

PET/CT Image Denoising and Segmentation based on a Multi Observation and Multi Scale Markov Tree Model

[Medical Sensors Defense]

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- 1 Introduction
- 2 Literature Review
 - Hidden Markov Tree
 - Wavelet Transform
 - Contourlet Transform
 - PET Denoising
 - PET/CT Segmentation
- 3 Result
- 4 Conclusion

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$$\backslashscriptstyle \backslashpsi\,, :\backslashpsi_{\{jk\}}(x) = 2^{\backslashfrac{j}{2}} \backslashpsi\backslashleft(2^{\wedge}jx - k\backslashright)\backslash,$$

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Hidden Markov Tree

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Lists - Itemize

- Point A
- Point B
 - part 1
 - part 2
- Point C
- Point D

Lists - Itemize with Pause

- Point A
- Point B
 - part 1
 - part 2
- Point C
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Lists - Enumerate

- ➊ Point A
- ➋ Point B
 - ➊ part 1
 - ➋ part 2
- ➌ Point C
- ➍ Point D

Lists - Enumerate (Roman Numerals)

- (I) Point A
- (II) Point B
 - (i) part 1
 - (ii) part 2
- (III) Point C
- (IV) Point D

Lorem ipsum dolor sit amet,
consectetur adipisicing elit, sed do
eiusmod tempor incididunt ut
labore et dolore magna aliqua.

Lorem ipsum dolor sit amet,
consectetur adipisicing elit, sed do
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labore et dolore magna aliqua.

Description Environment

API Application Programming Interface

LAN Local Area Network

ASCII American Standard Code for Information Interchange

Tables

Competitor Name	Swim	Cycle	Run	Total
John T	13:04	24:15	18:34	55:53
Norman P	8:00	22:45	23:02	53:47
Alex K	14:00	28:00	n/a	n/a
Sarah H	9:22	21:10	24:03	54:35

Table: Triathlon results

Block Title

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Alert Block Title

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Definition

Then there's the definition environment which produces a standard ColorA color block but with the title already specified as "definition".

```
\begin{definition}  
A prime number is a number that...  
\end{definition}
```

Definition

A prime number is a number that...

Example

Next there's the example environment which produces a green block with the title "Example".

```
\begin{example}  
Lorem ipsum dolor sit amet...  
\end{example}
```

Example

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Theorem

There is also a group of blocks that are especially useful for presenting mathematics. For example the `\theorem` environment, the `\corollary` environment and the `\proof` environment.

```
\begin{theorem}[Pythagoras]
```

$$a^2 + b^2 = c^2$$

```
\end{theorem}
```

```
\begin{corollary}
```

$$x + y = y + x$$

```
\end{corollary}
```

```
\begin{proof}
```

$$\omega + \phi = \epsilon$$

```
\end{proof}
```

Theorem Blocks

Theorem (Pythagoras)

$$a^2 + b^2 = c^2$$

Corollary

$$x + y = y + x$$

Proof.

$$\omega + \phi = \epsilon$$



Before we can create any hyperlinks we need to tag the frames we want to link to using the `ommand`.

click here [section 1 page](#) [▶ columns page](#) [▶▶ pictures page](#) [◀ pictures page](#)

A trivial Set Cover algorithm

Algorithm 1: $\text{MSC}(\mathcal{S}, \mathcal{U})$

Input : A set cover instance $(\mathcal{S}, \mathcal{U})$ and a variable \mathcal{S}_{dom} .

Output : A minimum set cover of $(\mathcal{S}, \mathcal{U})$.

```
1 if  $\mathcal{S} = \emptyset$  then
2   return  $\emptyset$ ;
3 Let  $S \in \mathcal{S}$  be a set of maximum cardinality;
4  $\mathcal{C}_1 = \{S\} \cup \text{MSC}(\{S' \setminus S \mid S' \in \mathcal{S} \setminus \{S\}\}, \mathcal{U} \setminus S)$ ;
5  $\mathcal{C}_2 = \text{MSC}(\mathcal{S} \setminus \{S\}, \mathcal{U})$ ;
6  $\mathcal{S}_{\text{dom}} \leftarrow \emptyset$ ;
7 if  $\mathcal{U} \subseteq \mathcal{C}_1$  then
8    $\mathcal{S}_{\text{dom}} \leftarrow \mathcal{C}_1$ ;
9   if  $\mathcal{U} \subseteq \mathcal{C}_2$  then
10     if  $|\mathcal{C}_2| < |\mathcal{C}_1|$  then
11        $\mathcal{S}_{\text{dom}} \leftarrow \mathcal{C}_2$ ;
12 return  $\mathcal{S}_{\text{dom}}$ ;
```

Q & A

Thank you for listening