Contents

President’s Statement
S. Koch
Leading IMIA through a Global Pandemic

Obituary
S. Koch, D. Shires, D. Skiba, M. Ball, J. H. van Bemmelen
Hans Peterson (1928 – 2021) — Forever in Our Hearts, Always in Our Thoughts

Editorial
L. F. Soualmia, K. Fultz Hollis, F. Mougin, B. Séroussi
Health Data, Information, and Knowledge Sharing for Addressing the COVID-19

IAHSI Paper
R. Haux, M. J. Ball, W. R. Hersh, E. Huesing, M. Kimura, S. Koch, F. Martin-Sanchez, P. Otero
The International Academy of Health Sciences Informatics (IAHSI): 2020 Report

WHO Paper
S. Koch, W. R. Hersh, R. Bellazzi, T. Y. Leong, M. Yedaly, N. Al-Shorbaji
Digital Health during COVID-19: Informatics Dialogue with the World Health Organization

Keynote
M. A. Basit, C. U. Lehmann, R. J. Medford
Managing Pandemics with Health Informatics: Successes and Challenges

Special Section: Managing Pandemics with Health Informatics

Survey
B. Tilahun, K. Dessie Gashu, Z. A. Mekonnen, B. F. Endehabtu, D. A. Angaw
Mapping the Role of Digital Health Technologies in Prevention and Control of COVID-19 Pandemic: Review of the Literature

Working Group Contributions
S. Kobayashi, L. Falcón, H. Fraser, J. Braa, P. Amarakoon, A. Marcelo, C. Paton
Using Open Source, Open Data, and Civic Technology to Address the COVID-19 Pandemic and Infodemic

Primary Care Informatics Response to Covid-19 Pandemic: Adaptation, Progress, and Lessons from Four Countries with High ICT Development

Managing Pandemic Responses with Health Informatics — Challenges for Assessing Digital Health Technologies

How to Improve Information Technology to Support Healthcare to Address the COVID-19 Pandemic: an International Survey with Health Informatics Experts
Section 2: Human Factors and Organizational Issues

Survey
J. Marquard
Human Factors and Organizational Issues in Health Informatics: Innovations and Opportunities 91

Synopsis
Y. Senathirajah, M. Hribar
Human Factors and Organizational Issues Section Synopsis IMIA Yearbook 2021 100

Best Paper Selection

Content summaries of:


Section 3: Clinical Information Systems

Survey
The Clinical Information Systems Response to the COVID-19 Pandemic

Working Group Contribution

Synopsis
W. O. Hackl, A. Hoerbst
Clinical Information Systems Research in the Pandemic Year 2020

Best Paper Selection
Content summaries of:

Section 4: Sensor, Signal and Imaging Informatics

Working Group Contribution
V. Vimarlund, E. M. Borycki, A. W. Kushniruk, K. Avenberg
Ambient Assisted Living: Identifying New Challenges and Needs for Digital Technologies and Service Innovation

Synopsis
W. Hsu, C. Baumgartner, T. M. Deserno
Notable Papers and New Directions in Sensors, Signals, and Imaging Informatics

Best Paper Selection
Content summaries of:
Section 5: Decision Support

Survey
P. Taber, C. Radloff, G. Del Fiol, C. Staes, K. Kawamoto
New Standards for Clinical Decision Support: A Survey of The State of Implementation 159

Synopsis
D. Borbolla, G. Ficheur
Clinical Decision Support Systems and Computerized Provider Order Entry: Contributions from 2020 172

Best Paper Selection
Content summaries of:

Section 6: Knowledge Representation and Management

Survey
K. Verspoor
The Evolution of Clinical Knowledge During COVID-19: Towards a Global Learning Health System 176

Synopsis
F. Dhombres, J. Charlet
Knowledge Representation and Management: Interest in New Solutions for Ontology Curation 185

Best Paper Selection
Content summaries of:
Section 7: Consumer Health Informatics and Education

Survey
T. Dingler, D. Kwasnicka, J. Wei, E. Gong, B. Oldenburg
The Use and Promise of Conversational Agents in Digital Health 191

Working Group Contribution
E. Gabarron, O. Rivera-Romero, T. Miron-Shatz, R. Grainger, K. Denecke
Role of Participatory Health Informatics in Detecting and Managing Pandemics: Literature Review 200

Synopsis
P. Staccini, A. Y. S. Lau
Consumer Informatics and COVID-19 Pandemics: Challenges and Opportunities for Research 210

Best Paper Selection
Content summaries of:

Section 8: Bioinformatics and Translational Informatics

Survey
Predictions, Pivots, and a Pandemic: a Review of 2020’s Top Translational Bioinformatics Publications 219

Section 9: Clinical Research Informatics

Survey
M. Christofidou, N. Lea, P. Coorevits
A Literature Review on the GDPR, COVID-19 and the Ethical Considerations of Data Protection During a Time of Crisis 226

Synopsis
C. Daniel, A. Bellamine, D. Kalra
Key Contributions in Clinical Research Informatics 233

Best Paper Selection
Content summaries of:
### Section 10: Natural Language Processing

**Survey**

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Laparra, A. Mascio, S. Velupillai, T. Miller</td>
<td>A Review of Recent Work in Transfer Learning and Domain Adaptation for Natural Language Processing of Electronic Health Records</td>
<td>239</td>
</tr>
<tr>
<td>L. Balkányi, L. Lukács, R. Cornet</td>
<td>Investigating the Scientific ‘Infodemic’ Phenomenon Related to the COVID-19 Pandemic</td>
<td>245</td>
</tr>
<tr>
<td>N. Grabar, C. Grouin</td>
<td>Year 2020 (with COVID): Observation of Scientific Literature on Clinical Natural Language Processing</td>
<td>257</td>
</tr>
</tbody>
</table>

**Synopsis**

Content summaries of:


### Section 11: Public Health and Epidemiology Informatics

**Working Group Contributions**

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. M. Borycki, A. W. Kushniruk, R. Kletk1, V. Vimarlun3, Y. Senathirajah, Y. Quintana</td>
<td>Enhancing Safety During a Pandemic Using Virtual Care Remote Monitoring Technologies and UML Modeling</td>
<td>264</td>
</tr>
<tr>
<td>G. Diallo, G. Bordea</td>
<td>Public Health and Epidemiology Informatics: Recent Research Trends</td>
<td>280</td>
</tr>
</tbody>
</table>

**Synopsis**

Content summaries of:

G. Hripcsak, M. J. Schuemie, D. Madigan, P. B. Ryan, M. A. Suchard
Drawing Reproducible Conclusions from Observational Clinical Data with OHDSI 283

C. A. Kulikowski
Pandemics: Historically Slow “Learning Curve” Leading to Biomedical Informatics and Vaccine Breakthroughs 290

Welcome to IMIA 302
Honorary Fellows 304
IMIA Member Societies 305
Institutional Members 306
Addresses of IMIA Member Societies 308
Information on APAMI (Asia Pacific Association for Medical Informatics) 319
Information on Helina (African Region) 326
Information on MENAHIA (Middle East and North African Association for Health Informatics) 328
Information on NAMI (North-American Medical Informatics) 335
Information on EFMI (European Federation For Medical Informatics) 340

Contributors 346
Reviewers 347
IMIA Yearbook Special Topics 348