

# ALEXANDRE KLEMENTIEV

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## RESEARCH INTERESTS

Natural language processing and machine learning. More specifically, weakly supervised learning problems in NLP, computational semantics, machine translation (particularly, low-resource languages), information fusion.

## EDUCATION

**Ph.D. Computer Science**, University of Illinois at Urbana-Champaign, 2009.

*Title:* Learning with Incidental Supervision.

*Advisor:* Professor Dan Roth.

*Committee:* Professors Dan Roth, David Forsyth, Fernando Pereira, and ChengXiang Zhai.

**B.S. Computer Science**, Cum Laude, Washington State University, 1996.

**B.S. Physics**, Cum Laude, Washington State University, 1996.

## PROFESSIONAL EXPERIENCE

**Postdoctoral Fellow**, *MMCI at Saarland University*, Saarbrücken, Germany (07/2011 - Present). Research on computational semantics with Dr. Ivan Titov.

**Postdoctoral Fellow**, *Center for Language and Speech Processing at Johns Hopkins University*, Baltimore, MD (11/2009 - 07/2011). Research on machine translation for low-resource languages with Professor Chris Callison-Burch.

**Research Assistant**, *University of Illinois at Urbana-Champaign (UIUC) Department of Computer Science*, Urbana, IL (2004 - 10/2009). Machine learning and natural language processing research in the Cognitive Computation Group under the direction of Professor Dan Roth.

**Summer Intern**, *Microsoft Research*, Redmond, WA (Summers of 2006 and 2007). Research on methods for English as a Second Language grammar correction (with Dr. Michael Gamon).

**Research Assistant**, *UIUC Department of Computer Science and Beckman Institute*, 2002 - 2004. Computational models of the cerebellar learning and multi-sensory enhancement in the superior colliculus (with Prof. Sylvian Ray and Prof. Thomas Anastasio).

**Teaching Assistant**, *UIUC Department of Computer Science*, Urbana, IL, 2001 - 2005. Teaching assistant for a number of courses in the UIUC CS department. *Received several TA awards.*

**Sr. Software Engineer**, *Intel Corporation*, Hillsboro, OR, 1996 - 2001.

- (1998 - 2001) Member of Digital Broadcast Technologies group at Intel's Architecture Labs designing and developing an end-to-end system for scheduling and delivery of content over digital broadcast networks.
- (1996 - 1998) Videoconferencing over LAN with non-guaranteed QoS (ITU-T Recommendation H.323).

## PUBLICATIONS

### BOOK CHAPTER

- A. Klementiev and D. Roth. [Named entity transliteration and discovery in multilingual corpora](#). *Learning Machine Translation*, Chapter 4. MIT Press, 2008.

### CONFERENCE PROCEEDINGS (REFEREED)

- I. Titov and A. Klementiev. [Crosslingual Induction of Semantic Roles](#). *In Proc. of the Annual Meeting of the Association for Computational Linguistics (ACL)*, 2012.
- A. Klementiev, A. Irvine, C. Callison-Burch, and D. Yarowsky. [Toward Statistical Machine Translation without Parallel Corpora](#). *In Proc. of the Conference of the European Chapter of the Association for Computational Linguistics (EACL)*, 2012.
- I. Titov and A. Klementiev. [A Bayesian Approach to Unsupervised Semantic Role Induction](#). *In Proc. of the Conference of the European Chapter of the Association for Computational Linguistics (EACL)*, 2012.
- A. Klementiev and I. Titov and B. Bhattacharai. [Inducing Crosslingual Distributed Representations of Words](#). *In Proc. of the International Conference on Computational Linguistics (COLING)*, 2012.
- I. Titov and A. Klementiev. [Semi-Supervised Semantic Role Labeling: Approaching from an Unsupervised Perspective](#). *In Proc. of the International Conference on Computational Linguistics (COLING)*, 2012.
- I. Titov and A. Klementiev. [A Bayesian Model for Unsupervised Semantic Parsing](#). *In Proc. of the Annual Meeting of the Association for Computational Linguistics (ACL)*, 2011.
- A. Irvine, C. Callison-Burch, and A. Klementiev. [Transliterating From All Languages](#). *In Proc. of the Association for Machine Translation in the Americas (AMTA)*, 2010.
- I. Titov, A. Klementiev, K. Small, and D. Roth. [Unsupervised Aggregation for Classification Problems with Large Numbers of Categories](#). *In Proc. of the International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2010.
- A. Klementiev, D. Roth, K. Small, and I. Titov. [Unsupervised Rank Aggregation with Domain-Specific Expertise](#). *In Proc. of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2009.
- A. Klementiev, D. Roth, and K. Small. [Unsupervised Rank Aggregation with Distance-](#)

[Based Models](#). *In Proc. of the International Conference on Machine Learning (ICML)*, 2008.

- M. Gamon, J. Gao, C. Brockett, A. Klementiev, W. B. Dolan, D. Belenko, and L. Vanderwende. [Using Contextual Speller Techniques and Language Modeling for ESL Error Correction](#). *In Proc. of the International Joint Conference on Natural Language Processing (IJCNLP)*, 2008.
- A. Klementiev, D. Roth, and K. Small. [An Unsupervised Learning Algorithm for Rank Aggregation](#). *In Proc. of the European Conference on Machine Learning (ECML)*, 2007.
- A. Klementiev and D. Roth. [Weakly Supervised Named Entity Transliteration and Discovery from Multilingual Comparable Corpora](#). *In Proc. of the Annual Meeting of the Association for Computational Linguistics (ACL)*, 2006.
- A. Klementiev and D. Roth. [Named Entity Transliteration and Discovery from Multilingual Comparable Corpora](#). *In Proc. of the Annual Meeting of the North American Association of Computational Linguistics (NAACL)*, 2006.
- S. Swarup, K. Lakkaraju, A. Klementiev, S. Ray, and E. Sassen. [An Anticipatory Self-Organized Map for Robust Recognition](#). *In Proc. of the International Conference on Artificial Intelligence and Applications (AIA)*, 2005.

#### WORKSHOP PAPERS AND ABSTRACTS (REFEREED)

- A. Modi, I. Titov, and A. Klementiev. [Unsupervised Induction of Frame-Semantic Representations](#). *In Proc. of the NAACL Workshop on Inducing Linguistic Structure*, 2012.
- A. Klementiev, I. Titov, and B. Bhattacharai. Crosslingual Distributed Representations of Words. *In Proc. of the NIPS Workshop on Deep Learning*, 2012.
- A. Irvine and A. Klementiev. [Using Mechanical Turk to Annotate Lexicons for Less Commonly Used Languages](#). *In Proc. of the NAACL Workshop on Creating Speech and Language Data With Amazon's Mechanical Turk*, 2010.
- A. Klementiev, D. Roth, K. Small, and I. Titov. [Unsupervised Prediction Aggregation](#). *In Proc. of the NIPS Workshop on Learning with Orderings*, 2009.
- M. Gamon, C. Leacock, C. Brockett, W. B. Dolan, J. Gao, D. Belenko, and A. Klementiev. [Using Statistical Techniques and Web Search to Correct ESL errors](#). *In Proc. of the CALICO Workshop on Automatic Analysis of Learner Language*, 2009.
- A. Klementiev, D. Roth, and K. Small. [A Framework for Unsupervised Rank Aggregation](#). *In Proc. of the SIGIR Workshop on Learning to Rank for Information Retrieval*, 2008.
- A. Klementiev, D. Roth, and K. Small. Unsupervised Rank Aggregation with Conditional Models. *In Snowbird Learning Workshop*, 2008.
- A. Klementiev and D. Roth. Named Entity Discovery from Multilingual Corpora. *In Proc. of the NIPS Workshop on Machine Learning for Multilingual Information Access*, 2006.

## **PATENTS**

- C. Brockett, W. B. Dolan, M. Gamon, J. Gao, L. Vanderwende, H. Hon, M. Zhou, G. Kacmarcik, and A. Klementiev. Web-based Proofing and Usage Guidance. Filed in 2007.
- R. Pendakur, and A. Klementiev. Content Discovery in a Digital Broadcast Data Service. Filed in 2002.
- L. Spangler, D. Maclver, A. Klementiev, and E. Huang. Techniques of Utilizing Actually Unused Bandwidth. Filed in 2000, granted in 2006.

## **TEACHING**

- [Statistical Learning for Structured Prediction with Applications to Natural Language Processing](#), Saarland University, Winter 2012/13 (with Ivan Titov).
- [Semi-supervised and Unsupervised Learning with Applications to Natural Language Processing](#), Saarland University, Summer 2012 (with Ivan Titov).
- [Applications of Probabilistic Graphical Models in Language and Speech Processing](#), Johns Hopkins University Department of Computer Science, Spring 2011 (with Ves Stoyanov and Shane Bergsma).

## **TALKS**

- Unsupervised Prediction Aggregation, Saarland University, 2010.
- Learning with Incidental Supervision, Department of Computing Science, University of Alberta, 2009.
- Unsupervised Rank Aggregation with Distance-Based Models, Pattern Analysis and Machine Learning Seminar, Beckman Institute, 2008.
- Unsupervised Rank Aggregation with Distance-Based Models, Database and Information Systems Seminar, UIUC, 2008.
- Named Entity Transliteration and Discovery from Multilingual Corpora, Pattern Analysis and Machine Learning Seminar, Beckman Institute, 2007.

## **PROFESSIONAL SERVICE**

- Senior Program Committee Member: The Conference of the American Association for Artificial Intelligence (AAAI 2011).
- Program Committee Member / Reviewer:
  - The International Conference of the Association on Computational Linguistics (ACL 2007, 2009, 2011, 2012).
  - The North American Conference on Computational Linguistics (NAACL-HLT 2007, 2012, 2013).

- The Conference of the European Chapter of the Association for computational Linguistics (EACL 2012).
  - The Conference on Empirical Methods in Natural Language Processing (EMNLP 2009, 2010, 2011).
  - The International Conference on Computational Linguistics (COLING 2008, 2010).
  - The International Conference on Machine Learning (ICML 2009, 2010).
  - The Conference of the American Association for Artificial Intelligence (AAAI 2008, 2010, 2012, 2013).
  - The International Joint Conference on Artificial Intelligence (IJCAI 2011).
  - The Joint Conference on Lexical and Computational Semantics (\*SEM 2013).
- Coordinator of the UIUC Artificial Intelligence and Information Systems Seminar (Fall 2007 and Spring 2008).

## AWARDS

- Google research award for a project on *Inducing Multilingual Semantic Representations*, 2011.
- Nominated for the Microsoft Research Fellowship by the UIUC CS Department, 2008.
- Incomplete List of Teachers Ranked as Excellent by Their Students, UIUC, Spring 2002 and Spring 2003.
- President's Honor Roll, Washington State University, Fall 1993 - graduation date.
- Tau Beta Pi National Engineering Honor Society, since 1994.

## LANGUAGES

English, Russian.