

# CURRICULUM vitae

## Jure LESKOVEC

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### Education

- ◇ **Carnegie Mellon University**, Pittsburgh, PA.  
Ph.D. candidate in Computational and Statistical Learning,  
Machine Learning Department, School of Computer Science.  
Started in 2004, expected to finish in summer 2008.  
Advised by Christos Faloutsos
- ◇ **University of Ljubljana**, Slovenia.  
Diploma [B.Sc.] in Computer Science (Summa Cum Laude), May 2004.

### Research interests

Applied machine learning and large-scale data mining, focusing on the analysis and modeling of large real-world networks.

### Academic honors

- ◇ **Best student paper award at 13th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining**, KDD 2007.
- ◇ **Best solution of Battle of the Water Sensor Networks (BWSN) competition** on sensor placement in water distribution networks, 2007.
- ◇ **Microsoft Graduate Research Fellowship**, 2006 - 2008.
- ◇ **Best research paper award at 11th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining**, KDD 2005.
- ◇ Slovenian Academy of Arts and Sciences Fellowship, 2004.
- ◇ University of Ljubljana Prešeren Award (highest university award for students given to 10 out of 40,000 students), 2004.
- ◇ **Winner of the KDD Cup 2003** on estimating the download rate of scientific articles on Arxiv. KDD Cup is a data mining competition held in conjunction with the Annual ACM SIGKDD Conference.
- ◇ University of Ljubljana: 3 times awarded as best student in the class of 200 (based on average grade), 2001, 2002, 2003.
- ◇ Govorec, a Slovenia text to speech system, I built was awarded by Government of the Republic of Slovenia as best innovation for disabled of the year 2001.
- ◇ 2nd prize at 11th European Union Contest for Young Scientists, 1999, for a real-time stereoscopic image recognition system.

### Publications

- ◇ **Journals**  
[1] **Jure Leskovec**, Jon M. Kleinberg, and Christos Faloutsos. Graph evolution: Densification and shrinking diameters. *ACM Transactions on Knowledge Discovery from Data (TKDD)*, 1(1):2, 2007.

## Jure Leskovec

- [2] **Jure Leskovec**, Lada A. Adamic, and Bernardo A. Huberman. The dynamics of viral marketing. *ACM Transactions on the Web (TWEB)*, 1(1):2, 2007.
- [3] Deepayan Chakrabarti, Yang Wang, Chenxi Wang, **Jure Leskovec**, Christos Faloutsos. Epidemic thresholds in real networks. *ACM Transactions on Information and System Security (TISSEC)*, accepted for publication, 2007.
- [4] Janez Brank, **Jure Leskovec**. The download estimation task on KDD cup 2003. *SIGKDD Explorations*, 5(2):160-162, 2003.

### ◇ Conferences

- [5] **Jure Leskovec**, Andreas Krause, Carlos Guestrin, Christos Faloutsos, Jeanne Van-Briesen, and Natalie Glance. Cost-effective outbreak detection in networks. In *KDD '07: ACM SIGKDD international conference on Knowledge discovery in data mining*, 2007.  
**Best student paper.**
- [6] **Jure Leskovec** and Christos Faloutsos. Scalable modeling of real graphs using Kronecker multiplication. In *ICML '07: International Conference on Machine Learning*, 2007.
- [7] **Jure Leskovec**, Eric Horvitz, and Susan Dumais. Web projections: Learning from contextual subgraphs of the web. In *WWW '07: International conference on World Wide Web*, 2007.
- [8] **Jure Leskovec**, Mary McGlohon, Christos Faloutsos, Natalie Glance, and Matthew Hurst. Cascading behavior in large blog graphs. In *SDM '07: SIAM Conference on Data Mining*, 2007.
- [9] Deepayan Chakrabarti, **Jure Leskovec**, Christos Faloutsos, Samuel Madden, Carlos Guestrin, and Michalis Faloutsos. Information survival threshold in sensor and P2P networks. In *INFOCOM '07: IEEE Conference on Computer Communications*, 2007.
- [10] Mary McGlohon, **Jure Leskovec**, Christos Faloutsos, Natalie Glance, and Matthew Hurst. Finding patterns in blog shapes and blog evolution. In *ICWSM '07: International Conference on Weblogs and Social Media*, 2007.
- [11] **Jure Leskovec**, Lada A. Adamic, and Bernardo A. Huberman. The dynamics of viral marketing. In *EC '06: ACM conference on Electronic Commerce*, 2006.  
**Best paper nomination.**
- [12] **Jure Leskovec** and Christos Faloutsos. Sampling from large graphs. In *KDD '06: ACM SIGKDD international conference on Knowledge discovery and data mining*, 2006.
- [13] **Jure Leskovec**, Ajit Singh, and Jon M. Kleinberg. Patterns of influence in a recommendation network. In *PAKDD '06: Pacific-Asia Conference on Knowledge Discovery and Data Mining*, 2006.
- [14] Andreas Krause, **Jure Leskovec**, and Carlos Guestrin. Data association for topic intensity tracking. In *ICML '06: International Conference on Machine Learning*, 2006.
- [15] **Jure Leskovec**, Jon M. Kleinberg, and Christos Faloutsos. Graphs over time: densification laws, shrinking diameters and possible explanations. In *KDD '05: ACM SIGKDD international conference on Knowledge discovery in data mining*, 2005.  
**Best research paper.**
- [16] **Jure Leskovec**, Deepayan Chakrabarti, Jon M. Kleinberg, and Christos Faloutsos. Realistic, mathematically tractable graph generation and evolution, using Kronecker multiplication. In *PKDD '05: European Conference on Principles and Practice of Knowledge Discovery in Databases*, 2005.

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[17] **Jure Leskovec**, Natasa Milic-Frayling, and Marko Grobelnik. Impact of linguistic analysis on the semantic graph coverage and learning of document extracts. In *AAAI '05: National Conference on Artificial Intelligence, 2005*.

[18] **Jure Leskovec** and John Shawe-Taylor. Linear programming boosting for uneven datasets. In *ICML '03: International Conference on Machine Learning, 2003*.

◇ **In submission to journals and conferences:**

[19] **Jure Leskovec**, Kevin Lang, Anirban Dasguta, and Michael Mahoney. Community structure in real graphs: the “negative dimensionality” paradox. Submitted to the *WWW: International conference on World Wide Web*.

[20] **Jure Leskovec**, and Eric Horvitz. Planetary-Scale Views on a Large Instant-Messaging Network. Submitted to the *WWW: International conference on World Wide Web*.

[21] Michaela Goetz, **Jure Leskovec**, Mary McGlohon, and Christos Faloutsos. Modeling Blog Dynamics Submitted to the *SDM: SIAM Conference on Data Mining*.

[22] Andreas Krause, **Jure Leskovec**, Carlos Guestrin, Jeanne VanBriesen, and Christos Faloutsos. Efficient Sensor Placement Optimization for Securing Large Water Distribution Networks. Submitted to the *Journal of Water Resources Planning and Management*.

[23] Avi Ostfeld, et al. The Battle of Water Sensor Networks (BWSN): A Design Challenge for Engineers and Algorithms. Submitted to the *Journal of Water Resources Planning and Management*. (Joint publication by all participants of the BWSN challenge)

[24] **Jure Leskovec**, Kevin Lang, Anirban Dasguta, and Michael Mahoney. Partitioning Real Graphs and Community Structure in Large Sparse Networks. In preparation to the *Journal of Internet mathematics*.

[25] **Jure Leskovec**, Lars Backstrom, Ravi Kumar, and Andrew Tomkins. Microscopic evolution of large social networks. In preparation to (hopefully) *Science*.

### Patents

- ◇ **Learning and reasoning from web projections** with Eric Horvitz and Susan Dumais. Filed June 2007.
- ◇ **Resource browser sessions search** with Ralph Sommerer, Robert Tucker, and Natasa Milic-Frayling. No. 7225407, granted May 2007.
- ◇ **Navigating a resource browser session Patents** with Ralph Sommerer, Robert Tucker, and Natasa Milic-Frayling. Filed June 2002.

### Research Experience

- ◇ **Yahoo Research**, Santa Clara, CA. Summer 2007. Worked with Ravi Kumar, Andrew Tomkins on evolution and modeling of social networks. And with Michael Mahoney and Kevin Land on community structure in large networks.
- ◇ **Microsoft Research**, Redmond, WA. Summer 2006. Worked with Eric Horvitz and Susan Dumais on web search query modeling, and the dynamics of a instant messenger network of 240 million people.
- ◇ **Hewlett Packard Laboratories**, Palo Alto, CA. Summer 2005. Worked with Bernardo Huberman and Lada Adamic on the dynamics of person-to-person product recommendations in a large social network.
- ◇ **Carnegie Mellon Univeristy**, Pittsburgh, PA. Summer 2003. Worked with Christos Faloutsos on problems posed by large graphs.

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- ◇ **Royal Holloway University of London**, London, UK. Summer 2002. With John Shawe-Taylor on text classification on uneven training datasets.
- ◇ **Microsoft Research**, Cambridge, UK. Summer 2001. With Natasa Milic-Frayling on web browser user navigation and search.
- ◇ **Jožef Stefan Institute**, Ljubljana, Slovenia. 1997 - 2004. With Marko Grobelnik and Dunja Mladenic. Projects on machine learning, mining documents and graphs, document summarization, text to speech synthesis.
- ◇ **University of Ljubljana**, Ljubljana, Slovenia. 1998 - 1999. Worked with Franc Solina on stereoscopic vision and object recognition.
- ◇ **Lionhearth Technologies**, Los Gatos, CA. Summers 1998 and 1999. Worked on real time stereoscopic object recognition.

### Teaching experience

- ◇ Teaching assistant for graduate Statistical Machine Learning (10-702) with Prof. John Lafferty and Larry Wasserman. Spring semester 2007, Carnegie Mellon University.
- ◇ Teaching assistant for graduate Machine Learning (10-701) with Prof. Carlos Guestrin. Spring semester 2006, Carnegie Mellon University.
- ◇ Tutorials on network analysis, diffusion, and evolution at ECML/PKDD 2007, NATO ASI 2007 and NESCAI 2007.

### Undergrad mentor

- ◇ Michaela Goetz, Modeling Blog Dynamics, 2007. (Michaela is currently a graduate student in the computer science department at Cornell.)

### Scientific community activities

- ◇ **Talks and tutorials**
  - Invited talk at Joint Statistical Meeting on Analysis of Online Communities, August 2008
  - Accepted full day tutorial to WWW (International conference on World Wide Web), April 2008
  - Invited talk at High Performance Computing on Large Graphs, SIAM Conference on Parallel Processing for Scientific Computing, March 2008
  - Google Switzerland, October 2007
  - Tutorial on Mining and Modeling Large Networks at ECML/PKDD, September 2007
  - Tutorial on Diffusion and Cascading Behavior in Social Networks, NATO Advanced Study Institute on Mining Massive Data Sets for Security, September 2007
  - Tutorial on Structure of Large Networks at NESCAI, April 2007
  - HP Labs, July 2007
  - Boeing, July 2006
  - AOL, June 2004
- ◇ Organizing CMU Machine Learning Lunch Seminar (2006-07, 2007-08)
- ◇ Organized CMU Database Seminar (2006-07).
- ◇ **Program committee member**
  - ICML 2008
  - KDD 2008
  - WWW 2008

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- WSDM 2008
- ICWSM 2008
- PKDD/ECML 2007
- ICML 2007
- NESCAI 2007
- PKDD/ECML 2006
- ICML 2006
- PKDD/ECML 2005
- Workshops:
  - Machine learning with graphs (MLG) 2007. IJCAI workshop on Text-Mining & Link-Analysis, 2007. ECML/PKDD workshop on Mining and Learning with Graphs, 2006. KDD workshop on Link Analysis, 2006. AAI workshop on Link Analysis, 2005.
- ◇ **Reviewer for:** Journal of ACM (JACM), ACM Journal of Experimental Algorithmics (JEA), ACM Transactions on Knowledge Discovery from Data (ACM TKDD), Machine Learning Journal (MLJ), Transactions on Knowledge and Data Engineering (IEEE TKDE), Data Mining and Knowledge Discovery, NIPS 2006.
- ◇ **External reviewer:** CIKM 2007, AAI 2007, SIGIR 2007, WWW 2007, ECIR 2007, AAI 2006, ICDE 2006, KDD 2005, SIGIR 2005, KDD 2004, ECIR 2004, ECAI 2004, ECML 2003, IJCAI 2003, SIAM DM 2002, ECIR 2002.

### Funding

- ◇ Obtained \$4,000 donation from Yahoo Research to record and publish the videos of CMU Machine Learning Lunch seminar talks, 2007.
- ◇ Helped in a proposal and specifications for a \$50,000 hardware donation from Intel Research, 2007.
- ◇ Helped in a successful proposal for a Yahoo Research Alliance gift of \$75,000, titled *ShatterPlots: A New Tool for Graph Mining, and Analysis*, 2007.
- ◇ Obtained \$50,000 donation in hardware from Hewlett Packard, 2006.
- ◇ Helped in a successful NSF project proposal *Finding Patterns and Anomalies in Large Time-Evolving Graphs* (IIS-0534205), 2006-2009, \$337,000.

### Industrial collaboration

- ◇ **Industrial collaboration, and consulting:**
  - Facebook
  - LinkedIn
  - AOL
  - Amazon
  - Sprint
  - Birmingham Midshires bank, UK
  - Microsoft Live Labs, Yahoo Research, Microsoft Research, HP Labs

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**References**

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