Contents

President’s Statement

C. U. Lehmann
President’s Statement 1

Obituary

C. A. Kulikowski, R. Haux, N. M. Lorenzi, O. Rienhoff
In Memoriam: Diarmuid Ua Conaill 3

Editorial

J. H. Holmes, L. F. Soulmiou, B. Séroussi
A 21st Century Embarrassment of Riches: The Balance Between Health Data Access, Usage, and Sharing 5

IAHSI Paper

R. Haux
Visions for IAHSI, the International Academy of Health Sciences Informatics 7

Keynote

C. Petersen
Through Patients’ Eyes: Regulation, Technology, Privacy, and the Future 10

Special Section:
Between Access and Privacy:
Challenges in Sharing Health Data

Survey

P. Shankar, N. Anderson
Advances in Sharing Multi-sourced Health Data on Decision Support Science 2016-2017 16

Working Group Contributions

The Safe and Effective Use of Shared Data Underpinned by Stakeholder Engagement and Evaluation Practice 25

M. Househ, R. Grainger, C. Petersen, P. Bamidis, M. Merolli
Balancing Between Privacy and Patient Needs for Health Information in the Age of Participatory Health and Social Media: A Scoping Review 29

E.-H. Kluge, P. Lacroix, P. Ruotsalainen
Ethics Certification of Health Information Professionals 37

S. Kobayashi, T. B. Kane, C. Paton
The Privacy and Security Implications of Open Data in Healthcare 41

C. E. Kuziemsky, S. B. Gogia, M. Househ, C. Petersen, A. Basu
Balancing Health Information Exchange and Privacy Governance from a Patient-Centred Connected Health and Telehealth Perspective 48

Synopsis

B. Malin, K. Goodman
Between Access and Privacy: Challenges in Sharing Health Data 55

Best Paper Selection

Content summaries of:


Section 1: Health Information Management

Survey
L. L. Kloss, M. S. Brodnik, L. A. Rinehart-Thompson
Access and Disclosure of Personal Health Information: A Challenging Privacy Landscape in 2016-2018

Synopsis
M. Bloomrosen, E. S. Berner
Findings from the 2017 on Health Information Management

Best Paper Selection
Content summaries of:


Section 2: Human Factors and Organizational Issues

Survey
K. A. Siek
Expanding Human Computer Interaction Methods to Understand User Needs in the Design Process of Personal Health Systems

Synopsis
S. Pelayo, J. Kaipio
Findings from the 2018 Yearbook Section on Human Factors and Organizational Issues

Best Paper Selection
Content summaries of:


Section 3: Clinical Information Systems

Survey
M. M. Islam, T. Nasrin Poly, Y.-C. Li
Recent Advancement of Clinical Information Systems: Opportunities and Challenges 83

Synopsis
W. O. Hackl, A. Hoerbst
On the Way to Close the Loop in Information Logistics: Data from the Patient — Value for the Patient 91

Best Paper Selection
Content summaries of:


Section 4: Sensor, Signal and Imaging Informatics

Survey
N. Ganapathy, R. Swaminathan, T. M. Deserno
Deep Learning on 1-D Biosignals: a Taxonomy-based Survey 98

Synopsis
W. Hsu, T. M. Deserno, C. E. Kahn Jr.
Sensor, Signal, and Imaging Informatics in 2017 110

Best Paper Selection
Content summaries of:


Section 5: Decision Support

Survey
I. Cho, D. W. Bates
Behavioral Economics Interventions in Clinical Decision Support Systems 114

Synopsis
V. Koutkias, J. Bouaud
Contributions from the 2017 Literature on Clinical Decision Support 122

Best Paper Selection
Content summaries of:

Section 6: Knowledge Representation and Management

Survey
O. Bodenreider, R. Cornet, D. J. Vreeman
Recent Developments in Clinical Terminologies — SNOMED CT, LOINC, and RxNorm 129

Synopsis
F. Dhombres, J. Charlet
As Ontologies Reach Maturity, Artificial Intelligence Starts Being Fully Efficient: Findings from the Section on Knowledge Representation and Management for the Yearbook 2018 140

Best Paper Selection
Content summaries of:
Galeota E, Pelizzola M. Ontology-based annotations and semantic relations in large-scale (epi)genomics data. Brief Bioinform 2017;18(3):403-12 144
Section 7: Consumer Health Informatics and Education

Survey
J. Huh, J. Koola, A. Contreras, A. KP. Castillo, M. Ruiz, K. G. Tedone, M. Yakuta, M. K. Schiaffino
Consumer Health Informatics Adoption among Underserved Populations: Thinking beyond the Digital Divide

Working Group Contribution
Benefit-risk of Patients’ Online Access to their Medical Records: Consensus Exercise of an International Expert Group

Synopsis
P. Staccini, A. Y. S. Lau
Findings from 2017 on Consumer Health Informatics and Education: Health Data Access and Sharing

Best Paper Selection
Content summaries of:


Section 8: Clinical Research Informatics

Survey
N. C. Lea, J. Nicholls, N. K. Fitzpatrick
Between Scylla and Charybdis: Charting the Wicked Problem of Reusing Health Data for Clinical Research Informatics
170

Synopsis
C. Daniel, D. Kalra
Clinical Research Informatics: Contributions from 2017
177

Best Paper Selection
181
181
182
182
183

Section 9: Natural Language Processing

Survey
M. Filannino, Ö. Uzuner
Advancing the State of the Art in Clinical Natural Language Processing through Shared Tasks
184

Synopsis
A. Névéol, P. Zweigenbaum
Expanding the Diversity of Texts and Applications: Findings from the Section on Clinical Natural Language Processing of the International Medical Informatics Association Yearbook
193

Best Paper Selection
Content summaries of:
198
198
198
Section 10: Public Health and Epidemiology Informatics

Survey
R. Gamache, H. Kharrazi, J. P. Weiner
Public and Population Health Informatics: The Bridging of Big Data to Benefit Communities
199

Synopsis
R. Thiébaut, F. Thiessard
Artificial Intelligence in Public Health and Epidemiology
207

Best Paper Selection
Content summaries of:
210
210

Section 11: Cancer Informatics

Survey
E. Mathé, J. L Hays, D. G. Stover, J. L. Chen
The Omics Revolution Continues: The Maturation of High-Throughput Biological Data Sources
211

Synopsis
J. L. Warner, D. A. Patt
Cancer Informatics in 2017: A New Beginning and a Bright Future
223

Best Paper Selection
Content summaries of:
226
226
226

Grémy Award Papers
F. González Bernaldo de Quiroás, C. Otero, D. Luna
Terminology Services: Standard Terminologies to Control Health Vocabulary
227

K. C. Lun
The Datafication of Everything — Even Toilets
234

Research & Education
Five Years of Clinical Informatics Board Certification for Physicians in the United States of America
237

History of Medical Informatics
G. I. Mihalas, L. Stoicu-Tivadar
History of Romanian Medical Informatics: Learning from the Past to Reshape the Future
243
Information on IMIA

Welcome to IMIA 252
Honorary Fellows 255
IMIA Member Societies 256
Institutional Members 257
Addresses of IMIA Member Societies 259

Information on IMIA Regions

Information on APAMI (Asia Pacific Association for Medical Informatics) 275
Information on Helina (African Region) 281
Information on IMIA-LAC (Federation of Health Societies in Latin America) 283
Information on MENAHIA (Middle East and North African Association for Health Informatics) 286
Information on NAMI (North-American Medical Informatics) 292
Information on EFMI (European Federation For Medical Informatics) 296

National Contribution

P. Knaup, T. M. Deserno, H. -U. Prokosch, U. Sax
Implementation of a National Framework to Promote Health Data Sharing 302

Miscellaneous

Contributors 305
Reviewers 306
IMIA Yearbook Special Topics 307