

Academic Information

Academic Status Second year graduate student
Academic Advisor Dr. William H. Hsu
Five-year joint baccalaureate-master’s program? No
Four-year joint baccalaureate-master’s program? No

Academic History

Kansas State UniversityManhattan, KS US
Declared Major Computer Science
Degree MS
Degree StatusCurrently pursuing
GPA/base 4.0 / 4.0
Credits24 (Semester)
Attendance Aug 2007 – Dec 2008
Baccalaureate school? Yes

Kansas State UniversityManhattan, KS US
Declared Major Information Systems
DegreeBS
Degree Status Obtained
GPA/base3.87 / 4.0
Credits 103 (Semester)
Attendance Aug 2003 – May 2007
Baccalaureate school? Yes

Hutchinson Community College and Area Vocational SchoolHutchinson, KS US
Declared Major General Education
DegreeNone
Degree Status Not pursuing
GPA/base3.88 / 4.0
Credits26 (Semester)
Attendance Aug 2002 – Jul 2005
Baccalaureate school?No

Proposed Study

Proposed Discipline Computer and Computational Science
Proposed Area of Research Link Mining
Degree Sought with NDSEG Support PhD
Final Degree Sought PhD
Proposed Academic Institution University of Illinois at Urbana-Champaign
Urbana, IL US

Publications & Presentations

Publications

- Hsu W. H., King A. L., Paradesi M. S. R., Pydimarri T., Weninger T.. 2006. Collaborative and Structural Recommendation of Friends using Weblog-Based Social Network Analysis. *Proc. of Computational Approaches to Analyzing Weblogs*. Volume AAAI 2006 Technical Report SS-06-03.
- Hsu W. H., King A. L., Paradesi M. S. R., Pydimarri T., Weninger T.. 2006. Evolutionary Data Mining For Link Analysis: Preliminary Experiments On A Social Network Test Bed. *Late Breaking Paper, Genetic and Evolutionary Computation Conference (GECCO)*. Volume NA.
- Hsu W. H., Lancaster J., Paradesi M. S. R., & Weninger T.. 2007. Collaborative and Structural Recommendation of Friends using WeblogBased Social Network Analysis. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO)*. Volume NA.
- Hsu W. H., Lancaster J., Paradesi M. S. R., & Weninger T.. 2007. Structural Link Analysis from User Profiles and Friends Networks: A Feature Construction Approach. *Proceedings of the International Conference on Weblogs and Social Media (ICWSM)*. Volume 1.
- Weninger T., Hsu W. H.. 2008. Text Extraction from the Web via TextToTag Ratio. *International Conference on Database and Expert Systems Applications*. Volume 19.
- Hsu W. H., Weninger T., Paradesi, M. S. R.. 2008. Predicting Links and Link Change in Friends Networks Supervised Time Series Learning with Imbalanced Data. *International Conference on Artificial Neural Networks in Engineering*. Volume 18.
- AlJandal W., Weninger T., Hsu W. H.. 2008. ValidationBased Normalization and Selection of Interestingness Measures for Association Rules. *International Conference on Artificial Neural Networks in Engineering (ANNIE)*. Volume 18.
- Weninger T., Hsu W. H.. 2008. Web Content Extraction Through Histogram Clustering. *International Conference on Artificial Neural Networks in Engineering*. Volume 18.

Presentations

- Tim Weninger. Structural Link Analysis from User Profiles and Friends Networks: A Feature Construction Approach. Mar 2007. Oral presentation at International Conference on Weblogs and Social Media - Boulder, CO.
- Tim Weninger. Text Extraction from the Web via Text-To-Tag Ratio. Sep 2008. Oral presentation at International Conference on Database and Expert Systems Applications - Turin, Italy.
- Tim Weninger. Predicting Links and Link Change in Friends Networks - Supervised Time Series Learning with Imbalanced Data. Nov 2008. Oral presentation at International Conference on Artificial Neural Networks in Engineering - St. Louis, MO.
- Tim Weninger. Web Content Extraction Through Histogram Clustering. Nov 2008. Oral presentation at International Conference on Artificial Neural Networks in Engineering - St. Louis, MO.
- Tim Weninger. Web Crawling with Heritrix. May 2007. Oral presentation at Multimodal Information Access and Synthesis' Discrete Sciences Summer Institute - University of Illinois, Urbana, IL.

Patents & Patent Applications

No patents.

Awards & Honors

- Knight of St. Patrick. Apr 2007.
 - Given to Top 5 Undergraduates in Engineering at Kansas State University
- USA Today AllUSA Academic Team. Nov 2006.
 - ****I was a semifinalist for this award****
National newspaper, The USA Today has an academic team they list annually in their newspaper.
- Academic Scholarship. Jan 2007.
 - Received this award from the College of Engineering all throughout my undergraduate career. It is a large academic scholarship.
- Kelce Foundation Leadership Award. Aug 2006.
 - This is a regional award. Not necessarily national, but also not local
Award is given to an undergraduate student who is service oriented with an outstanding service record.
- First in Class Award. May 2003.
 - Valedictorian of my high school gets a financial award from Kansas State University
- True Gentleman Award. Aug 2003.
 - National Fraternity Award for excellence in service and leadership (also requires a 3.5 GPA)

Leadership Experiences

KSU Student Government Association Senator, 2004-2008 Faculty Senator 2007 Various committees: Parking Council, University Relations, Privilege Fee, Allocations.

KSU Student Director of Technology 2007-Present

KSU Engineering Student Council Executive Member, 2005-2007

KSU Chapter of Association of Computing Machinery Co-founder, 2004 Executive Member, 2004-2007

Teamwork Experiences

Aside from memberships listed as leadership experience.

Teams at all 4 of my summer internships: NNSA, Garmin, Union Pacific, DSSI.

Knowledge Discovery in Databases Research Group (William Hsu, bhsu@ksu.edu)

Collaborative work with researchers from University of Illinois (Jiawei Han, hanj@cs.uiuc.edu), AIdentity Matrix (Surya Ramachandran, surya.ramachandran@gmail.com), and many others.

Memberships & Certifications

Aside from those memberships listed in leadership and teamwork I am a member of:

Association of Computing Machinery (2004-Present) Sigma Alpha Epsilon Fraternity (2003-Present) Knights of Columbus (2001-Present) Kansas State University Concert Band (2004-2005) Kansas State University Marching Band (2003-2004)

Community & Volunteer Work

Most of my volunteer work is through organizations listed in previous sections. I would like to describe my experience helping international students acclimate to America. I teach driving lessons, take them to sports events, the store, and provide any general help they need.

Friends: Vikas Bahirwani (India, vikasbahirwani@gmail.com) Svitlana Volkova (Ukraine, svitlana.volkova@gmail.com)

Scientific or Research Experiences

- Jan 2007 to Dec 2009. Advisor: Marty Vanier.
 - Government Agency: Other US Government (NSF, DOE, etc) AFMIC, and National Ag-Biosecurity Center (NABC)
 - I helped conduct project work in the area of information extraction (IE), natural language processing (NLP) and learning, machine learning, probabilistic reasoning and spatiotemporal modeling tools in the domain of computational information and knowledge management for predictive epidemiology.
This work was conducted by Kansas State University, for AFMIC.
- Aug 2005 to Dec 2008. Advisor: William H. Hsu.
 - Government Agency: None
 - Worked on several projects dealing with the theoretical and applicative aspects of relational data mining. This includes work in graph theory, search, web information extraction, machine learning, and data mining.
Recent work is on theoretical exploration in feature discovery for applications in link mining.
- May 2008 to Aug 2008. Advisor: Jiawei Han.
 - Government Agency: Other US Government (NSF, DOE, etc) Homeland Security
 - Discrete Sciences Summer Institutes Multimodal Information Access and Synthesis (MIAS) Center at the University of Illinois Urbana-Champaign (Sponsored by DHS). MIAS is concerned with researching technologies for extracting and tracking interesting events. we employed state of the art clustering and machine learning techniques to do information extraction and synthesis of UIUC sports web pages.
- May 2006 to Aug 2006. Advisor: Michelle J. Clark.
 - Government Agency: None
 - At Union Pacific Railroads Advanced Decision Support Team I helped devise a graph visualization, and layout toolkit that modeled the railroad linkages between depots. Work was also done with expert systems in order to integrate a new billing system.
- May 2005 to Aug 2005. Advisor: Brent Baker.
 - Government Agency: Other US Government (NSF, DOE, etc) NNSA - DOE
 - Held DOE Level Q security clearance. Worked at Honeywell's Kansas City Plant under the direction of the DOE and the National Nuclear Security Administration. Work is classified.

Summary of Goals

I was a sophomore in 2004, and at that time, social network sites such as Facebook, LiveJournal and MySpace were rapidly gaining popularity. I, along with many of my peers, had joined one of these services. Motivated by the rising popularity of social networks I reviewed the related literature and I became specifically interested in the work of Dr. Lise Getoor who argued that many real-world datasets contain interrelated entities and capture relationships among these entities.

I observed that Lise Getoor's research on link mining could be applied to social networks to predict the existence of relationships where none are annotated. The feeling that I was responsible for an original insight helped clarify my desire to conduct research in computer science and made me realize that this was indeed what I wanted to do with my life. My research advisor, Dr. Hsu, was also very interested in my findings and said that he believed they could be the basis for more research. I later devoted my Honors Research project to study link mining and its broader implications. This project included fundamental work on web mining, graph theory and machine learning, and I became fascinated by the intersection of these three fields.

Looking forward I realize that despite the recent advances in link mining, this topic is still relatively new and there are many fundamental challenges that remain. Unlike more mature fields of research, there does not exist any public package or toolkit that provides a standard baseline from which to explore. Therefore, I intend to create a link mining framework that adapts several of the core principles of link and graph mining into a scalable, shared package. This toolkit would be an essential research and teaching tool, similar to the University of Waikatos WEKA toolkit, which would incorporate fundamental and highly-extendable principles of link mining. Most importantly it will serve as a launch-pad for more interesting, collaborative theoretical work.

With a core link mining package in place I intend to study the dynamic temporal and graphical nature of relationships within various domains in order to advance the theory of and methodology for determining probabilities of link existence where none are explicitly annotated. I believe that the use of recent developments in association rule mining and frequent pattern mining by Dr. Jiawei Han and others to find correlations between data points that best suggest link existence. Furthermore, the general problem of feature selection, extraction and discovery is widely regarded as the most important factor in machine learning.

With help from the NDSEG Fellowship I intend to study at and receive a Ph.D. degree from the University of Illinois Urbana-Champaign (UIUC) where Dr. Han and his colleagues are among the best researchers in the world. They would provide the wisdom and expertise necessary for me to continue my work in this fascinating field.