Journal Artificial Intelligence in Medicine

Special Issue on Extracting and Processing of Rich Semantics from Medical Texts

The rich semantics such as facts, experiences, opinions or information that are hidden in medical documents can be combined with further information extracted from background documents such as clinical guidelines, documentation from medical trials and research literature. The semantics from these combined sources could – when extracted automatically - support a broad range of applications including clinical decision support systems, outcome analysis, cohort analysis, etc. There is an increased awareness that rich semantics such as sentiments, opinions and other qualitative factors are relevant in ensuring individualized care. New research topics are coming up (e.g. sentiment analysis from clinical texts). Rich semantics can in the future be used in clinical decision support systems, with particular support of semantic web technologies.

This special topic feature of the journal Artificial Intelligence in Medicine will focus on approaches of extracting and processing rich semantics from multiple texts. We are soliciting submissions that focus on new methods, best practice approaches, lesson learned or evaluation of extraction and processing systems development or identify causes of failures. Topics include but are not limited to:

<u>Applications for rich semantics</u>

- Patient stratification and patient retrieval through rich semantics
- Digital Patient Modelling
- Clinical decision support systems and knowledge-based systems
- Determining healthcare quality indicators
- Analysing guideline compliance

<u>Extraction of medical sentiments</u>

- Machine learning and lexicon-based methods for medical sentiment analysis
- Specific language models for sentiment analysis

<u>Analysis of extracted rich semantics</u>

- Extraction of negation, uncertainty or intentions
- Extraction and interpretation of quality, quantity, extent, severity indicators
- Extraction of correlation between events
- Topic detection and modelling in clinical texts with respect to medical vocabularies and ontologies
- Context scope determination

<u>Event extraction in medical texts</u>

- Event extraction from medical texts
- Identification of relationship between events
- Causality analysis between events in the medical domain

<u>Deep leaning in medical contexts</u>

- deep learning for relation detection and entity recognition
- deep learning for time series analysis
- creation of ontology based on deep learning method
- deep learning for sentiment analysis in medical domain

Paper submission

Submitted papers should describe original work, present significant results, and provide rigorous, principled, and repeatable evaluation. Papers must be formatted according to the guidelines for Artificial Intelligence in Medicine authors. **Please indicate your intention of submission by sending a short E-Mail to kerstin.denecke@bfh.ch**

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Important Dates:

Submission deadline: October 15, 2017
First Round Review Notifications: December 2017
Camera-ready version: January 2018

Paper submission
Submitted papers should describe original work, present significant results, and provide rigorous, principled, and repeatable evaluation. Papers must be submitted in PDF (Adobe's Portable Document Format) format and formatted according to the author's guidelines (http://www.aiimjournal.com/content/authorinfo). Paper submission has to be done via the EVISE Submission System: https://www.evise.com/profile/#/AIIM/login
Important: Please start the paper title with "Special Issue RichMedSem" to submit to the special issue.