



# Contents

UNIVERSIDAD NACIONAL DE ENTRE RÍOS  
FACULTAD DE INGENIERÍA  
CENTRO DE MEDICINA  
BIBLIOTECA

3445

Preface

V

## 1. Data and Information Processing in Medicine

- |  |    |
|--|----|
| 1.1 Need for Improved Quality in Health Care and Medical Diagnosis, <i>E. Fleck</i>                | 3  |
| 1.2 Principles of Open Distributed Processing in Medicine – The Berlin Approach, <i>B. Mahr</i>    | 6  |
| 1.3 Medical Information Processing – The BAIK Model, <i>W. Giere</i>                               | 24 |
| 1.4 Existing and Future Communication Techniques for Open Information Processing, <i>J. Kanzow</i> | 35 |
| 1.5 Recent Developments in Medical Information Processing, <i>E. Frantz</i>                        | 40 |
| 1.6 The BERMED Application Environment, <i>M.J. Ohly</i>   | 50 |

## 2. Concepts and Architecture of an Open Distributed Heterogeneous Management System

- |   |     |
|---|-----|
| 2.1 Information Management in Patient Care, <i>M.J. Ohly</i>  | 55  |
| 2.2 Realization of an Open Distributed Management System, <i>M.J. Ohly</i>  | 63  |
| 2.3 Computer-Supported Cooperative Work, <i>M.J. Ohly</i>   | 78  |
| 2.4 Multimedia Documents, <i>L. Kleinholz</i>   | 88  |
| 2.5 Security and Protection, <i>L. Kleinholz</i>  | 98  |
| 2.6 Communication Infrastructure, <i>J. Steffens</i>  | 104 |
| 2.7 Image Processing Pipeline for Medical Applications, <i>H. Oswald</i>  | 111 |
| 2.8 Towards a Medical Terminology Infrastructure in an Open Clinical Application Environment, <i>D. Paparoditis</i>     | 118 |
| 2.9 Knowledge Based Support for Medical Diagnoses, <i>H. Ogradowczyk, D. Mende, D. Paparoditis</i> and <i>H. Oswald</i> | 131 |

## 3. Medical Application Based on Open Distributed Heterogeneous Management

- |   |     |
|---|-----|
| 3.1 Integrated Medical Application, <i>L. Kleinholz, M.J. Ohly, C. Korch, D. Emmel</i> and <i>S. Märkle</i> | 143 |
| 3.2 Evaluation of the Realized System – Obstacles to Further Integration, <i>M.J. Ohly</i>                  | 164 |
| 3.3 Demonstrators for Telemedicine Services, <i>J. Steffens</i> and <i>H. Oswald</i>                        | 167 |

## 4. Advanced Integrated Medical Query Systems

- |  |     |
|--|-----|
| 4.1 Retrieval of Independent Information Sources in a Clinical Application Environment, <i>D. Paparoditis</i>      | 181 |
| 4.2 Digital Signal Processing, <i>H. Oswald, A. Wahle, J. Beier, S. Wegner, A. Ossen</i> and <i>K.-P. Pleißner</i> | 190 |
| 4.3 Support Platform for Medical Workstations, <i>M.J. Ohly</i>  | 214 |

## 5. Aspects on Future Developments of Integrated Medical Information Processing

- |   |     |
|---|-----|
| 5.1 Integrated Clinical Information Management, <i>M.J. Ohly, D. Mende, D. Paparoditis, H. Ogradowczyk</i> and <i>R. Petersen</i> | 219 |
|---|-----|

5.2 Integration of Administration, <i>R. Petersen</i> and <i>M.M. Werners</i>	222
5.3 Communication Technology, <i>J. Steffens</i>	229
5.4 Future Directions in Distributed Computing, <i>M.J. Ohly</i>	241
Contributors to the Project BERMED, Local Project Partners and International Partners	245
Author Affiliations	246
Author Index	247