

Joint CARS / EFMI Workshop on Medical Image Databases on Correlated Software Tools and Technologies for Validation

Session Chairs :
Alexander Horsch,
Pierre Jannin



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Schedule

1. First part : Invited Speakers

- L.P. Clarke
- A. Gupta
- A. Schmidt
- A. Horsch
- T. Wittenberg
- M. Athellogou
- A.E. Todd-Prokopek

2. Second part : Panel on Validation issues in Medical Image Processing (VMIP)

- Extracting requirements and priorities (Top 10)
- Participation of the attendees through paper forms



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Panel Discussion

Objective :
Extracting Requirements and Priorities
concerning Validation in Medical Image
Processing (VMIP)



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Schedule

1. Presentation of an initial list
2. Comments from the panel members
3. Interaction with the audience
4. Available paper forms to be filled in by the audience
5. Publication of the results through the CARS and EFMI web sites



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Material and Method

1. Design of a paper form
2. Sending this form to the invited speakers and chair men of this workshop
3. Compilation of feedbacks from participants (8)
4. Proposition of a global form including all submitted items to the participants
5. Correction of the global form



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Results

- First decomposition level
- Issues related to :
 - Data
 - Methods
 - Actors
 - Implementation



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Issues Related to the Data

Data = Image + Metadata : annotations, patient related data

- Acquisition
 - Harmonization of data acquisition
 - Data acquisition strategies
 - Standardized protocols
 - Integration of data provision in clinical routine
- Transfer
 - Interoperability (Standards for interoperability)
- Quality of the data
 - Validation of data
 - Representativity of the data
 - Size of the data base
 - Evolution of the data base : Updating/refreshing
- Development of standards (description, representation)
 - Development of standards related to image data format
 - Development of Standards related to meta data
 - Development of Standards related to data transfer



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Issues Related to Methods

- Ground Truth
 - Design of targeted applications-based ground truth
 - Expert-based Ground Truth
 - Consensus
 - Computed Ground Truth
 - Development of validation methods w/o GT
- Performance metrics
- Statistical tools
- Development of additional methods
 - Imaging based methods for validation
 - Model based methods for prediction
 - Patients long term clinical outcome
 - Performances during clinical use
 - Tools for annotation
 - Knowledge extraction methods
- Development of standards (description, implementation)
 - for medical image processing methods
 - for validation methods
 - for interoperability between systems



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Issues Related to the Actors

- Data providers
 - Incentives of data providers
- Patients
 - Consent
 - Ensuring privacy
- Users
- Contractual aspects



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Issues Related to Implementation

- Development of demonstration platforms
 - Identification of targeted applications
- Funding
 - Development of PPP
 - Role of the public organizations
 - Industry
- Infrastructure
 - Real or virtual centres for managing and maintaining infrastructures
 - Working groups for defining standards
 - Use of business models
- Awareness
 - Find and list the arguments
 - Researchers, Industrials, Certification authorities, Research funding authorities, Clinicians
 - Communicate methods and results
- Software engineering
 - To ensure interoperability
 - To ensure reusability
 - Open source software development
 - Quality approach for regulatory approval



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