging techniques is required.

✓ *How to convey ideas efficiently*

OMIT NEEDLESS WORDS

It is also important to notice that research for audio and video processing together was not yet envisaged at this time.

✓ *How to convey ideas efficiently*

OMIT NEEDLESS WORDS

~~It is also important to notice that~~ *Importantly*, research for audio and video processing together was not yet envisaged at this time.

✓ *How to convey ideas efficiently*

OMIT NEEDLESS WORDS

There are several MRI sequences being used to study the preterm brain's structure, function and metabolism.

✓ *How to convey ideas efficiently*

OMIT NEEDLESS WORDS

*~~There are~~ several MRI sequences **are** being used to study the preterm brain's structure, function and metabolism.*

✓ *How to convey ideas efficiently*

AVOID REDUNDANCY

It is possible that the lack of research into this topic may have been due to limited funding.

✓ *How to convey ideas efficiently*

AVOID REDUNDANCY

It is possible that the lack of research into this topic may have been due to limited funding.

✓ *How to convey ideas efficiently*

USE PREMODIFIERS

Hence, it is important to mention that not all damage of the brain is visible on structural MRI.

✓ *How to convey ideas efficiently*

USE PREMODIFIERS

Hence, it is important to mention that not all ~~damage of the brain~~ *brain damage* is visible on structural MRI.

✓ *How to convey ideas efficiently*

USE NOUNS AND VERBS EFFECTIVELY

[...] is crucial [5] in an interdisciplinary and medical approach to increase the trust in the model, improve its transparency (privacy and safety), and give the practitioners an understanding of the characteristics of the networks, allowing the identification of patterns or biases.

The aim of the present work is to briefly summarize the currently used methods for the recognition of motor and cognitive impairments in preterm infants.

✓ *How to convey ideas efficiently*

USE NOUNS AND VERBS EFFECTIVELY

In this article, we provide a review of the advances of neuroimaging and the techniques utilized for preterm neonates.

✓ *How to convey ideas efficiently*

USE NOUNS AND VERBS EFFECTIVELY

In this article, we ~~provide a~~ review of the advances of neuroimaging and the techniques utilized for preterm neonates.

✓ *How to convey ideas efficiently*

USE REDUCED CLAUSES

Special focus will be given to the computational aspect and the analysis of transcriptomics and proteomics data, along with known interactions and pathways that are involved in the evolution of these disorders.

[...] have assessed these findings by researching different biomarkers which relate to different interrelated diseases.

✓ *How to convey ideas efficiently*

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Special focus will be given to the computational aspect and the analysis of transcriptomics and proteomics data, along with known interactions and pathways that are involved in the evolution of these disorders.

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✓ *How to convey ideas efficiently*

COMBINE SENTENCES

Furthermore, the characteristics of sncRNAs will be summarized. This includes the structure of the molecules, the variety of different categories of sncRNAs and also their biological description and function.

✓ *How to convey ideas efficiently*

COMBINE SENTENCES

Furthermore, the characteristics of sncRNAs will be summarized, including the structure of the molecules, the variety of different categories of sncRNAs and their biological description and function.

Common issue: use of commas

It can be mentioned that the first studies did not use automated methods of processing audio and video signals, they based their study on manual annotations [5].

Common issue: use of commas


Machine Learning (ML) has become a set of methods that helps in the analysis of complex and large biological data, it has allowed researchers to have new perspectives, driving them to novel hypotheses that ...

Common issue: use of commas

The data is parsed to extract handcrafted features inspired by works in medical literature [5], these features are used as inputs of a machine learning classifier.

Common issue: use of commas

The myelination process is delayed in premature infants, this delay is related to the number of weeks that the child was born prematurely (Barkovich et al., 2008).



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Developed at the Leuven Language Institute

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Text review

Vocabulary resources

Coherence and cohesion


Readability index

This index assesses the understandability of your text, based on sentence and word length.

- If your text falls in the 'easy' range, this may indicate that it is too simplistic. Try to link up short sentences (see 'Sentence length') and check whether your vocabulary is sufficiently academic.
- If your text falls in the 'complex' range, it may be hard to understand. This may be due to overlong sentences (see 'Sentence length') or the use of too many multi-syllable words.

Easy

Complex



✓ Processed

LANGUAGE ISSUES

- ▶ [Spellchecker UK](#)
- ▶ [Spellchecker US](#)
- ▶ [Language errors](#)
- ▶ [Tense use](#)
- ▶ [Adverb Position](#)

COHERENCE AND COHESION


- ▶ [Readability](#)
- ▶ [Sentence length](#)
- ▶ [Paragraphing](#)
- ▶ [Reference](#)
- ▶ [Linking words and phrases](#)
- ▶ [Recurring words and patterns](#)


STYLE

- ▶ [Personal language](#)
- ▶ [Informal language](#)

Prematurity leads to an increased risk of altered neurodevelopmental outcome in childhood and adolescence, and early diagnosis is an important strategy that could lead to a quick treatment and a wider array of therapeutic options. There is evidence that recording gaze movements during specific tasks, such as smooth pursuit[5] and reading [3], with an eye-tracker could allow classification between healthy and cognitive impaired (CI) individuals. The objective of our work will be the development and optimization of a new computerized neuropsychological test battery based on eye-tracking specific to preterm children. We will start from existing works [3, 2, 6] to develop a machine learning model based on the eye-tracking test battery that will detect cognitive impairment in young children, and also determine the minimum subset of tasks needed to be included for good cognitive assessment.

Differences in eye movements during tasks between healthy and cognitive impaired patients have been reported by [5]. Following these results, a test based on eye-tracking to quantify the difference in eye movements and use them as the basis of a diagnostic tools has been independently developed by NEUS Diagnostics d.o.o. [3, 2] and Oyama et al. [6], with the former being the basis of our research work. The setup is similar for both tests: the subject is seated in front of a computer screen and a fixed eye-tracker is positioned in the lower edge of the screen, the test subject is then presented with a series of tasks to be completed.


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Easy

Complex


✓ Processed

The early analysis of a baby's development is considered one of the biggest concerns of the medical community, especially for preterm infants, who have some of their vital functions immature, needing special attention. Therefore, admission to the Neonatal Intensive Care Unit (NICU) is required [4].

The analysis of audio and video medical information has proven to be a feasible solution that brings benefits, since it offers the gathering of clinical data without the need to use invasive devices and contact methods with the baby, avoiding the discomfort and stress of the infants. These techniques are currently being widely used in different biomedical applications [5].

A newborn is considered a preterm baby when he is born before a Gestational Age (GA) of 37 completed weeks [3], but most studies to date have focused on older children. Regarding the first population group (EG7<7 the target group of this research), it can be mentioned that the first studies did not use automated methods of processing audio and video signals, they based their study on manual annotations [5]. However, in [1,2] the automatic prediction was addressed, in this case for cerebral palsy through computerized video analysis of general movements.

LANGUAGE ISSUES

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COHERENCE AND COHESION

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STYLE

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✓ *How to convey ideas clearly*

AVOID OVERLONG SENTENCES

Only one study integrating audio and video processing, was, to our knowledge, published in [7]; research that is part of the Digi-NewB project, where non-invasive solutions are proposed to assess neurobehavioral development and diagnose neonatal sepsis.

Technological solutions are constantly being sought in order to find systems that allow non-contact and non-invasive monitoring, like the investigation presented in [16] where the authors developed a system to get continuous estimations of vital signs, such as respiratory rate, oxygen saturation, blood pressure and heart rate, through the use of video analysis developed algorithms.

✓ *How to convey ideas clearly*

KEEP SUBJECT AND VERB TOGETHER

Machine learning applied in a biological context is focused on integrating heterogeneous data types through the usage of data mining and predictive algorithms.

✓ *How to convey ideas clearly*

KEEP GRAMMATICAL LINKS TOGETHER

The World Health Organization (WHO) divides preterm infants according to the different weeks of gestational age (GA) into late and moderate, very and extremely preterm [2].

✓ *How to convey ideas clearly*

FOREGROUND MAIN POINTS

[...] medical researchers have also introduced new ways, namely X-ray, Magnetic Resonance Imaging (MRI), Computer Tomography (CT), Ultrasound imaging, Positron Emission Tomography (PET), Electrocardiograms, etc. to look into specific organs' problems.

✓ *How to convey ideas clearly*

FOREGROUND MAIN POINTS

[...] medical researchers have also introduced new ways to look into specific organs' problems, namely X-ray, Magnetic Resonance Imaging (MRI), Computer Tomography (CT), Ultrasound imaging, Positron Emission Tomography (PET), Electrocardiograms, etc.

✓ *How to convey ideas clearly*

AVOID SLOPPY PARALLELISM

Besides a comparison between the different methods, the experiment also investigates the influence of complexity on interpretability.

Common issue: tenses

For studies of the environment in a NICU, the authors of [14] carry out an automatic detection of acoustic alarms in a noisy environment.

Over the past years, several studies applied dMRI to investigate structure-function relationships in children with uCP.

Common issue: tenses

For studies of the environment in a NICU, the authors of [14] ~~carry out~~ carried out an automatic detection of acoustic alarms in a noisy environment.

Over the past years, several studies applied dMRI to investigate structure-function relationships in children with uCP.

Common issue: tenses

*For studies of the environment in a NICU, the authors of [14] ~~carry out~~ **carried out** an automatic detection of acoustic alarms in a noisy environment.*

*→ Use a **past tense** for actions that happened at a definite time in the past*

*Over the past years, several studies ~~applied~~ **have applied** dMRI to investigate structure-function relationships in children with uCP.*

Common issue: tenses

This review is also focusing on different AI techniques to investigate the interrelationship between neuro-cardiac pathologies by using different imaging modalities.

Technological solutions are constantly being sought in order to find systems that allow non-contact and non-invasive monitoring.

Common issue: tenses

*This review ~~is also focusing~~ **also focuses** on different AI techniques to investigate the interrelationship between neuro-cardiac pathologies by using different imaging modalities.*

*Technological solutions **are constantly being sought** in order to find systems that allow non-contact and non-invasive monitoring.*

→ Use a present continuous to indicate that an action is going on at the time of writing

Over to you: ESR example

Medical researchers have also introduced new ways namely X-ray, Magnetic Resonance Imaging (MRI), Computer Tomography (CT), Ultrasound imaging, Positron Emission Tomography (PET), Electrocardiograms, etc. to look into specific organ's problems. These imaging modalities are the main modules, the doctors are using to refer to the patient's disease like cancer, surgery, etc. On the other side, AI has evolved to the next level to help doctors and surgeons in detecting problematic regions of interest by using deep learning methods.



✓ *How to build coherent paragraphs*

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WRITING SKILLS IN PHARMACEUTICAL SCIENCES

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ESR example

MR imaging can reveal structural changes at both macroscopic (structural MR) and microscopic (diffusion MR) levels. These developmental changes appear as regional variation in tissue contrast images (due to myelination and other maturation processes) and regional changes in geometry (due to no-linear and heterogeneous regional growth). These MRI changes help to understand the dynamic early brain development, uncovering brain growth patterns and morphological changes in neurodevelopmental disorders. For example, MRI plays a major role in the identification of focal cortical dysplasia, an abnormality occurring during myelination of the subcortical structures.

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✓ How to build coherent paragraphs

USE A TOPIC SENTENCE

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✓ How to build coherent paragraphs

USE VERTICAL AND HORIZONTAL WEAVING

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✓ How to build coherent paragraphs

DO NOT BREAK THE GIVEN-NEW PRINCIPLE

An infant is considered preterm if born under 37 weeks of gestational age and preterm birth is one of the leading causes of neurodevelopmental disabilities. The use of machine learning coupled with a set of biochemical and clinical markers, neuroimaging techniques and eye-tracking signals could be employed to aid the early detection of impairments and the diagnosis of lesions occurring in brain tissue due to premature birth.

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✓ How to build coherent paragraphs

USE SIMPLE AND COMPLEX SENTENCES

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✓ How to build coherent paragraphs

SIGNAL LOGICAL CONNECTIONS

MR imaging can reveal structural changes at both macroscopic (structural MR) and microscopic (diffusion MR) levels. These developmental changes appear as regional variation in tissue contrast images (due to myelination and other maturation processes) and regional changes in geometry (due to no-linear and heterogeneous regional growth). These MRI changes help to understand the dynamic early brain development, uncovering brain growth patterns and morphological changes in neurodevelopmental disorders. For example, MRI plays a major role in the identification of focal cortical dysplasia, an abnormality occurring during myelination of the subcortical structures.

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✓ How to build coherent paragraphs

AVOID AMBIGUITY

Pre-term neonates are susceptible to cognitive impairments and behavioral abnormalities, affecting their quality of life and impacting the families who cater to them.

On the other hand, classification methods can be found for the identification of sleep stages, which are based on the study of eye movement, body and facial movements, sounds emitted by newborns and respiratory patterns [3].

✓ How to build coherent paragraphs

AVOID AMBIGUITY

Cranial Ultrasound (CUS) is currently the most widely used neuroimaging technique for routine brain assessment of preterm infants, as it can be used immediately after birth and at any time without the burden of moving or sedating the patient. Most neonatal hemorrhagic and ischemic lesions can be identified using modern US systems, such as intraventricular haemorrhages (IVH), ventriculomegaly, and periventricular leukomalacia (PVL), and cystic abnormalities of white matter. [17]. In addition, it allows for the detection of main congenital and maturational anomalies. However, it requires trained ultrasonographers.

Common issue: contrastive link words

Despite a direct causal relationship has not yet been established (Mills et al., 2014), several studies suggest that the reduction of GM after childhood partially reflects synaptic pruning (Blakemore et al., 2008).

Although having been the subject of intense research over the years, cardiac function quantification from MRI is still not a fully automatic process in the clinical practice.

Complex diseases need to be understood as a whole system, **however**, studies keep treating these layers as isolated, instead of interconnected within them (2, 3).

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ESR examples

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ESR examples

This review shows there are not too many research that have been published in the domains of video and audio processing for preterm infants, the vast majority of cases make reference to full-term infants.

ESR examples

An aspect of great importance for the ncRNAs is their identification and use as biomarkers of diseases for early prognosis and/or prognosis.[7] For this purpose, the computational tools that scientists use will be reviewed and described in order to compare them and note their advantages and limitations.

ESR examples

DMRI, on the other hand, provides information about the brain microstructure as it enables to visualize the diffusion of water molecules along the pathways of white matter fiber and the cerebral cortex. Based on dMRI, microstructural measures of the brain can be calculated with Diffusion Tensor Imaging (DTI) [10], those measures are sensitive to the shape and orientation of cellular structures including axons, dendrites, and cell bodies.