

Pawel Matykiewicz

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EDUCATION

Nicholaus Copernicus University, Torun, Poland

Ph.D. Student

2003-2010

Thesis title: "Neurocognitive approach to medical text processing" (defense at Polish Academy of Science, Department of Artificial Intelligence)

Major: Natural Language Processing with Neurocognitive computing

Adam Mickiewicz University, Poznan, Poland

Master of Philosophy

1998-2003

Thesis title: "High-dimensional discrete dynamical systems as an associative memory"

Major: Cognitive Philosophy with Artificial Intelligence

WORKING EXPERIENCE

Nicholaus Copernicus University, Torun, Poland, 2003-2005

Position: Graduate Assistant

Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, USA, 2005-2007

Position: Graduate Student

Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, USA, 2007-2008

Position: Research Assistant III

Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, USA, 2008-present

Position: Research Assistant IV

INTERNATIONAL CONFERENCES ATTENDENCE

Zakopane, Poland, June 7-11, 2004

International Conference on Artificial Intelligence and Soft Computing ICAISC 2004

Budapest, Hungary, July 26-29, 2004

International Joint Conference on Neural Networks IJCNN 2004

Washington, DC, USA, November 11-15, 2006

American Medical Informatics Association Annual Symposium AMIA 2006

Oxford, OH, USA, July 9-11, 2007

Ohio Collaborative Conference on Bioinformatics OCCBIO 2007

Columbus, Ohio, USA, June 16-18, 2008

The 46th Annual Meeting of the Association for Computational Linguistics ACL 2008

Washington, DC, USA, November 8-12, 2008

American Medical Informatics Association Annual Symposium AMIA 2008

PUBLICATIONS AND PAPERS

P. Matykiewicz, *Properties of a Chaotic Neural Network Separating Memory Patterns*, International Joint Conference on Neural Networks IJCNN 2004, Vol. 2, IEEE Press 2004, pp. 931-934

P. Matykiewicz, *Chaotic Itinerary for Patterns Separation*, Artificial Intelligence and Soft Computing ICAISC 2004, Vol. 3070 Springer 2004, pp. 235-240

W. Duch, P. Matykiewicz, *Minimum Spanning Trees Displaying Semantic Similarity*, Intelligent Information Processing and Web Mining, Advances in Soft Computing, Springer 2005, pp. 31-40

P. Matykiewicz, W. Duch, J. Pestian, *Nonambiguous Concept Mapping in Medical Domain*, Artificial Intelligence and Soft Computing ICAISC 2006, Vol. 4029, Springer 2006, pp. 941-950

P. Matykiewicz, J. Pestian, W. Duch, N. Johnson, *Unambiguous Concept Mapping in Radiology Reports: Graphs of Consistent Concepts*, AMIA Annual Symposium Proceedings, Vol. 2006, AMIA 2006, pp. 1024-1024

J. Rajan, K. C. Davis, P. Matykiewicz, W. Duch, J. Pestian, *Medical Acronym Disambiguation Using Online Sources*, International Conference on Enterprise Information Systems and Web Technologies, 2007, ISRST, pp. 123-130

W. Duch, P. Matykiewicz, J. Pestian, *Neurolinguistic Approach to Vector Representation of Medical Concepts*, International Joint Conference on Neural Networks IJCNN 2007, IEEE Press 2007, pp. 3110-3115

W. Duch, P. Matykiewicz, J. Pestian, *Towards Understanding of Natural Language: Neurocognitive Inspirations*, International Conference on Artificial Neural Networks ICANN 2007, Vol. 4668, Springer 2007, pp. 953-962

J. Pestian, C. Brew, P. Matykiewicz, DJ Hovermale, N. Johnson, K. Cohen, W. Duch, *A Shared Task Involving Multi-label Classification of Clinical Free Text*, Biological, translational, and clinical language processing, ACL 2007, pp. 97-104

W. Duch, P. Matykiewicz, J. Pestian, *Neurolinguistic Approach to Natural Language Processing with Applications to Medical Text Analysis*, Neural Networks, 2008, 21 (10), pp. 1500-1510

J. Pestian, P. Matykiewicz, A. Leenaars, J. Grupp-Phelan, S. A. Lavanier, J. Combs, R. Kowatch, *Using Natural Language Processing to Classify Suicide Notes*, Proceedings of the Workshop on Current Trends in Biomedical Natural Language Processing, ACL 2008, pp. 96-97

P. Matykiewicz, W. Duch, P. Zender, K. Cruthcher, J. Pestian, *Neurocognitive approach to clustering of PubMed query results*, Neural Information Processing 15th International Conference, ICONIP 2008, Lecture Notes in Computer Science 5507, 2009, pp. 70-79

J. Pestian, M. Spencer, P. Matykiewicz, K. Zhang, S. Vinks, T. Glauser, *Personalizing drug selection using advanced clinical decision support*, Biomedical Informatics Insights, 2009, 2, 19-29

P. Matykiewicz, W. Duch, J. Pestian, *Clustering semantic spaces of suicide notes and newsgroups articles*, Proceedings of BioNLP Workshop, ACL, 2009, pp. 179-184

A. Rinderknecht, M. Ho, P. Matykiewicz, J. M. Grupp-Phelan, *Primary Care Provider Referral to the Pediatric Emergency Department: A Predictor of Severity of Illness*, Pediatric Academic Societies, Annual Meeting 2009, Baltimore, Maryland, Publication 3884.457

PATENTS

J. Pestian, P. Matykiewicz, W. Duch, T. Glauser, R. A. Kowatch, J. Grupp-Phelan, *Processing text with domain-specific spreading activation methods*, United States Patent Application, 20080270120

PROJECTS

EPILEPSY SYNDROMES CLUSTERING – *Natural Language Processing and cluster analysis* (with CCHMC Neurology Department and International League Against Epilepsy)
COMPREHENSIVE EPILEPSY CENTER – *Natural Language Processing, data mining, and information extraction during heterogeneous databases merging process* (with CCHMC Neurology Department)
SUICIDE PREDICTION – *Natural Language Processing of suicidal speech with biomarkers* (with CCHMC Psychiatry Department)
CHRISTINE – *Web-based Personalized Therapy Decision Support System* (with CCHMC Neurology Department)
VISUAL LANGUAGE SYSTEM – *Medical Literature Based Discovery* (with University of Cincinnati College of Design, Architecture, Art, and Planning)
EMERGENCY CLINICAL CARE – *Finding differences between referrals and non-referrals* (with CCHMC Emergency Department)
RADIOLOGY REPORTS CATEGORIZATION – *Natural Language Processing to assign ICD-9-CM billing codes* (with CCHMC Radiology Department)

SKILLS

PROGRAMMING LANGUAGES – *R* (advanced), *PERL* (advanced), *HTML* (advanced), *CSS* (intermediate), *SQL* (intermediate), *C* (intermediate), *PHP* (basic), *Java* (basic), *C#* (basic), *Ruby* (basic), *TCSH + BASH* (basic), *XML + XSLT* (basic)
OPERATING SYSTEMS – *Mac OS X* (advanced), *MS Windows* (intermediate), *Linux* (intermediate), *BSD* (basic)
SOFTWARE – *Unified Medical Language System* (advanced), *Latex + Bibtex* (advanced), *Vim* (intermediate), *MySQL* (intermediate), *MS Office + EndNote* (intermediate), *Talend Open Studio* (intermediate), *Pentaho* (basic), *Oracle* (basic), *Epic EHR* (basic), *MediaWiki* (basic), *Selenium + Molybdenum Testing* (basic)
TECHNOLOGIES – *Machine Learning* (advanced), *Natural Language Processing* (advanced), *Text categorization + Text clustering* (advanced), *Data Mining* (advanced), *Neurocognitive Computing* (advanced), *Data Visualization* (intermediate), *Clinical Decision Support Systems* (intermediate), *Time Series Analysis* (basic), *Regression Analysis* (basic)

REFERENCES

WLODZISLAW DUCH – dissertation advisor, Head of Department of Informatics, Nicolaus Copernicus University
MALIK SPENCER – engineering advisor, System Analyst at Division of Biomedical Informatics, CCHMC
JOHN PESITIAN – supervisor, Associate Professor at Division of Biomedical Informatics, CCHMC