**KÓCZY, LASZLO T.**

**Professor**

Széchényi István University

Győr, Egyetem tér 1

96/613-566, koczy@sze.hu

**Education**

1998 DSc. Hungarian Academy of Science

1998 Dr. habil TechnicalUniversity of Budapest

1977 Ph.D. TechnicalUniversity of Budapest

1975 M.S. TechnicalUniversity of Budapest

**Employment**

2002- Professor, Széchenyi István University

1976- Professor (1998-), Budapest University of Technology and Economics

1993-1994 Professor, Fuzzy Theory Chair, Tokyo Institute of Technology

1992 Assoc. Prof., Pohang Institute of Science and Technology

**Areas of Research Interest**

* Modeling sustainability and management systems by Fuzzy Cognitive Maps
* Concept reduction algorithm for Fuzzy Cognitive Maps
* Analysis of the behavior of Fuzzy Cognitive Maps when non-zero interaction values are uncertain or changing
* Introduction of the concept of fuzzy rule interpolation and the development of a family of fuzzy rule interpolation algorithms
* Introduction of the possibility of rule interpolation in hierarchically structured fuzzy rule bases
* Automatic identification of hierarchical interpolative models from input-output data by clustering and evolutionary algorithms
* Investigation of various fuzzy models and establishment of their mutual equivalence relations
* Introduction of the concept of fuzzy signatures, fuzzy situational maps based on spatial fuzzy signatures, and fuzzy signature state machines
* Fuzzy communication and collaboration of intelligent robots
* Explicit expressions for fuzzy models
* Approximation and stability properties of fuzzy models and algorithms
* Interpolative fuzzy control of Automatic Guided Vehicles and mobile robots
* Basic results in fuzzy control of energetic systems
* Various applications of fuzzy reasoning shell (job exchange, traffic control system, etc.)
* Optimization of fuzzy graphs and unreliable networks
* Information retrieval from verbal documents by fuzzy relational map
* Introduction of the Fuzzy Hough transform

**Awards**

2016 Certificate of Appreciation (2016, Dean of the Panevezys Faculty of Technologies and Business, Kaunas University)

2014 Certificate of Appreciation (2014, vice ChancellorInstitut Teknologi Brunei)

2014 Certificate of Appreciation (Plenary Speeker, HNICEM2014)

2013 Best Paper Award (2013, The Doctoral Symposium on Recent Advances in Information Technology Federated Conference on Computer Science and Information Systems)

2012 For Dedication and Service (2012, IEEE Computational Intelligence Society)

2012 For Leadership and Service (2012, IEEE International Conference on Fuzzy Systems, FUZZ-IEEE)

2011 Order of the Hungarian Republic, Officer’s Cross (2011)

2011 Best Paper Award (2011, IEEE International Conference on Fuzzy Systems, FUZZ-IEEE)

2010 For Dedicated Service (2010, IEEE Computational Intelligence Society)

2009 Life Fellow of the International Society of Management Engineers (2009)

2007 Distinguished Contribution Award (2009, International Symposium on Management Engineering),

2007 Fellow of the International Fuzzy Systems Association (2007)

2006 Distinguished Contribution Award (2006, World Automation Congress),

2006 For Notable Services and Contributions (2006, IEEE Computational Intelligence Society),

2005 Honor for Outstanding Contribution (2005, International Fuzzy Systems Association),

2005 For Distinguished Contribution (2005, Berkeley Initiative for Soft Computing, University of California),

2004 Laszlo Kozma Medallion (2004),

2002 Denis Gabor Award (2002),

1985 Best Paper Award (1985, Systems Science)

**Administrative Roles**

2013- President of the University Doctoral Council, Széchenyi István University (SZE)

2013- President of the University Research Council (SZE)

2008-2011 Head, Institute for Mechanical and Electrical Engineering and Information Technology (SZE)

2002-2011 Dean, Faculty of Engineering Sciences (SZE)

1993-1994 Chair Professor (Head), Fuzzy Theory Chair Tokyo Institute of Technology

1992-2001 Deputy Director of the International Educational Center (BME)

**Significant Publications (up to ten)**

László Gál, Rita Lovassy, Imre Rudas, László T Kóczy: **Learning the optimal parameter of the Hamacher t-norm applied for fuzzy-rule-based model extraction**, NEURAL COMPUTING & APPLICATIONS 24: (1) pp. 133-142.

K Balázs, L T Kóczy: **Constructing Dense, Sparse and Hierarchical Fuzzy Systems by Applying Evolutionary Optimization Techniques**, APPLIED AND COMPUTATIONAL MATHEMATICS 11: (1) pp. 81-101.

C Pozna, N Minculete, R-E Precup, L T Kóczy, Á Ballagi: **Signatures: Definitions, operators and applications to fuzzy modeling**, FUZZY SETS AND SYSTEMS 201: pp. 86-104.

K Balázs, L T Kóczy: **Hierarchical-interpolative fuzzy system construction by genetic and bacterial memetic programming approaches**, INTERNATIONAL JOURNAL OF UNCERTAINTY FUZZINESS AND KNOWLEDGE-BASED SYSTEMS 20: (2) pp. 105-131.

Molnárka Gergely, Kóczy T. László: **Decision Support System for Evaluating Existing Apartment Buildings Based on Fuzzy Signatures**, INTERNATIONAL JOURNAL OF COMPUTERS COMMUNICATIONS & CONTROL 6: (3) pp. 442-457.

L T Kóczy: **Fuzziness and computational intelligence: dealing with complexity and accuracy**, SOFT COMPUTING 10: (2) pp. 178-184.

Baranyi, P, Kóczy, L T, Gedeon, T D: **A Generalized Concept for Fuzzy Rule Interpolation**, IEEE TRANSACTIONS ON FUZZY SYSTEMS 12: (6) pp. 820-837.

Y Yam, L T Kóczy: **Representing membership functions as points in high-dimensional spaces for fuzzy interpolation and extrapolation**, IEEE TRANSACTIONS ON FUZZY SYSTEMS 8: (6) pp. 761-772.

E P Klement, L T Kóczy, B Moser: **Are fuzzy systems universal approximators?**, INTERNATIONAL JOURNAL OF GENERAL SYSTEMS 28: (3) pp. 259-282.

L T Kóczy, K Hirota: **Approximate reasoning by linear rule interpolation and general approximation**, INTERNATIONAL JOURNAL OF APPROXIMATE REASONING 9: pp. 197-225.

**Funded Research Projects**

* *Government Grants*

2013-2017 OTKA K108405

2012-2016 OTKA K105529

2009-2012 OTKA K75711

2009-2010 TÉT CZ-13/08

2008-2009 TÉT P-3/07

2007-2009 TÉT SK-15/2006

2006-2007 TÉT CZ-5/05

2006-2007 TÉT P-8/05

2005-2008 OTKA T048832

2004-2005 TÉT CZ-1/03

2004-2005 TÉT P-21/03

2003-2006 OTKA T043258

2002-2003 TÉT P-14/01

2002-2004 NKFP 2/015/2002

2001-2004 IKTA-00167/2000

2001-2004 OTKA T034233

2001-2004 OTKA T 034212

2000-2001 TÉT P-16/99

1999-2002 OTKA T030655

1999-2002 OTKA T030054

1999-2002 OTKA T030655

1997-2000 MKM FKFP 0235/1997

1997-2000 MKM FKFP 0422/1997

1996-1999 OTKA T019671

1995-1998 OTKA T016480

1994-2005 CEEPUS

1994-1997 TEMPUS

INCO-Copernicus (EU Grant), GIPSECA 1998-2001

* *Industry Grants*

4 industry grants (BHG Telecommunication Works, 1978-1988),

1 TKI Telecommunication Research (1987-1990)

**Teaching**

AGH University (Cracow) Fuzzy Systems

Australian National University (Canberra) Fuzzy Systems, Bio-inspired Computing Intelligent Systems

University of New South Wales (Sydney) Fuzzy Systems, Bio-inspired Computing Intelligent Systems

J. Kepler Universität Linz (Linz) Fuzzy Systems

University of Trento (Trento) Fuzzy Systems

Tokyo Institute of Technology Fuzzy Systems

Pohang Institute of Science and Technology Fuzzy Systems

**Student Supervision**

Master's Students - numerous

Doctoral Students

Ballagi Áron 2015

Buruzs Adrienn 2015

Molnárka Gergely 2015

Balázs Krisztián 2013

Gál László 2012

Lovassy Rita Éva 2010

B. Sumudu U. Mendis 2008

Botzheim János 2008

Alex Chong 2004

Tikk Domonkos 2000

Baranyi Péter 1999

Kovács Szilveszter 1998

Bernhard Moser 1997

Abdulmagied K.Sdaa 1992 (C.Sc.)

Lilik Ferenc 2017

Tormási Alex 2017

Kovács György 2017

Tüű-Szabó Boldizsár 2018

1980-1992 (old doctoral system, Dr.techn.)

Hidvégi Attila

Langer József

Móray Gábor

Veres Tibor

Reznák Roxán

Darabos Zoltán

**Examination Committees**

Continuous participation in D.Sc., Ph.D. committees in Hungary.

Continuous participation in Ph.D. examination (external examiner) in India, Malaysia, Australia.

**Professional and Editorial Activities**

Appointed Foreign Member of The Council of Provosts, Division of Engineering Sciences, Polish Academy of Sciences 2015-

Member Committee National PhD Council (Hungary) 2013-

Member Hungarian Accreditation Committee 2012-

Chair Engineering Subcommittee HAC 2012-

Member Supervisory Committee National PhD Council (Hungary) 2012-2013

Member Advisory Committee on Industrial Safety (Hungarian Headquarters for Disaster Prevention) 2012-

IEEE Systems Council Administrative Committee, Member of the Board 2011-2012

President, Board for Computer Science and Information Technology, Hungarian Rectors’ Conference 2009-2010

IEEE Computational Intelligence Society Administrative Committee, Member of the Board 2005-2010

President, Hungarian Rectors and Deans of Engineering College 2003-2004

Past President, IFSA 2003-2005

President, IFSA 2001-2003

President Elect, IFSA 1999-2001

Vice President, International Fuzzy Systems Association (IFSA) 1995-1999

IEEE NNS Regional Chapters Board President 2001-2002

Senior Member, IEEE 1999-

Founding President, Hungarian Fuzzy Association 1990-1999

Founding Member, EURO Working Group of Fuzzy Sets 1975-

Associate Editor and Editorial Board Member of various professional journals: IEEE Transactions on Fuzzy Systems, Fuzzy Sets and Systems, Soft Computing, International Journal of Fuzzy Systems, Journal of Advanced Computation and Intelligence, Mathware and Soft Computing, Fuzzy Systems & AI, International Journal of Intelligent Systems and Information Processing, International Intelligent Knowledge Systems Society, Journal of Advanced Computing, International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems

**Consulting**

Laboratory for International Fuzzy Engineering Research in Yokohama (1993-1994)

Solware Ltd. (2001-2012)

MMG Ltd. (2016)

**Major Presentations (up to five)**

ICORAS 2016, Melaka (Malaysia)

International Forum on Innovative Technologies and Management for Sustainability 2016, Panevezys (Lithuania)

ESCIM 2015, Cadiz (Portugal)

IEEE IS 2014, Warsaw (Poland)

SCIS ISIS 2014, Kitakyushu (Japan)

FUZZ-IEEE 2013 Hyderabad (India)

FUZZ-IEEE 2011, Taipei (Taiwan) (panel session chair and presentation)

ISME 2009, Dalian (China)

FUZZINESS in Finland 2004, Helsinki (Finland)

ICONIP 1999, Perth (Australia)