Contents

IMIA Yearbook of Medical Informatics 2020

President’s Statement
S. Koch
President's Statement

Obituaries
E. Hovenga, J. Ronald, L. Westbrook, D. Skiba
Remembering - Joan Edgecumbe (1942-2019)

R. Beuscart, J. Bouaud, M.-C. Jaulent, B. Séroussi
Vassilis Koutkias (1975 - 2019) - the Painful Loss of a Rare Person

Editorial
K. Fultz Hollis, L. F. Soumalia, B. Séroussi
Transparency of Health Informatics Processes as the Condition of Healthcare Professionals’ and Patients’ Trust and Adoption-the Rise of Ethical Requirements

IAHSI Papers
The International Academy of Health Sciences Informatics (IAHSI): IMIA’s Academy is Now Established and on Track

F. Martin-Sanchez, M. J. Ball, M. Kimura, P. Otero, E. Huesing, C. U. Lehmann, R. Haux
International Academy of Health Sciences Informatics (IAHSI): Strategy and Focus Areas, 1st Version

Keynote
K. W. Goodman
Ethics in Health Informatics

Special Section: Ethics in Health Informatics

Survey
H. K. Galvin, P. R. DeMuro
Developments in Privacy and Data Ownership in Mobile Health Technologies, 2016-2019

Working Group Contributions
Ethics in Telehealth: Comparison between Guidelines and Practice-based Experience — the Case for Learning Health Systems

Ethical Use of Electronic Health Record Data and Artificial Intelligence: Recommendations of the Primary Care Informatics Working Group of the International Medical Informatics Association

Challenges and Best Practices in Ethical Review of Human and Organizational Factors Studies in Health Technology: a Synthesis of Testimonies

O. Rivera-Romero, S. Constantinidis, K. Denecke, E. Gabarrón, C. Petersen, M. Househ, M. Meroli, M. Á. Mayer
Ethical Considerations for Participatory Health through Social Media: Healthcare Workforce and Policy Maker Perspectives
Section 1: Health Information Management

Survey
L. Riplinger, J. Piera-Jiménez, J. Pursley Dooling
Patient Identification Techniques — Approaches, Implications, and Findings

Synopsis
M. Bloomrosen, E. S. Berner
Findings from the Health Information Management Section of the 2020 International Medical Informatics Association Yearbook

Best Paper Selection
Content summaries of:


Section 2: Human Factors and Organizational Issues

Survey
H. Hochheiser, R. S. Valdez
Human-Computer Interaction, Ethics, and Biomedical Informatics

Synopsis
Y. Senathirajah, S. Pelayo
Human Factors and Organizational Issues

Best Paper Selection
Content summaries of:


### Section 3: Clinical Information Systems

#### Survey

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. H. Hübner, N. Egbert, G. Schulte</td>
<td>Clinical Information Systems — Seen through the Ethics Lens</td>
</tr>
<tr>
<td>F. Martin-Sanchez, R. Bellazzi, V. Casella, W. Dixon, G. Lopez-Campos, N. Peek</td>
<td>Progress in Characterizing the Human Exposome: a Key Step for Precision Medicine</td>
</tr>
</tbody>
</table>

#### Working Group Contribution

- U. H. Hübner, N. Egbert, G. Schulte
  - Clinical Information Systems — Seen through the Ethics Lens

- F. Martin-Sanchez, R. Bellazzi, V. Casella, W. Dixon, G. Lopez-Campos, N. Peek
  - Progress in Characterizing the Human Exposome: a Key Step for Precision Medicine

#### Synopsis

- W. O. Hackl, A. Hoerbst
  - Trends in Clinical Information Systems Research in 2019

#### Best Paper Selection

- Content summaries of:

### Section 4: Sensor, Signal and Imaging Informatics

#### Survey

- A. Choudhary, L. Tong, Y. Zhu, M. D. Wang
  - Advancing Medical Imaging Informatics by Deep Learning-Based Domain Adaptation

#### Synopsis

- W. Hsu, C. Baumgartner, T. Deserno
  - Notable Papers and Trends from 2019 in Sensors, Signals, and Imaging Informatics

#### Best Paper Selection

- Content summaries of:
Section 5: Decision Support

Survey
I. Jankovic, J. H. Chen
Clinical Decision Support and Implications for the Clinician Burnout Crisis 145

Synopsis
C. Duclos, J. Bouaud
Pragmatic Considerations on Clinical Decision Support from the 2019 Literature 155

Best Paper Selection
Content summaries of:

Section 6: Knowledge Representation and Management

Survey
P. N. Robinson, M. A. Haendel
Ontologies, Knowledge Representation, and Machine Learning for Translational Research: Recent Contributions 159

Synopsis
F. Dhombres, J. Charlet
Design and Use of Semantic Resources: Findings from the Section on Knowledge Representation and Management of the 2020 International Medical Informatics Association Yearbook 163

Best Paper Selection
Content summaries of:

Section 7: Consumer Health Informatics and Education

Survey
T. Eyers, Y. Krastev
Ethics in Surgical Innovations from the Patient Perspective 169

Synopsis
P. Staccini, A. Y. S. Lau
Social Media, Research, and Ethics: Does Participant Willingness Matter? 176

Best Paper Selection
Content summary of:
Section 8: Bioinformatics and Translational Informatics

Survey

X. M. Fernández
Untangling Data in Precision Oncology — A Model for Chronic Diseases? 184

Synopsis

M. Smaïl-Tabbone, B. Rance
Contributions from the 2019 Literature on Bioinformatics and Translational Informatics 188

Best Paper Selection

Content summaries of:


Section 9: Clinical Research Informatics

Survey

A. Solomonides
Review of Clinical Research Informatics 193

Synopsis

C. Daniel, D. Kalra
Clinical Research Informatics 203

Best Paper Selection

Content summaries of:


Section 10: Natural Language Processing

Survey
U. Hahn, M. Oleynik
Medical Information Extraction in the Age of Deep Learning 208

Synopsis
C. Grouin, N. Grabar
A Year of Papers Using Biomedical Texts: Findings from the Section on Clinical Natural Language Processing of the International Medical Informatics Association Yearbook 221

Content summaries of:

Best Paper Selection

Section 11: Public Health and Epidemiology Informatics

Survey
D. L. Buckeridge
Precision, Equity, and Public Health and Epidemiology Informatics — A Scoping Review 226

Synopsis
S. Cossin, R. Thiébaut
Public Health and Epidemiology Informatics: Recent Research Trends. Moving toward Public Health Data Science 231

Best Paper Selection
Content summaries of:

Best Paper Selection

Section 12: Cancer Informatics

Survey
A. C. Griffin, U. Topaloglu, S. Davis, A. E. Chung
From Patient Engagement to Precision Oncology: Leveraging Informatics to Advance Cancer Care 235

Synopsis
J. L. Warner, D. Patt
Cancer Informatics in 2019: Deep Learning Takes Center Stage 243

Best Paper Selection
Content summaries of:

Best Paper Selection
Research & Education
L. Di Marco, J. Breton, D. K. Martin, P. Morand, P. Gillois
Freedom of Master’s Degree Students to Study in Health Curricula: Switching to Optimized Blended Learning as a Solution! 247

History of Medical Informatics
C. A. Kulikowski
Donald A. B. Lindberg: Inspiring Leader and Visionary in Biomedicine, Healthcare, and Informatics 253

Information on IMIA
Welcome to IMIA 259
Honorary Fellows 261
IMIA Member Societies 262
Institutional Members 263
Addresses of IMIA Member Societies 265

Information on IMIA Regions
Information on APAMI (Asia Pacific Association for Medical Informatics) 281
Information on Helina (African Region) 284
Information on IMIA-LAC (Health Informatics Association for Latin-America and Caribbean) 286
Information on MENAHIA (Middle East and North African Association for Health Informatics) 290
Information on NAMI (North-American Medical Informatics) 295
Information on EFMI (European Federation For Medical Informatics) 300

Miscellaneous
Contributors 306
Reviewers 307
IMIA Yearbook Special Topics 308