iSchool Colloquium Series

Information Assurance Seminar Series

This Seminar Series brings researchers and practitioners to Pittsburgh to explore emerging developments and research in the area of Information Assurance. The field of Cyber Security faces new challenges and demands on a daily basis: the iSchool hosts these seminars to expose students, faculty, and business leaders to leading edge issues, both theoretical and applied.

Professionals and investigators who would like more information on this series, or have an idea for a topic, are invited to contact James Joshi, Lead Faculty for the Laboratory for Education and Research on Security Assured Information Systems. The seminars are open to the public.

Friday, November 30, 2012
Room 404 IS Building, 135 North Bellefield Avenue, Pittsburgh, PA 15260
2:00 pm

Tanvir Ahmed, a Principal Member of Technical Staff with the Database Security Group at Oracle

Access Control on Data through SQL Transformation

Abstract: In relational database management systems, object privileges protect objects from injurious actions. For example, select on a table or a view. A limitation of object privilege is that it cannot define fine-grained privileges, such as, a select privilege on a subset of the rows of a table. To enforce fine-grained access control, primarily "views" are used. In addition, a functionality of such management systems is to manage data for all forms of applications. This requires that access control policy for data is expressed in terms of application-level operations. The main obstacle to enforcing such application-level operational and fine grained privileges is performance. In this talk, we discuss how SQL transformation techniques are used for efficient enforcement of application-level access control policies for data.

Tanvir Ahmed is a Principal Member of Technical Staff with the Database Security Group, Oracle, CA. He is working on Oracle Real Application Security (RAS), Oracle 12c. Oracle RAS is a database authorization solution for end-to-end application security. He earned the B.S. degree in Computer Science from the University of Mississippi, Oxford, and the M.S. and Ph.D. degrees in Computer Science at the University of Minnesota, Twin Cities. His research areas include access control, system security, distributed systems, and software development methodologies.

Thursday, November 8, 2012
Room 405 IS Building, 135 North Bellefield Avenue
10:30 am

Alexander Clemm, Principal Engineer, CISCO Systems.

On the Road Towards Network-embedded Management

Traditional management architectures, in which smart management applications outside the network manage "dumb" devices inside the network, are rapidly evolving. Increasingly, management tasks are becoming embedded inside the network itself. This is driven by factors such as the need to reduce total cost of ownership, to increase network resilience and independence of outside components, and to reduce complexity for network operators. While the first wave targeted mainly the automation of management functions at individual devices one node at a time, the focus of attention is increasingly beginning to shift towards holistic management tasks that concern the network as a whole. This presentation examines those trends in more detail and presents two examples of research projects in decentralized network-embedded management that were conducted in cooperation between Cisco and University researchers. The first project (with KTH/Sweden) concerns an algorithm and protocol to support Network Threshold Crossing Alerts to monitor aggregated status information that transcends individual network devices, such as the average link utilization across the whole network exceeding a certain threshold. The second project (with UFRGS/Brazil) concerns a system that uses a peer-to-peer algorithm to automatically place measurement probes in a network such that the number of detected service level violation across the network is maximized.

Dr. Alexander Clemm is a Principal Engineer at Cisco. As a member of the Network Operating Systems Group's Technology Architecture team, he provides technical direction and leadership for technology that relates to manageability of Cisco networking products from original conception to delivery to the customer. This includes management instrumentation, management and programming interfaces for management applications, and networking capabilities aimed at facilitating operational tasks. He has several dozen publications and patents in this area and is author and/or editor of several books, including "Network Management Fundamentals" and, very recently, "Network-Embedded Management and Applications". Alex is General Co-chair of the 2013 IFIP/IEEE International Symposium on Integrated Management (IM 2013); in the past he was co-chair of Manweek (now CNSM) 2007, DSOM 2007, and the TPC of IM 2005.

Friday, October 26, 2012
Room 501 IS Building, 135 North Bellefield Avenue
2:30 pm

Mudhakar Srivatsa, Research Scientist in the Network Technologies Department at the IBM Thomas J. Watson Research Center

Deanonymizing Mobility Traces: Using Social Networks as a Side-Channel

Abstract: Location-based services, which employ data from smartphones, vehicles, etc., are growing in popularity. To reduce the threat that shared location data poses to a user's privacy, some services anonymize or obfuscate this data. In this paper, we show these methods can be effectively defeated: a set of location traces can be deanonymized given an easily obtained social network graph. The key idea of our approach is that a user may be identified by those she meets: a contact graph identifying meetings between anonymized users in a set of traces can be structurally correlated with a social network graph, thereby identifying anonymized users. We demonstrate the effectiveness of our approach using three real world datasets: University of St Andrews mobility trace and social network (27 nodes each), SmallBlue contact trace and Facebook social network (125 nodes), and Infocom 2006 bluetooth contact traces and conference attendees' DBLP social network (78 nodes). Our experiments show that 80% of users are identified precisely, while only 8% are identified incorrectly, with the remainder mapped to a small set of users.

Bio: Dr. Srivatsa is a Research Scientist in Network Technologies Department at IBM Thomas J. Watson Research Center. He received his PhD in Computer Science from Georgia Tech. His research interests primarily include network analytics and secure information flow. He serves as a technical area leader for Secure Hybrid Network research in US/UK International Technology Alliance in Network and Information Sciences and as a principal investigator for Information Network Research in Network Science Collaborative Technology Alliance where he is working on adversarial analysis of co-evolving networks (social, information, and communication).

Friday, October 19, 2012
Room 501 IS Building, 135 North Bellefield Avenue
1:30 pm

Dr Surya Nepal, Principal Research Scientist, CSIRO ICT Centre

Social Media and E-Government

Abstract: Over the years, governments have diversified their online services and increased their online engagement with citizens. Increasingly, social media technologies are playing an important role in the way government and citizens interact. In partnership with the Australian Government's Department of Human Services (referred thereafter as DHS), we are trialling specific social media technologies, namely an online community and a social media monitoring tool, to see if it could serve as an effective way to support specific groups of citizens and the service delivery arm of the government. In this seminar, we present the design of these tools and corresponding underlying research problems such as trust model, recommender system, visualisation and bootstrapping and sustainability of the community. We also present the initial results.

Bio: Dr Surya Nepal is a Principal Research Scientist at CSIRO ICT Centre, Australia. He is a research team leader of "Distributed Systems" team. His main research interest is in the development and implementation of technologies in the area of service-oriented architectures, web services, cloud computing and social networks. He received his PhD from RMIT University, Australia and MSc from AIT, Thailand. He has published several journal and conference papers in the areas of multimedia databases, web services and service-oriented architectures, and security, privacy and trust in collaborative environment, cloud computing and social networks. In Recent years, Dr. Nepal has been working on the project of delivering citizen centric services. He is also a programme committee member in many international conferences. Dr. Nepal is currently the secretary of service science society, Australia.

Friday, September 21, 2012
1:00 PM
Room 501 IS Building, 135 North Bellefield Avenue

Fabio Maino, Distinguished Engineer at Cisco,

Locator/ID Separation Protocol (LISP): security consideration in the design of a next generation network architecture

Abstract: The Locator/ID Separation Protocol (LISP) is an open IETF experimental standard that, by introducing a level of indirection, effectively decouples identity from location by using two different IP addresses that belong to two different namespaces: Endpoint Identifiers (EIDs), which are assigned to end-hosts, and Routing Locators (RLOCs), which are assigned to devices (primarily routers) that make up the global routing system. This talk, after providing an introduction to LISP and describing the use cases to which it applies, will focus on the security considerations that are leading the design of the LISP security architecture.

Bio: Fabio Maino is a Distinguished Engineer at Cisco, where he leads an amazing team of engineers dedicated to a simple task: make Internet better by adding one level of indirection, LISP. After receiving his PhD in Computer and Network Security from Politecnico di Torino, Italy, Fabio moved to California to join Andiamo System that was later acquired by Cisco. While in Andiamo Fabio designed the security layer of the Fibre Channel architecture, implemented in what became the Cisco MDS 9000 family of storage switches. Fabio is one of the main architects of Cisco Trustsec, and is an active contributor to multiple standardization bodies.

---

iSchool Colloquium Series

Friday, February 8, 2013
1:30 pm
Room 501 IS Building

Anne Gilliland, Professor in Information Studies and Moving Image Archival Studies at the University of California Los Angeles (UCLA)

When Archives Cross Cultures, Communities, Geographies and Technologies

This presentation will report on themes emerging from case studies conducted for the Metadata Archaeology Project that will be published in a new book, Telling Stories About Stories: Archives Crossing Cultures, Communities, Geographies and Technologies (Litwin Press). The case studies were purposively selected in local and international archival settings to identify variables, community concerns, decision points, areas of contestation, and ideological framings that arise in community and transnational archival endeavors. Each case study involves some digital component – whether it be curation of born-digital data, digitized records, digitization, digital recovery, digital repatriation, or deliberate media hybridity. Each case also crosses at least one kind of boundary, be it community, cultural, institutional, or spatial. However, each case focuses in particular on issues of humanity, power inequities, ethics, rights and responsibilities that are bound up with these kinds of archives and archival activities. The goal of the research is to illustrate the complexity of the contemporary archival world as it becomes increasingly "glocal" and "community-oriented," and to demonstrate that this complexity cannot simply be reduced to technological considerations. It also seeks to provide accessible exemplars of that complexity, as well as of the narratives and kinds of discourse and the archival considerations that arise, and the ways in which these lead us to contemplate and potentially require the archival field nationally and globally to reframe long-standing archival ideas.

Bio: Anne Gilliland is a Professor in Information Studies and Moving Image Archival Studies at the University of California Los Angeles (UCLA). She is the Director of the Center for Information as Evidence as well as the Director of the Archival Education and Research Initiative (AERI), a national and international forum for archival education and research that is funded by the Institute of Museum and Library Services and led by a multi-university consortium that includes the University of Pittsburgh. She is a highly published author in the areas of design, evaluation and history of recordkeeping, cultural and community information systems; metadata creation and management; community-driven archiving; social justice and human rights issues as they relate to archives and records; research design and methods; and archival education and pedagogy. Her new book, Conceptualizing Twenty-first Century Archives will be published by the Society of American Archivists in Spring 2013. Professor Gilliland is a Fellow of the Society of American Archivists.

Friday, December 7, 2012
Room 501 IS Building
12 noon – Lunch will be served

iSchool Panel on Big Data

A panel of iSchool faculty will discuss what Big Data means in our school:

- *Sheila Corrall, Professor*

- *Marek Druzdel, Associate Professor*

- *Hassan Karimi, Professor*

- *Prashant Krishnamurthy, Associate Professor*

- *Vladimir Zadorozhny, Associate Professor*

Advancement of technology and growth of the digital world has resulted in exceptionally large and complex data sets. Every day, we create 2.5 quintillion bytes of data — so much that 90% of the data in the world today has been created in the last two years alone. This data comes from everywhere: sensors used to gather climate information, posts to social media sites, digital pictures and videos, transaction records, and cell phone GPS signals – just to name a few. Scientists in various disciplines are confronted by the challenges and the opportunities in big data. This panel brings opportunities and challenges imposed by big data to the fore, and debate about the following questions:

- What is the nature of Big Data?

- What are the Big Data problems that you have encountered?

- How does Big Data affect your research?

- What are effective Big Data solutions?

- What platforms, sampling solutions, and applications are most effective for handling Big Data?

- What is going to happen to small data?

And of course, most importantly audience questions about Big Data!

Friday, November 9, 2012
1:30 – 2:30 pm
Room 501 IS Building

Brian Butler, Associate Professor in the College of Information Studies and Associate Professor of Information Systems in the Robert H. Smith School of Business at the University of Maryland

The Dynamics of Open, Peer-to-Peer Learning Platforms: What Factors Influence Participation in the P2P University?

Open online learning platforms have recently emerged as a force that has the potential to change how we deliver education. Open education resources are proliferating and institutions are beginning to invest significant time, effort, and money in massive open online courses (MOOCs). At the same time, efforts are underway to develop platforms that allow individuals to create, lead, and participate in their own courses. This bottom-up, peer-to-peer model of open education presents its own challenges. Central to these efforts is the need foster sustained learner and contributor involvement. Like the more prominent, institutionally-based open learning environments, peer-to-peer platforms are heavily dependent on voluntary individual participation. Moreover, because they use open content models, these platforms also rely on voluntary contributors as authors, teachers, and guides. In this paper, we use log data from the Peer 2 Peer University (P2PU) to explore factors related to active participation in a series of teacher-focused, professional development courses (the P2PU School of Education). We employ learning analytics techniques to theorize and empirically examine how features such as course page design and course organizer activity interact with new and returning participants' behavior to foster increased participation in open learning groups.

Bio: Brian S. Butler is an Associate Professor in the College of Information Studies and Associate Professor of Information Systems in the Robert H. Smith School of Business at the University of Maryland. His work focuses on the interplay between technology and organizing. He has worked with online communities and social computing since the mid-1990's. His work, which has appeared in Information Systems Research, MIS Quarterly, Organization Science, Journal of Biomedical Informatics, and the Journal of Medical Internet Research, combines theories and methods from organizational theory and management to better understand how emerging technologies alter the way teams, communities, and organization function.

His studies of virtual organizations and social networking have been supported by NSF, NIH, and Microsoft. Current projects include studies of policy formation and application in Wikipedia, technology use in local food systems, the design of open communities for education and learning, and models and metrics for systems of online groups.

Friday, October 12, 2012
1:00 pm - 2:30 pm
Room 403 IS Building

Pedro Ferreira, Assistant Research Professor
Heinz College, Department of Engineering and Public Policy, Carnegie Mellon University

Peer Influence in a very Large Social Network: The Diffusion of the iPhone Handset

In this paper, we analyze a large-scale comprehensive dataset from a major European Mobile Phone Provider (EURMO). This dataset allows us to study the diffusion of the iPhone 3G. We provide evidence of contagious adoption. We show that the propensity for iPhone 3G adoption increases with the number of individuals within the social network that have previously purchased the iPhone. We bound the impact of social influence to 14% of all iPhone 3G adoptions observed in EURMO. This result is obtained after controlling for social clustering, gender, previous adoption of mobile internet data plans and ownership of technologically advanced handsets as well as heterogeneity in the regions where subscribers move during the day and spend most of their evenings. This result shows that the effect of peer influence is not trivial and that targeted marketing campaigns to spread handset adoption over mobile networks might indeed be worth pursuing.

Bio: Pedro Ferreira is an Assistant Research Professor at the Heinz College and in the Department of Engineering and Public Policy at Carnegie Mellon University (since 2009). His research interests focus on how people use technology and influence others to do so. These are inextricably linked to how firms behave and how public policies affect market structures. The contributions of his work span several related thrusts in information systems research such as the impact of broadband on education, the regulation of wholesale telecommunications markets and randomized experiments with telcos generating large scale datasets to study diffusion. Pedro holds a dual MSc in Telecommunications Policy and in Electrical and Computer Engineering from MIT (2002) and a PhD in Telecommunications Policy from CMU (2004). He served as a post-doctoral fellow at the iSchool UC Berkeley (2004-05) and a was member of the Board of Directors of the Portuguese Governmental Agency for the Information Society (2005-09).

Friday, April 20, 2012
1:30 pm – 2:30 pm
Room 403 IS Building

Amy Bruckman, Associate Professor, School of Interactive Computing, Georgia Institute of Technology

"Online Collaboration: Creative and Civic"

Peer production of content has led to surprising successes such as Wikipedia, YouTube, open-source software, and more. Yet we are still in the early days of understanding its potential and still learning how to deliberately engineer systems to make new things possible. Two types of online collaboration that are currently coming of age are creative and civic. In this talk, I'll first discuss leadership in creative online collaboration. How do groups of people work together to make creative products? Collaborative modes include remix, benevolent dictatorship, and open collaboration. How do these differ, and what constraints does each mode put on process and product? Can a group of people who have never met work together to create a product which is initially only partially described? What challenges do they encounter, and how can we help them overcome those challenges? Second, social media has controversial but potentially transformative potential for enhancing civic participation. I'll explain how the site iHollaback.org raises awareness of street harassment, and how this social movement has

exploded to 40 cities worldwide in one year. Finally, I'll present new work in which Eric Gilbert and I are helping Public Broadcasting Atlanta to increase civic participation through our redesign of publicsquareatlanta.org.

Bio: Amy Bruckman is an Associate Professor in the School of Interactive Computing at the Georgia Institute of Technology. Her research focuses on peer production of content online. She studies how to create a motivating and supportive context for creation and sharing, and learning through this process. Bruckman received her Ph.D. from the MIT Media Lab's Epistemology and Learning group in 1997, her M.S.V.S. from the Media Lab's Interactive Cinema Group in 1991, and a B.A. in physics from Harvard University in 1987. In 1999, she was named one of the 100 top young innovators in science and technology in the world (TR100) by Technology Review magazine. In 2002, she was awarded the Jan Hawkins Award for Early Career Contributions to Humanistic Research and Scholarship in Learning Technologies.

Friday, March 30, 2012
1:30 pm -2:30 pm
Room 403 IS Building

Marti Hearst, Professor, School of Information, UC Berkeley

"Emerging Trends in Search User Interfaces"

Dr. Hearst will discuss the future of search user interfaces, based on her research for a 2009 book, Search User Interfaces, published by Cambridge University Press. This lecture will identify important trends in the use of information technology and suggest how these may affect search going forward. Most particularly, Hearst will address a notable trend towards more "natural" user interfaces, a movement in the direction of social rather than solo usage of information technology, and an increasingly important role for video and audio, all blended with large knowledge bases. These trends are, or will be, interwoven in various ways, which will have some interesting ramifications for search interfaces, and should suggest promising directions for research.

Dr. Marti Hearst is a professor in the School of Information at the University of California, Berkeley. She received her BA, MS, and PhD degrees in Computer Science from UC Berkeley and was a Member of the Research Staff at Xerox PARC from 1994 to 1997. A primary focus of Dr. Hearst's research is user interfaces for search. In 2009, she completed the first book on the topic and she has invented or participated in several well-known search interface projects including the Flamenco project which investigated and promoted the use of faceted metadata for collection navigation. Professor Hearst's other research areas include computational linguistics, information visualization, and analysis of social media. Dr. Hearst has received an NSF CAREER award, an IBM Faculty Award, a Google Research Award, an Okawa Foundation Fellowship, two Excellence in Teaching Awards, and has been principle investigator for more than $3M in research grants.

This event is made possible through the support of the Provost of the University of Pittsburgh.

Monday, February 13, 2012
10:30 a.m. - 11:30 a.m.
Room 403 IS Building

Stephen Paling, Assistant Professor, University of Wisconsin-Madison

"**[Rethinking the Organization of Literary Works](#)**"

Organizing literary works, particularly in terms of subject analysis, has traditionally presented librarianship with difficulties that are not necessarily present with other types of works. This talk is developmental in nature, and has four goals:

- Summarize and synthesize results from two separate but related studies that examined the organization of literary and nonliterary works from two different methodological perspectives.

- Describe a possible new paradigm suggested by the results of the studies.

- Discuss future research needed to elaborate and further test the proposed paradigm.

- Discuss how the possible new paradigm can be presented in the classroom.

The studies in question also represent an attempt to avoid several assumptions:

- That users want access to literature at the level of the book.

- That existing cataloging tools are the best tools for organizing literary works.

- That quantitative and critical approaches need to be seen as antagonistic.

Rather than asking a more typical question such as, What can we do with the tools we have?, these studies are guided by the question, What tools do we need to have in the first place?

Telecommunications Seminar Series

Friday, February 1, 2013
12:00 noon
Room 501 IS Building

Joseph Trost (MST, '93), Director of Data Networks Engineering, Tollgrade Communications, Inc.

Introduction to the Tollgrade LightHouse Product Line

Mr. Trost will be presenting information on how the LightHouse System works and why it is a compelling solution for power companies. Tollgrade Communications, Inc. is a leading provider of network assurance solutions for the utility and telecommunication industries worldwide. With a global footprint and 25 years of industry experience delivering value driven solutions to customers, Tollgrade provides a full portfolio of cost-effective and integrated product and service offerings. Tollgrade is a wholly owned subsidiary of Golden Gate Capital, a San Francisco based private equity firm with more than $9 billion of capital under management. Golden Gate Capital has multi-sector investments in companies across a broad range of industries, including a rich background and growing presence in the telecommunications and smart grid space.

Joe Trost is a 1993 graduate of the MST Program at UPitt-SIS. He has a BS in Decision Sciences from Rider University and an AAS in Computer Science from Middlesex County College in New Jersey. After graduating from the MST Program, Joe was an Adjunct Faculty at SIS and taught the 2058 – Intro to Computer Networks in the MST Program. During the 1990's Joe worked in various technical and management roles at FORE Systems developing ATM Networking Solutions including the largest ATM Network (at that time) installed at the National Security Agency. FORE was purchased by Marconi Communications in 1999 and then Ericsson purchased the Engineering Resources from Marconi in 2007. At Ericsson, Joe was the Director of Data Networks and had responsibility for hardware, software and QA for the ATM Product line. In 2009, Joe transferred to Tollgrade as Ericsson shut down the Warrendale Campus. Joe is currently the Director of Systems Verification Test (Software QA) at Tollgrade. Tollgrade's primary product focus and commercial success has been in the telephone systems test head market. These systems monitor the health of the "last mile" in the telephone network. Tollgrade's engineering expertise with the physical layer copper transmission wires has allowed us to develop products for the growing "SmartGrid" Market. SmartGrid is the umbrella term used for adding intelligence to the electrical power utilities infrastructure. Tollgrade has developed sensors (LightHouse) that monitor medium voltage power distribution lines.

Friday, January 18, 2013

12:00 noon
Room 501 IS Building

Evimaria Terzi, Assistant Professor, Computer Science Department, Boston University

Routing State Distance: A Path-based Metric for Network Analysis.

Abstract: In this talk, we will introduce a new approach to analysis of the interdomain routing system designed to shed light on collective routing policies. For this, we will start by defining a new metric for 'distance' between prefixes, which we will call routing state distance (RSD). We will then show that RSD has a number of properties that make it attractive for use in visualizing and analyzing the state of the BGP system. Further, since RSD is a metric, it lends itself naturally to use in clustering prefixes or ASes. In fact, we will demonstrate how the properties of RSD allow us to define a natural clustering criterion, and

we will show that this criterion admits to a simple clustering algorithm with provable approximation guarantees. We will then show that by clustering ASes using RSD, one can uncover macroscopic behavior in BGP that was previously hidden. For example, we will show how to identify groups of ASes having similar routing policies with respect to certain destinations, which apparently reflects shared sensitivity to economic or performance considerations. These routing patterns represent a considerable generalization and extension of the notion of BGP atoms to the case where routing policies are only locally and approximately similar across a set of prefixes.

Dr. Terzi serves as an Assistant Professor in the Computer Science Department at Boston University. Before coming to Boston University, she was a member of the research staff at IBM Almaden Research Center. Her current research focuses on data mining with emphasis on social-network analysis, analysis of sequential data, ranking, clustering and bioinformatics. In particular she is working on problems related to expert identification and team formation in social networks, analysis of online product reviews, and privacy-preserving social network analysis. Evimaria is a Microsoft Faculty Fellow and her research is supported by NSF and gifts from Yahoo! , Google, and Microsoft. She was recently honored by being appointed as a Junior Faculty Fellow to the Hariri Institute at Boston University.

Friday, November 30, 2012
12:00 noon
Room 501 Information Science Building,
135 North Bellefield Avenue

Donald H. Carretta, Executive Director-Network-OH/PA/WV, Verizon Wireless

Donald H. Carretta is Executive Director-Network for the OH/PA/WV Region for Verizon Wireless. In his current position, Mr. Carretta is responsible for network engineering, network operations and network system performance including the strategic direction of network investment in the three-state area. Verizon Wireless continues to invest nearly a half billion dollars a year under the direction of Mr. Carretta's team. Prior to becoming Executive Director-Network – Pittsburgh Region for Bell Atlantic Mobile in October, 1992, Mr. Carretta had more than 18 years' service with Bell Atlantic's landline operations including assignments in outside plant operations, outside plant engineering, customer service, technical support staff and installation & maintenance in the Western PA and Central PA areas. A graduate of Pennsylvania State University, Mr. Carretta holds a bachelor's degree in electrical engineering and has earned his Master's of Business Administration from the University of Pittsburgh.

Friday, October 26, 2012
12:00 noon
Room 501 IS Building

Dominique Blanc, General Manager, eWON Inc.

Challenges and Opportunities for Remote Access in the Industry

Dominique Blanc is the General Manager of eWON Inc. He has more than 15 years of experience in remote service and automation products. Breaking the barrier between industrial applications and IT standards, the mission of eWON is to connect industrial machines securely to the Internet, enabling easy remote access and gathering all types of technical data originating from industrial machines. Typical applications within the scope of our mission include remote maintenance, predictive maintenance, remote services, asset management, remote metering, multi-site building management, M2M, and more.

Friday, October 5, 2012
12:00 noon
Room 501 IS Building

Konstantinos Pelechrinis, Assistant Professor, School of Information Sciences

Location-based Social Networks: Bonding Social and Spatial Information

During the last few years, boosted by advancements in mobile handheld devices, a new class of digital social networks, namely location-based social networks (LBSNs), has emerged. It is now possible to bring into the equation of online social networks (OSNs) another dimension, that of location, due to the significantly improved ability of mobile devices to accurately estimate their position. The underlying communities not only have social ties and/or interests in common, but they are also "connected" with regards to their geographic locations. In other words, LBSNs tie together the virtual and physical worlds through the location information. This bond can enable a number of novel, convenient, and appealing services which will make LBSNs popular.

With LBSNs becoming prevalent, it becomes critical to comprehend and discriminate the types of knowledge we can obtain from the bond between locations and social ties. This can further enable a better understanding of the trends in an LBSN and the way people perceive and use location information from these systems. The main focus of this talk is to answer this question "What are the bonds between the social and spatial information in an LBSN and what are the metrics that can reveal them?" We tackle this question by using a dataset obtained from a commercial LBSN (Gowalla) and we make two main interesting observations; (i) the social network exhibits signs of homophily with regards to the places visited by the users, and (ii) the "nature" of the visited venues that are common to users is informative in revealing the social/spatial linkages.

Dr. Pelechrinis, who earned his PhD at the University of California – Riverside, teaches computer networking and network security classes at both the undergraduate and graduate levels. His research interests include protocol design, real-world experimentation, location-based social networking and performance analysis for security and trust issues in wireless networks. He completed his doctoral studies in June 2010: his thesis examined "Security and Performance Considerations in Wireless

Networks." While undertaking his doctoral studies, he also served as a researcher at Los Alamos National Labs, Technicolor Research Lab in Paris (formerly Thompsons) and Microsoft Research at Cambridge UK. In addition, Pelechrinis was a Visiting Researcher at the University of Thessaly in Greece.

Friday, September 14, 2012
12:00 noon
Room 501 IS Building

Yu Zheng, Lead Researcher, Microsoft Research Asia

Urban Computing with City Dynamics

Urban computing is emerging as a concept where every sensor, device, person, vehicle, building, and street in urban areas can be used as a component to probe city dynamics to further enable city-wide computing for serving people and their cities.

Urban computing aims to enhance both human life and the urban environment smartly through a recurrent process of sensing, mining, understanding, and improving. Urban computing also aims to understand deeply the nature and sciences behind the phenomenon occurring in urban spaces, using a variety of heterogeneous data sources reflecting city dynamics, such as traffic flows, human mobility, geographic and map data, environment, energy consumption, populations, and economics.

In this talk, we will present our recent research on urban computing with city dynamics, introducing innovative application scenarios and the technology for integrating and mining heterogeneous city dynamics, such as, finding smart driving directions based on taxi trajectories, identify different functional regions (e.g., residential and commercial areas) in urban spaces using both POIs and human mobility, gleaning the problematic city configurations, and anomaly detection in road traffic flows (these examples have been published in top-tier conferences and journals recently, such as KDD, UbiComp, ICDE). More details can be found on this page http://research.microsoft.com/en-us/projects/urbancomputing/default.aspx

Dr. Yu Zheng is a lead researcher from Microsoft Research Asia. He is an IEEE senior member and ACM senior member. His research interests include location-based services, spatio-temporal data mining, ubiquitous computing, and mobile social applications. He has published over 50 referred papers at high-quality international conferences and journals, such as SIGMOD, SIGKDD, AAAI, ICDE, WWW, Ubicomp, and IEEE TKDE, where he has received 3 best paper awards as well as 1 best paper nominee and a number of most cited papers. These papers have also been featured by top-tier presses like MIT Technology Review multiple times.

In addition, he has been serving over 30 prestigious international conferences as a chair or a program committee member, including ICDE, KDD, Ubicomp, and IJCAI, etc. So far, he has received 3 technical transfer awards from Microsoft and 20 granted/filed patents. In 2008, he was recognized as the Microsoft Golden Star.

Friday, March 30, 2012
12:00 noon in Room 404, IS Building

Patrick Tague, Assistant Research Professor, Cylab, Carnegie Mellon University

Awareness & Adaptation for Robust Wireless Communication

As more and more wireless systems are being deployed, it is becoming increasingly important for these systems to be able to effectively manage and use their resources to satisfy system demands and operational requirements. The typical way of handling this task is to come up with a conservative model of the system and design the protocols of interest using a one-time optimization around the assumed system model. However, because a static system model will not always match the real-world scenario, this approach can lead to under-utilization of available resources when conditions are good and catastrophic failures when conditions are bad. In our work, we take an alternate approach by avoiding predetermined models whenever possible, instead relying on network devices to observe and learn the state of the system dynamically, making the system self-aware. By enabling this awareness, the network itself can now adapt to changing conditions, varying resources, and external events. In this talk, we present two of our ongoing projects that make use of this awareness property to enable self-healing properties. First, we present our work on developing inference-based adaptive anti-jamming algorithms that allow software-defined radios to modify physical layer parameters in response to changing network and attack conditions. Second, we present our work on providing self-healing Smart Grid communications in disaster or outage scenarios by bootstrapping a temporary wireless mesh network infrastructure to relay grid health data to a system operator for diagnostic purposes.

Tague is an Assistant Research Professor at Carnegie Mellon University, holding appointments with CyLab, the Electrical and Computer Engineering Department, the Information Networking Institute, and the Silicon Valley Campus. His research interests include wireless mesh, ad-hoc, and sensor networks; mobile security and privacy; cyber-physical system security; cross-layer attacks and defenses; and security-performance trade-offs.

Information Science & Technology Colloquium Series

September 25, 2012
11:00 am
Room 501 IS Building, 135 North Bellefield Avenue
Meet the Speaker 30 minutes prior to the Colloquium

Oded Nov, Assistant Professor, Polytechnic Institute of New York University

Personality-Targeted Design: Theory, Experimental Procedure, and Preliminary Results

We introduce a framework for personality-targeted design, much like a medical treatment applied to a person based on her specific genetic profile. In a series of studies, we examine the effect of the interaction between personality traits and theory-driven UI features on users' online behavior, and demonstrate the effectiveness of interactionist design.

Bio: Oded Nov is an Assistant Professor at the Polytechnic Institute of New York University. He received his PhD from Cambridge University. His research focuses on motivational, dispositional and social aspects of information systems and social media. Dr. Nov is a recipient of the National Science Foundation CAREER Award.

The Sara Fine Institute Lectures

The Institute is dedicated to examining the ways in which technology impacts interpersonal communications and relationships with family, friends, professional colleagues, governments, the healthcare industry, and educational institutions. Since its founding in 1999, the SFI has promoted multidisciplinary studies of users of online information, digital information production and use, and the impact of information technology on scholarly communications.

Each year, the SFI hosts a lecture event, featuring leading researchers in the areas of education, policy, and the Information Sciences. More information about the SFI Annual Lecture is here.

The Sara Fine Institute was founded to honor Dr. Fine's 23-year teaching career at the University of Pittsburgh and to continue her research on human interaction with information and technology, particularly how technology affects individuals, organizations and societies. More information about Dr. Fine is available here.

2013 SFI Lecture

Tuesday, February 19, 2013
2:30 pm
Teplitz Memorial Moot Courtroom, School of Law, University of Pittsburgh

Pamela Samuelson, Professor
Berkeley Law School and School of Information
University of California at Berkeley

Overcoming Copyright Obstacles to Creating Digital Libraries

More information is available here.

SFI Lecture: David H. Holtzman, March 29, 2012

Stealing digital assets—Piracy and privacy

SFI Lecture: Michael Christie, April 21, 2011

Teaching from Country: Stories and Place in a Postcolonial Australian Aboriginal Pedagogy

SFI lecture: Jonathan Zittrain, February 18, 2010

Minds for Sale

SFI lecture: Dr. Lessig, September 25, 2008

A Declaration for Independence

SFI lecture: Dr. Dede, November 8, 2007

21st Century Skills, Education, and Economic Development for Global, Knowledge-based Workplaces