

Andreas Holzinger, 3-Pages Scientific Résumé as of January, 2018

“Science is to test crazy ideas – Engineering is to put these ideas into Business”

PERSONAL DATA:

Current Position Lead Holzinger Group, Research Unit HCI-KDD
Assoc.Prof. for Applied Computer Science, TU Graz
Visit.Prof. for Machine Learning in Health Informatics, TU Vienna

Primary Address Institute for Medical Informatics, Statistics and Documentation,
Med. University Graz, Auenbruggerplatz 2/V, A-8036 Graz, Austria

Second Address Institute of Interactive Systems and Data Science,
Graz Univ. of Technology, Inffeldgasse 16c, A-8010 Graz, Austria

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Born/Family status Austria, 18.04.1963, Nat.: Austrian; Married since 1993, 2 children



SUBJECT: Computer Science **TECHNICAL AREA:** Explainable-AI, Machine Learning, Knowledge Extraction

APPLICATION AREA: Health Informatics **ORCID:** <http://orcid.org/0000-0002-6786-5194>

RESEARCH STATEMENT: <https://goo.gl/8DTBU4> **TEACHING STATEMENT:** <https://goo.gl/C6thkq>

MAKE 3-minutes Video Statement: <https://goo.gl/0hcPOY> **20-min Video for Students:** <https://goo.gl/0FFrNR>

100-words RESEARCH STATEMENT:

Andreas promotes a synergistic approach towards understanding intelligence by integrating two areas: Human–Computer Interaction (HCI) & Knowledge Discovery/Data Mining (KDD) with the goal to augment human intelligence with artificial intelligence. Andreas has pioneered in interactive machine learning (iML) with the human-in-the-loop and the application in health informatics. Due to raising legal and privacy issues such glass box approaches will become important in the future to make decisions transparent, understandable and re-traceable, hence to explain why a decision has been made. Andreas’ aim is to contribute to the international research community to help to pave the way towards explainable-AI.

150-words BIOGRAPHY:

Andreas obtained a Ph.D. in Cognitive Science from Graz University in 1998 and his Habilitation (second Ph.D.) in Computer Science from TU Graz in 2003. He is Associate Editor of Knowledge and Information Systems (KAIS), Section Editor for Machine Learning of BMC Medical Informatics and Decision Making (MIDM), and Editor-in-Chief of Machine Learning & Knowledge Extraction (MAKE). He is organizer of the IFIP Cross-Domain Conference Machine Learning & Knowledge Extraction (CD-MAKE), member of the IFIP TC 12 Artificial Intelligence and IFIP WG 12.9 Computational Intelligence, the ACM, IEEE, GI, the Austrian Computer Science and the Association for the Advancement of Artificial Intelligence (AAAI). Andreas serves as consultant for the Canadian, US, UK, Swiss, French, Italian and Dutch governments, for the German Excellence Initiative, and as national expert in the European Commission. Since 2003 he has participated in leading positions in 30+ R&D multi-national projects, budget 4+ MEUR, 300+ publications, 8900+ citations, h-Index = 42.

PROFESSIONAL EMPLOYMENT HISTORY:

2017 Visiting Professor for Machine Learning & Knowledge Extraction, University Verona

2016-present Visiting Professor for Machine Learning in Health Informatics, TU Vienna

2010-present Lead of Holzinger Group, Research Unit, HCI-KDD, Medical University Graz

2010-present Lecturer for Biomedical Informatics, Faculty of Computer Science, TU Graz

2012 Visiting Professor for KDD in health, University College London, UK

2011/12 Visiting Professor for KDD in health, RWTH Aachen University, Germany

2007 Visiting Professor for HCI-KDD, Middlesex University London, UK

2006-present Visiting Professor for Health Information Management/Decision Support, Vienna Business University

2005/06 Visiting Professor for HCI-KDD, Vienna TU Vienna, Austria

2004/05 Visiting Professor for Knowledge Management, Innsbruck University, Austria

2003-2004 Technical Director of the Virtual Medical Campus Graz, Austria

2002-2003 Visiting Professor for Knowledge Management at the Nations Health School, Berlin, Germany

EDUCATION:

- 2003 Habilitation (second Ph.D.) in Computer Science, Graz University of Technology;
1998 PhD – Doctor of Philosophy, Cognitive Science, University of Graz with summa cum laude;
1996 MPh – Master of Philosophy in Media and Sociology, University of Graz, with distinction;
1995 MSc – Master of Science in Physics, University of Graz, with distinction;
1993 BEng – Bachelor of Electrical and Communications Engineering, Graz University of Technology;
1992 Dipl. Ed. - Diploma as Lecturer for Adult Education (Computer Programming in C and FORTRAN);
1990 CEng - Chartered Engineer for Communication Engineering;
1986/87 Kings College of Further Education, Bournemouth (UK), with honors in Computing
1983 Foreman in Industrial Electronics & Instructor exam, (Development of a Logic tester), with distinction
1981 Certification exam; (Journeyman's piece: Development of a digital illumination detector), with distinction
1978–1981 Apprenticeship Information Technology, 3 classes vocational school, with distinction

AWARDS AND HONORS (selected):

- 2018 Elected as Austrian Representative to the IFIP Technical Committee TC 12 Artificial Intelligence
2017 Invited Keynote at DATA 2017, Universidad Rey Juan Carlos (URJC), Spain
2016 Invited Keynote at 20th KES Knowledge Engineering Systems Conference, York, UK
2015 Invited Keynote at Princess Margaret Cancer Center, University of Toronto, Canada
2014 Invited Tutorial on interactive Knowledge Discovery at the WIC-Conference, Warsaw, Poland
2014 Invited Keynote on interactive Knowledge Discovery, VISIGRAPP 2014, Lisbon, Portugal
2013 Invited Keynote on Big Health Data at IBM Industrial Big Data summit, Vienna, Austria
2013 Best Paper Award, SouthCHI, Maribor, Slovenia;
2012 Invited Keynote IT-challenges Business conference, Big Data summit, TechGate Vienna, Austria;
2012 Best Paper Award at ICE-Business conference, Rome, Italy;
2012 Invited Keynote on interactive Data Mining at DATA 2012, Rome, Italy;
2011 Best Paper Award ICE-Business conference, Sevilla, Spain;
2010 Industrial Software Grant, Styrian Business Promotion Agency;
2010 Best Paper Award ICE-Business conference, Athens, Greece;
2010 Science Ideas Competition Award, Science Park, Graz

GRANTS (selected):

- 2016-2019 H2020 Marie Curie ACROSSING, Co-PI, 511 kEUR;
2014-2017 FFG K1, MALBIODI, Adv. Machine Learning for Biomarker Discovery, PI, 540 kEUR;
2013–2014 Industry, Content Analytics in Biomedicine, PI, 92 kEUR;
2013-2014 Industry and Austrian Research Agency, EMOMES, PI, 36 kEUR;
2011-2012 ICT-2011.95 FET-Flagship IT Future of Medicine, Co-PI, 237kEUR
2010–2012 Industry and Styrian Research Agency, Visualization of complex processes, PI, 54 kEUR;
2010–2014 EU FP 7 IST-2010-248590 REACTION, 204kEUR;
2008–2011 Industry, Semantic Information Extraction from Information Systems, PI, 22 kEUR;
2009–2011 Industry and Styrian Research Agency, emendus, complexity reduction, PI, 58 kEUR
2008–2010 Industry, Austrian Research Agency (FFG), iHAND, Handwriting Algorithms, PI, 58 kEUR;
2007–2010 EU FP 6 IST-2005-2.6.2 045056 EMERGE, Emergency Monitoring/Prevention, PI, 300 kEUR;
2004–2005 Austrian Research Agency, HAEMOSIM, Haemodynamics Simulation Project, PI, 88 kEUR;
2002–2004 Austrian Ministry of Science, Virtual Medical Campus Graz, PI, 450 kEUR;

SERVICES TO THE INTERNATIONAL RESEARCH COMMUNITY (selected):

- 2011–present Initiator and Lead of HCI-KDD Expert Group, see: <http://hci-kdd.org/expert-network-hci-kdd/>
2014–present Member of the IFIP WG 12.9 Computational Intelligence
2013–present Evaluator for European Research Council, Frontier Research Grants
2013–present Evaluator for Schweizer Nationalfonds zur Förderung der wissenschaftlichen Forschung, Switzerland
2013–present Evaluator for Agence Nationale de la Recherche (ANR), France

2012-present Reviewer for Information Processing and Management
2013-present Reviewer for ACM Computing Surveys (CSUR)
2012-present Reviewer for Springer Neural Computing and Applications
2012-present Reviewer for Oxford Bioinformatics
2012-present Reviewer for Information Sciences
2011-present Reviewer for Artificial Intelligence in Medicine
2011-present Project evaluator for National Research Council Canada (NRC), Canada
2010-present Reviewer for Knowledge and Information Systems
2010-present Evaluator for Deutsches Bundesministerium für Bildung und Forschung, Exzellenzinitiative
2006-present Evaluator for Netherlands Organization for Scientific Research (NWO), Netherlands
2004-present Reviewer for Multimedia Tools and Applications

EDITORIAL POSITIONS (selected - last 5 years):

2016-present Machine Learning (MACH) Guest Editor Journal Track ECML-PKDD 2017
2016-present International Journal of Human-Computer Studies, Editorial Board Member
2015-present Entropy, Editor Special Issue "Machine Learning and Entropy"
2015-present BMC Medical Informatics and Decision Making, Section Editor for Machine Learning
2014-present Springer KAIS Knowledge and Information Systems, Associate Editor
2014-present Springer BRIN Brain Informatics, Editorial Board Member
2013-2014 BMC Bioinformatics, Guest Editor
2013-2014 Journal of Information Processing and Management, Guest Editor
2012-present Online Information Review (OIR), Editorial Board Member

SERVICES FOR THE INTERNATIONAL RESEARCH COMMUNITY (selected):

2017 Organizer of the Cross Domain Conference for Machine Learning & Knowledge Extraction (CD-MAKE)
2016 Program co-chair of the IFIP CD-ARES conference and of the DEXA ITBAM conference
2015 Co-chair at the 14th IEEE Intl. Conference on Machine Learning and Applications, Miami (FL), US
2014 General chair at the DATA conference in Vienna, Austria
2011-2017 Organizer of 10 special sessions HCI-KDD in Graz (Austria), Macau (China), Maribor (Slovenia), Regensburg (Germany), Lisbon (Portugal), Warsaw (Poland), Banff (Canada), London (UK), Salzburg (Austria) and Reggio (Italy).

RECENT UNIVERSITY TEACHING (selected):

2017 LV 340.300, 3 ECTS, Interacting with Agents (federated machine learning approaches)
2017 LV 004.553, 6 ECTS, Decision Support: Mini Course Machine Learning & Knowledge Extraction for Health, University Verona
2016-present LV 185.A83, 3 ECTS, Machine Learning for Health Informatics, TU Vienna
2011-2017 LV 709.049, 3 ECTS, Biomedical Informatics, TU Graz
2011-present LV 706.315, 2 ECTS, Selected Topics on Interactive Knowledge Discovery: Interactive Machine Learning
2009-present Member of the Doctoral School "Computer Science" at Graz University of Technology

OPEN SOURCE SOFTWARE OF THE HOLZINGER GROUP (recent, selected):

Augmentor: An Image Augmentation Library for Machine Learning
Python Version: <https://github.com/mdbloice/Augmentor> <http://augmentor.readthedocs.io>
Julia Version: <https://github.com/Evizero/Augmentor.jl> <http://augmentorjl.readthedocs.io>

Graphinius: Graph-Based Machine Learning– GraphiniusJS (Base Library)
<https://github.com/cassinius/GraphiniusJS>
– GraphiniusVIS (Visualization Module) <https://github.com/Niciii/GraphiniusVis>
– GraphiniusPlatform <http://graphinius.io>

TUGrovis: Tumor growth visualization towards in-silico tumor-growth simulation
<https://github.com/davcem/cpm-cytoscape>