

## Max Petrenko, Ph.D.

### Contact information

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### WORK EXPERIENCE

#### Work in Knowledge Management/IT/NLP industry

#### February 2013 - present

Employer: NTENT, Carlsbad, CA  
Position: Senior Ontologist  
Duties: Serve as de facto Principal Ontologist. Build and maintain a large-scale ontology (500 thousand concepts and over 3 million lexical expressions), provide specifications for internal ontological consistency checks; supervise junior ontologists, work with developers and market analysts to ensure the appropriate coverage, consistency, and accessibility of the knowledge resources at all levels of the indexing, query processing and document retrieval pipeline, including NLP components.

#### August 2012 - November 2012

Employer: International Monetary Fund, Technology and General Services, Washington D.C.  
Position: Projects Officer (full-time, medium-term contract)  
Duties: building parallel text bases for MultiTrans (machine translation platform); performing parallel text alignment, improving alignment by developing, testing and maintaining a list of processing exceptions for alignment; performing translation of IMF documentation.

#### March 2012 - present

Employer: Lionbridge Technologies, Inc. Tampere, Finland  
Position: Computational Linguist (contractor)  
Duties: working with the Linguistic Development Team implementing language processing/assessment solutions

#### February 2009 - August 2011

Employer: RiverGlass, Inc. Champaign, IL, USA  
Position: lexicon acquirer, knowledge resource manager, senior ontologist (full-time contractor)  
Duties:

- Worked in the team of computational linguists, software developers and market analysts. Provided linguistic input in the development of meaning-based information processing/clustering/retrieval

application developed at RiverGlass, Inc. The Ontological Semantic technology developed by our research and development team brought the company a number of partnership deals in e-discovery and law enforcement, including a multimillion dollar investment package and government sales contract from Boeing.

- Acquisition and management of computational lexicon with the online acquisition/version control tool (GWT-based); providing complete semantic and syntactic coverage of open classes (verbs, nouns, adjectives, adverbs) and closed classes (pronouns, prepositions, conjunctions, modal expressions, etc.) of the English lexicon; calibrating semantic depth depending on the needs of an application;
- Acquisition and management of computational ontology within an offline and online acquisition and version control tool (GWT-based); performing domain-independent and domain-specific ontological acquisition tailored to the needs of an application;
- Lexicon and ontology synchronization and updating based on ongoing research and development progress;
- Participated in the development of NLP processing modules for semantics (processing prepositions, conjunctions, pronouns, numerals, nouns and proper nouns, adjectives, verbs, adverbs; modal expressions, unattested input, metonymy and implementing common sense reasoning) and syntax (clause merging module, negation, passive constructions, syntactic coordination and morpho-syntactic agreement modules)
- Tested the NLP modules on the Enron email corpus, developing the gold standard with part of speech tagging; worked closely with software development subgroup to adjust/improve semantic and syntactic processing algorithms;
- Coordinated and supervised work of junior lexicon and ontology acquirers; developed acquisition standards , FAQ's and manuals
- Participated in weekly group discussions where the quality and functionality of the knowledge resources and the analyzer is tested based on real-life data;

### **January 2008 – October 2008**

Employer: Hokia. New York, NY, USA

Position: Linguistic consultant, lexicon acquirer (contractor)

Duties: Acquisition of the English lexicon mostly with the focus on the medical domain (diseases and pharmaceuticals), lexicon testing, developing lexicon acquisition templates; deploying rapid and semi-automatic lexical acquisition methods;

### **August 2007 – April 2008**

Employer: Center for Education, Research in Information Assurance and Security; Purdue University, West Lafayette, IN, USA

Position: Research Assistant in the project: Ontological Semantics Support for a limited domain (privacy policy). National Science Foundation Grant # 0428554 to Purdue University.  
Principal investigator: Professor Victor Raskin

Duties:

- Developed Ontological Semantics support for the privacy policy domain;
- Designed ontological and lexical knowledge resources for the domain of privacy policy; Developed abductive modules of information extraction based on the domain of privacy policy;
- Presented research results at conferences and in publications

### **Academic positions**

**August 2012 – present**

University: Texas A&M University-Commerce, Ontological Semantic Technology Lab:  
<http://www.tamuc.edu/academics/colleges/humanitiesSocialSciencesArts/departments/literatureLanguages/ostl/default.aspx>

Position: Senior Consultant:  
<http://www.tamuc.edu/academics/colleges/humanitiesSocialSciencesArts/departments/literatureLanguages/ostl/labPersonnel/default.aspx>

**Fall 2008 – August 2012**

University: Princess Ekaterina R. Dashkova Moscow Humanities Institute. Moscow; Russia

Position: Visiting Professor of English and Linguistics; Chair of Theoretical Linguistics Section;

Duties: Lecturing, teaching, consultancy, faculty recruitment/management

Courses taught (language of instruction is English):

- Introduction to Linguistics (undergraduate and graduate level)
- Language and Culture
- Linguistic Typology
- English-Russian Translation (undergraduate and graduate level)
- English-Russian Literary Translation;
- English (undergraduate and graduate level)
- Effective Presentation Skills

**Fall 2007 – present**

Research Group Member, Natural Language Processing Laboratory, Purdue University, West Lafayette, IN, USA

Activities:

- Working in the Ontological Semantics Research and Development Group
- Research into the theory and methodology of acquisition and maintenance of ontological, lexical and onomastical knowledge resources

- Consultancy on Ontological Semantics at the product improvement and novel implementation level

### **Fall 2012 – present**

Senior Consultant, Ontological Semantic Technology Laboratory, Texas A&M University-Commerce, Commerce, TX, USA

#### Activities:

- Working in the Ontological Semantics Research and Development Group
- Research into the theory and methodology of acquisition and maintenance of ontological, lexical and onomastical knowledge resources
- Consultancy on Ontological Semantics at the product improvement and novel implementation level

### **Fall 2007 – Spring 2008**

University: Purdue University, West Lafayette, IN, USA

Position: Assistant instructor/lecturer (with Prof. Victor Raskin)

Duties: Substitute lecturing and teaching; coursework grading, course projects consultancy

#### Courses taught:

- ENGL 511/LING 531: Semantics for graduate students (Spring 2008);
- ENGL 506/LING 500: Introduction to Linguistics for graduate students (Spring 2008);
- ENGL 227/LING 201: Introduction to Linguistics/Elements of Linguistics (Fall 2007);
- LING 689R: Seminar in Humor Theories (Fall 2007);

### **Fall 2004 – Spring 2005**

University: Anton Chekhov Taganrog Pedagogical Institute. Taganrog, Russia.

Position: Assistant instructor

Duties: Teaching, lecturing

#### Courses taught:

- Russian (undergraduate and graduate level)
- English (undergraduate and graduate level)
- Seminar in Semantics (undergraduate and graduate level)

## **EDUCATION**

### **Ph.D. in Linguistics (May, 2008)**

University: Purdue University, Interdisciplinary Program in Linguistics, College of Liberal Arts, West Lafayette, IN, USA. GPA 3.92/4.00

Dissertation title: *The narrative joke: conceptual structure and linguistic manifestation*

Advisor: Distinguished Professor Victor Raskin.

Committee members: Prof. Victor Raskin, Prof. Shaun Hughes, Prof. Salvatore Attardo,  
Prof. Myrdene Anderson.

**Ph.D. (“kandidak nauk”) in Philology (May, 2005)**

University: Anton Chekhov Taganrog Pedagogical Institute. Taganrog, Russia

Dissertation title: *Modern joke in textual, genre and discursive aspects (Sovremenny anekdot v tekstovom, zhanrovom i diskursivnom aspektakh)*

Advisor: Professor Galina Infantova

**M.A. in English (2003) *Summa cum laude*; B.A. in English (2001)**

University: Anton Chekhov Taganrog Pedagogical Institute. Taganrog, Russia

**M.A. in Russian (2002) *Summa cum laude*; B.A. in Russian (2000)**

University: Anton Chekhov Taganrog Pedagogical Institute. Taganrog, Russia

**English language certificate (July, 2005).** English Language training program for Graduate students.

University: SUNY at Buffalo, English Language Institute, NY.

**Certificate in New Drama Translation Seminar and New Drama Editing Seminar (May, 2005)**

Organization: British Council Russia Project Coordinator: Alexanrda Dugdale. Royal Court Theatre, London. Play translated: “Under the Blue Sky” (David Eldridge). Staged in Oleg Tabakov Theatre, Moscow.

**PUBLICATIONS**

**Co-authored books**

*Ontological Semantics Technology* (350 pp. in preparation, tentatively committed to Morgan Kaufmann, Scheduled 2017, with Professor V. Raskin, Dr. C. F. Hempelmann and Dr. J.M. Taylor)

**Peer-reviewed publications**

- 2016 Hempelmann, C.F., Petrenko, M., and G. Matthews. Automatic Discovery of Degrees of Fuzzy Set Membership in Ontologies. (accepted) 2016 Annual Conference of North American Fuzzy Information Processing Society (NAFIPS). October 31-November4, 2016. El Paso, TX.
- 2015 Hempelmann, C.F., and M. Petrenko. An AI for Humorously Reframing Interaction Narratives with Human Users. In: Proceedings of HCI International 2015: The 17<sup>th</sup> International Conference on Human-Computer Interaction. Springer, 2015.

- 2014 Petrenko, M, Matthews, G., and Erin MacMurray van Liemt. *Building unified knowledge resources for multiple applications*. ILINTEC'14, Workshop on Intelligent Linguistic Technologies (part of ICAI'14, International Conference on Artificial Intelligence). Las Vegas, NV, USA July 21-24;
- 2013 Hempelmann, C.F., and M. Petrenko. Knowledge representation and adaptation within Ontological Semantic Technology. IEEE-ICSC 2013: Seventh IEEE International Conference on Semantic Computing. Irvine, September 16-18, 2013.
- 2013 Matthews, G, and M. Petrenko. *Knowledge-based and vertical-driven information retrieval*. ILINTEC'13, Workshop on Intelligent Linguistic Technologies (part of ICAI'13, International Conference on Artificial Intelligence). Las Vegas, NV, USA July 22-25; pp. 70-76.
- 2012 Max Petrenko, and C. F. Hempelmann. *Robotic Reasoning with Ontological Semantic Technology*. The First International Conference on Robot Intelligence Technology and Applications, Gwandju, Korea. December 16-18, 2012
- 2012 Petrenko, M. *On Scalability in Humor Generation*. AAI Symposium on Artificial Intelligence of Humor. Arlington, VA, USA, November 2-4, 2012 (invited paper)
- 2012 Petrenko, M. and C.F. Hempelmann. *The Ontological Semantics of Antonyms*. ILINTEC'12, Workshop on Intelligent Linguistic Technologies 2012 (part of ICAI'12, International Conference on Artificial Intelligence). Las Vegas, NV, USA
- 2011 Petrenko, M. *Semi-automatic verb-driven lexicon acquisition enhancer*. ILINTEC'11, Workshop on Intelligent Linguistic Technologies 2011 (part of ICAI'11, International Conference on Artificial Intelligence). Las Vegas, NV, USA. July 18-21.
- 2010 Taylor J., Raskin V., Petrenko M, and C.F. Hempelmann. *Multiple Noun Expression Analysis: An Implementation of Ontological Semantic Technology*. Proceedings of Computational Linguistics – Applications, 2010. International Multiconference on Computer Science and Information Technology. Wisla, Poland. October 18-20; pp. 167-174.
- 2010 Petrenko M. *The Architecture and Functionality of Ontological Semantics*. Proceedings of the 29<sup>th</sup> International Conference on Lexis and Grammar. Belgrade, Serbia. September 15-18; pp 262-271.
- 2010 Petrenko, M. *Priming-based Disambiguation in Ontological Semantics*. ILINTEC'10, Workshop on Intelligent Linguistic Technologies'10 (part of ICAI'10, International Conference on Artificial Intelligence). Las Vegas, NV, USA. July 12-15; pp. 942-947.
- 2010 Petrenko, M. *Lexicon Management in Ontological Semantics*. Dialog-2010 Computational Linguistics Conference. Moscow, Russia. May 26-30, 2010, pp 636-641.  
<http://www.dialog-21.ru/dialog2010/materials/html/91.htm>
- 2009 Petrenko, M. *Ontological Semantics and Abduction: Parsing Ellipsis*. Dialog-2009 Computational Linguistics Conference. Moscow, Russia. May 27-31, pp. 598-605  
<http://www.dialog-21.ru/dialog2009/materials/pdf/93.pdf>

- 2009 Petrenko, M. *The Semantics of Contextual Synonymy: the Case of Anton Chekhov*. Slavic and East European Journal (unpublished draft)
- 2008 Raskin, V., Hempelmann, C.F., Taylor, J., Petrenko M.S., Triezenberg K.E., and Brian Buck. *The Why's, How's and What-of's of Natural Language Ontology*. Meaning Computation Vol. 1 (forthcoming).
- 2008 Petrenko, M. and Victor Raskin. *Modeling Abduction within Ontological Semantics*. Proceedings of Midwestern Computational Linguistics Colloquium-5. Michigan State University. May 10-11, 2008.
- 2008 Petrenko, M. *A review of the Annual Meeting of the Association of Scholars of Slavic and East European Languages in Chicago 2007*. The Herald of the Southern Federal University, Philological Sciences. 1: 213-219.
- 2007 Petrenko, M. *The narrative joke: conceptual structure and linguistic manifestation*. Working papers of Purdue Linguistics Association 1(1). Purdue University, IN: 128-153. (<http://web.ics.purdue.edu/~pla2006/>)
- 2005 Petrenko, M. *Apocryphal roots of modern joke*. Philosophy and Orthodoxy in the context of modern culture. Proceedings of the international conference. Krasnodar: 289-295.
- 2004 Petrenko, M. and Elena Grishanina. *The Linguistic Poetics of humor in Chekhov's early works*. Selection of the XXII Chekhov readings (proceedings of the linguistic section). Taganrog: Anton P. Chekhov Taganrog Pedagogical Institute. Taganrog, Russia: 41-46.
- 2004 Petrenko, M. *The Nature of joke as a playful discourse*. Speech. Speech activity. Text. Proceedings of the conference. Taganrog: Anton P. Chekhov Taganrog Pedagogical Institute. Taganrog, Russia.
- 2003 Petrenko, M. *Paradigmatics and syntagmatics of joke*. Collection of papers of the students and faculty. Taganrog: Anton P. Chekhov Taganrog Pedagogical Institute. Taganrog, Russia.
- 2003 Petrenko, M. *Joke as a text: problems and perspectives of study*. Text in the system of higher and professional education. Proceedings of the 1<sup>st</sup> Scientific conference. Taganrog: Anton P. Chekhov Taganrog Pedagogical Institute. Taganrog, Russia.
- 2003 Petrenko, M. *Children's joke: genre specifics and functions*. Folklore: traditions and modernity. Collection of papers. Taganrog: Anton P. Chekhov Taganrog Pedagogical Institute. Taganrog, Russia: pp. 42-50.
- 2002 Petrenko, M. *The status of joke as a speech genre*. Speech. Text. Collections of papers. Senina, N. (ed.). Taganrog: Anton P. Chekhov Taganrog Pedagogical Institute. Taganrog, Russia. pp. 172-175.

### **Published translation**

- 2008 Petrenko, M. et al. (translators). 2008. Lucky Dog (Sobach'e Schast'e) by Leo Butler. *Antologiya Sovremennoi Britanskoi Dramaturgii (The Anthology of Modern British Drama)*. Oskolkova, T., Dugdale, S., Genina, A. (eds.). *Novoe Literaturnoe Obozrenie (New Literary Review)*, Moscow: 583-650

### TALKS/PRESENTATIONS

- July 2016 *Interaction between rigidity and temporality of ontological classes*. With C.F. Hempelmann and G. Matthews. ICAI'16, International Conference on Artificial Intelligence. Part of 2016 World Congress in Computer Science, Engineering and Computing. Las Vegas, NV, USA July 23-28;
- October 2015 *NTENT: A case study in computational linguistics*. Invited talk at San Diego State University. October 2016
- July 2013 *Building unified knowledge resources for multiple applications*. With G. Matthews and E. MacMurray van Liemt. ILINTEC'14, Workshop on Intelligent Linguistic Technologies (part of ICAI'14, International Conference on Artificial Intelligence). Las Vegas, NV, USA July 21-24;
- July 2013 *Knowledge-based and vertical-driven information retrieval*. With G. Matthews. ILINTEC'13, Workshop on Intelligent Linguistic Technologies (part of ICAI'13, International Conference on Artificial Intelligence). Las Vegas, NV, USA July 22-25;
- October 2010 *Multiple Noun Expression Analysis: An Implementation of Ontological Semantic Technology*. International Multiconference on Computer Science and Information Technology. Wisla, Poland. October 18-20
- September 2010 *The Architecture and Functionality of Ontological Semantics*. 29<sup>th</sup> International Conference on Lexis and Grammar. September 15-18. Belgrade, Serbia
- May 2010 *Lexicon Management in Ontological Semantics*. Dialog-2010 Computational Linguistics Conference. Moscow, Russia.
- December 2009 *Static and Dynamic Resource Management in Ontological Semantics*. A 90-minute invited talk delivered at the Information Institute of Russian Academy of Science. Moscow, Russia. December 15, 2009.
- May 2009 *Ontological Semantics and Abduction: Parsing Ellipsis*. Dialogue-2009 Annual Computational Linguistics Conference. Moscow, Russia. May 27-31, 2009.
- November 2008 *Ontological Semantics*. Invited lecture delivered at the Institute of Information Science at the Russian Academy of Science. Moscow, Russia.
- May 2008 *Modeling Abduction within Ontological Semantics*. Midwest Computational Colloquium-5. Michigan State University, East Lansing. May 10-11, 2008.



- December 2007 *Towards the study of poetics of Anton Chekhov: the case of contextual synonyms.* American Association of Teachers of Slavic and Eastern-European Languages (AATSEEL) Annual conference in Chicago Dec 27-30.
- October 2007 Participant in the Semantics discussion group organized by Purdue Linguistics Association (PLA). Purdue University, West Lafayette, IN
- April 2007 *Modern fictional joke: basic structure and pragmatic representation.* Purdue Linguistics Association Symposium.

## ACADEMIC ACTIVITIES

### Professional Service

- May 2016 Co-chair, Program Committee member, Reviewer: Knowledge-based AI. Special track of FLAIRS 29: International Conference of Florida Research Society. Key Largo, Florida 2016. Committee members: Leo Obrst, Michael Witbrock, Yorrick Wilks  
[http://www.tamuc.edu/academics/colleges/humanitiesSocialSciencesArts/departments/literaturelanguages/ostl/FLAIRS\\_knowledge-based\\_AI\\_track.aspx](http://www.tamuc.edu/academics/colleges/humanitiesSocialSciencesArts/departments/literaturelanguages/ostl/FLAIRS_knowledge-based_AI_track.aspx)
- April 2015 Reviewer, Technical Program Committee Member. SEMAPRO 2015. The Ninth International Conference on Advances in Semantic Processing. Nice, France. July 19024, 2015.  
<http://www.iaria.org/conferences2015/ComSEMAPRO15.html>
- February 2015 Reviewer, Program Committee Member. FLAIRS-28. The 28<sup>th</sup> International Conference of the Florida Artificial Intelligence Research Society. May 18-20. Hollywood, Florida, USA. <http://www.flairs-28.info/>
- September 2013 Reviewer, SPDS 2013: The 18<sup>th</sup> International Conference on Transformative Science, Engineering Business and Social Innovation. Sao Paulo, Brazil, October 27-31, 2013
- December 2012 Reviewer, COLING 2012: International Conference on Computational Linguistics. Mumbai, India, December 8-15, 2012
- November 2012 Reviewer, Program Committee member: AAAI Fall Symposium on Artificial Intelligence of Humor. Arlington, VA, USA, November 2-4, 2012
- July 2012 Program Committee member: Workshop on Intelligent Linguistic Technologies'12 (part of ICAI'12, International Conference on Artificial Intelligence). Las Vegas, NV, USA. July 16-19

August 2011	Reviewer and Program Committee member: Web Intelligence for information Security workshop at the 2011 IEEE/WIC/ACM International Conference on Web Intelligence. Lyon, France. August 22-27. Program Committee members: Professor Mikhail J. Atallah, Professor Jim Chen, Professor Jose M. Fernandez, Dr. Steven J. Greenwald, Dr. Christian F. Hempelmann, Dr. John McHugh, Professor John F. Sowa
July 2011	Program Committee member: Workshop on Intelligent Linguistic Technologies'10 (part of ICAI'11, International Conference on Artificial Intelligence). Las Vegas, NV, USA. July 18-21
July 2010	Program Committee member: Workshop on Intelligent Linguistic Technologies'10 (part of ICAI'10, International Conference on Artificial Intelligence). Las Vegas, NV, USA. July 12-15.
March 2010	Chair: Linguistics section. The 16 <sup>th</sup> Annual Princess Dashkova Conference; Organized by Princess Ekaterina R. Dashkova Moscow Humanities Institute (Russia).
March 2009	Chair: Linguistics section. The 15 <sup>th</sup> Annual Princess Dashkova Conference; Organized by Princess Ekaterina R. Dashkova Moscow Humanities Institute (Russia).
Winter 2009 – present	Member of Academic Board for Princess Ekaterina R. Dashkova Moscow Humanities Institute. Moscow, Russia.
Winter 2009	Member of Fulbright Applicants Selection Panel; interviewer; Fulbright Program in Russia; Moscow; Russia.
Fall 2007	Purdue Linguistics Association: Social coordinator/Public relations officer. Purdue University, West Lafayette, IN.
<b>Membership</b>	
2013-present	IEEE – Institute of Electrical and Electronics Engineers.
2012-present	Ontolog - international virtual community of practice devoted to advancing the field of ontology, ontological engineering and semantic technology, and advocating their adoption into mainstream applications and international standards
2007-present	American Association of Teachers of Slavic & Eastern-European languages (AATSEEL)
2007-present	Linguistic Society of America
2007-2009	Modern Language Association

## PROFESSIONAL SKILLS

### Independent coursework

- Machine Learning online course with Prof. Andrew Ng at Stanford University. Basic track. Score: 72.35 out of 80. Fall 2011. Certificate of accomplishment available on request
- Computer Science 101: Building a Search Engine. Online course with Professors Sebastian Thrun and David Evans. April 2012. Certificate of accomplishment available on request

### Programming background

- Java (control statements, methods, arrays, algorithm development)
- Python (procedures, data structures, lists, sets, dictionaries and indices)
- Perl (subroutines, data structures, algorithm development)
- Lua
- SQL (general knowledge)
- RDF, SPARQL
- MATLAB (matrix and vector operations, data plotting, Neural Network toolbox, Statistics toolbox)
- Octave (matrix and vector operations, functions, control statements, data plotting)
- R (general knowledge)

### Software user expertise:

- Workflow management platforms (SharePoint, Rally, JIRA, Confluence)
- IDEs (Eclipse, Python, Perl shells)
- Ontology/lexicon managers (Protégé, KBAE, proprietary GWT-based platforms)
- Unix-Linux

### Languages

Russian (native), English (full professional proficiency), Ukrainian and Belarusian (reading, listening comprehension skills), French (beginner, courses in French taken at Purdue), Old Church Slavonic, Old East Slavic (linguistic familiarity), Latin (linguistic familiarity), Tigrinya (linguistic familiarity), Romanian (linguistic familiarity)