

Acta Universitatis Sapientiae

Informatica

Volume 12, Number 1, 2020

Sapientia Hungarian University of Transylvania
Scientia Publishing House

**Acta Universitatis Sapientiae, Informatica
is covered by the following services:**

DOAJ (Directory of Open Access Journals)

EBSCO (relevant databases)

EBSCO Discovery Service

io-port.net

Japan Science and Technology Agency (JST)

Microsoft Academic

Ulrich's Periodicals Directory/ulrichsweb

Web of Science – Emerging Sources Citation Index

Zentralblatt für Mathematik

Contents

P. Marjai, A. Kiss

Efficiency centrality in time-varying graphs 5

A. S. Telcian, D. M. Cristea, I. Sima

**Formal concept analysis for amino acids classification and
visualization 22**

M. Antal, N. Fejér

Mouse dynamics based user recognition using deep learning 39

B. Szabari, A. Kiss

Word pattern prediction using Big Data frameworks 51

D. Rotovei

**Opportunity activity sequence investigations in B2B CRM
systems 70**

S. Pirzada, M. Aijaz

**Metric and upper dimension of zero divisor graphs associated
to commutative rings 84**

K. Buza

**Encouraging an appropriate representation simplifies training
of neural networks 98**

<i>R. Madarász, A. Kelemen, P. Kádár</i>	
Modeling reactive magnetron sputtering: a survey of different modeling approaches	108
 <i>P. B. Joshi, M. Joseph</i>	
$\mathcal{P}$-energy of graphs	133
 <i>J. Kok</i>	
Errata: Heuristic method to determine lucky k-polynomials for k-colorable graphs	154