Greetings From The Chair

Welcome to the Department of Computer Science. I am very proud of our department and its contributions to the overall mission of the University. Led by experienced educators, our undergraduate and graduate programs continue to grow and prepare our students for dynamic careers or higher education in the fields of Computer Science and Information Technology.

Previously, we made a proposal for a new integrated 5-year/4-year M.S./B.S. program in computer science, and we are hoping the proposal will be approved by the University this year. Our goal is to begin recruiting juniors starting in fall 2018.

Our new faculty member, Dr. Wei Chang, with expertise in the areas of mobile computing and computer security, offered a new course entitled, Introduction to Ethical Hacking, in fall 2017. Dr. Chang is in charge of the new graduate cybersecurity concentration, and he is currently developing a new course in digital forensics for spring 2018. Dr. George Grevera will be offering a new course in spring 2018 entitled, The Internet of Things. Our new introductory course, CSC 115 Introduction to Computing, has been popular and many non-majors take the course to learn the basic of Python programming. This fall, Professor Krueger designed a new course, The Joy of Computing, which is a First Year Seminar course specifically designed to introduce incoming freshmen to the ubiquity of computing in our daily lives.

The Computer Science students and faculty continue to be involved in research. Dr. Chang and an undergraduate student are currently working on publishing a paper on their research on mobile computing; Dr. Chang also supervised a summer REU project in the area of computer security. Dr. Forouraghi and a graduate student are working on a year-long research project involving the use of artificial intelligence techniques in big data analytics using Apache Spark.

Our undergraduate students continue to participate in ACM’s International Collegiate Programming Contest. Last November, two teams represented the Department in ACM’s 2016 contest which was attended by teams from many universities and colleges in the Northwest Division. Many thanks to Professor Mary Kruger, their mentor and coach, and also to our Computer Science Club officers who helped recruit and coached students for the contest. This year, Dr. Chang will be taking over as the new ACM coach.

The induction ceremony for the UPE Computer Science Honor Society was held in April 2017. We are very proud of the new graduate and undergraduate members who were inducted into the society because of their outstanding academic accomplishments.

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Greetings From The Chair
(Continued)

Many of our students gained work experience over the summer by interning at technical companies in the area while earning credit. We are currently partnering with SAP by participating in their Early Talent Program, which allows our undergraduates to take advantage of summer internships and job opportunities at SAP. Last summer, SAP hired one of our graduating seniors, and one of our sophomores had a great working experience at SAP. We are very grateful to SAP for providing these opportunities for our students and plan to establish similar partnerships with other companies in the area.

If you are a former student reading this newsletter, we would love to hear from you. Thanks for visiting!

- On Thursday, September 21, the department hosted a Welcome to Fall celebration. Faculty, staff, and students mingled and feasted on pizza, salad, homemade banana bread, soft pretzels, and a variety of confectionery treats!
- The CS Department continues to participate in SAP’s Early Talent Program. This program allows undergraduates to take advantage of their summer internships and permanent employment opportunities.
- In the summer of 2017, Dr. Wei Chang wrote a proposal called A General Traffic Flow Monitoring System: On Distiguishability among General Traffic Flows which has been submitted to the NSF CRII Program.
- A paper published by Ather Sharif (’15) and Dr. Babak Forouraghi, entitled evoGraphs—A jQuery Plugin to Create Web Accessible Graphs, was accepted at the 2018 15th IEEE Annual Consumer Communications & Networking Conference.
- The Integrated 5-Year/4-Year M.S./B.S. Computer Science Program: The department is anxiously awaiting for the approval of the proposed BS/MS program which would enable students to earn a B.S. and M.S. in Computer Science within a five year period.
- Dr. George Grevera will offer a new course in spring 2018 entitled The Internet of Things.

- The department welcomes two new Office Assistant/Work Study students for the academic year—sophomore Joe Kessler (CS major) and freshman Jessica Atoo (IT major). We also welcome back senior Nick Boyd (CS major).
- Welcome back to our Affiliate faculty—Marius Ndini and Alan Nichosen. They are teaching graduate courses for the fall semester—Computer Science I and II and Object Oriented Design & Data Structure, respectively.
- Dr. Wei Chang is developing a new course, for the spring semester, entitled Digital Forensics. He is also currently working on publishing a paper with a research student and supervised a REU project over the summer.
- Dr. Babak Forouraghi is working on a research project involving the use of artificial intelligence techniques in big data analytics using Apache Spark.
- Dr. Susanna Wei hosted a potluck for her graduate class at her home. All enjoyed the appetizing cuisine and cheerful camaraderie!
- Dr. Wei Chang will be the new student coach/mentor for the ACM Programming competition. Many thanks to Coach K (Mrs. Krueger) for mentoring the students over the last few years!
- Dr. Jonathan Hodgson, Professor Emeritis, and his wife, Andrea, are enjoying retirement! They rented a house on the lake in the Adirondacks for one week in June. They kayaked every day and hiked to remote ponds and a mountaintop. In July, they spent a week on a small lake in New Hampshire as guests of friends. In September, they were in Oregon for two weeks and saw four major volcanoes—Mts. Hood, St. Helens, Adams, and Rainier— from a single hilltop. On the coast, they visited with friends in Depoe Bay and in the Cascades they endured smoky skies from big wildfires and enjoyed walking on the McKenzie River. Jonathan also reports his granddaughter, Emma, is now 2 1/2 years old and he looks forward to spending time with her at Christmas!
I recently joined the Philadelphia SQL Servers Users Group. After completing my summer internship, InfoMC offered me a part-time position during the fall semester. I will be working 15 hours per week and continuing in my current role.

Nick Boyd

Temple REU Program / Philadelphia, PA

I worked over the summer with Dr. Wei Chang (St. Joseph’s) and Dr. Wu Jie (Temple) as I researched the topic “Crowdsourcing” and developed a musical framework that implements popular Crowdsourcing techniques to change with active listeners. Working on campus, I lived in Temple University’s dorms for the entire program, very close to Center City, Philadelphia. During this eight week period, we worked with a mentor and PhD Research Assistant who guided us through the process of what it is like to conduct research, develop a project, and write a research paper. The program was organized into four phases. Phase One focused on project background. During this phase, I was given dozens of scholarly articles, papers, and a book about my topic. I gave several presentations to my mentor based on what I had been learning from each of them. Phase Two was based around project solution design and implementation.
Tingjun Cui  
Kim Yeung Ling, PC, CPA /  
Philadelphia, PA

The company for which I worked needed a database to store pertinent information to ensure better user authorization. I used C# language to perform the following functions: 1) Store clients’ basic information, such as the company’s name, business address, mailing address, and phone. 2) Store general payroll information. 3) Store federal payroll information. 4) Store payroll information, such as account number, login ID password. 5) Store local payroll related information. 6) Store PA employment and other related information. The designed package allows payroll representatives to enter information for clients, store information in the database and all the data will be raw data for further reports.

Ting Hu  
Brown’s Super Stores / Westville, NJ

Over the summer, I had an internship at Brown’s Super Stores, which operates a subsidiary of the Wakenfern Food Corporation. My internship responsibilities involved working with the Director of Finance and Information Technology to design and develop a new finance reporting application, which would enable management to make more informed and timely decisions.

Student Screenshots  
2017 SUMMER INTERNSHIPS

During this time, after extensive research on our project, we began to formulate a project that would look to solve a particular problem. My project looked at the music industry; specifically, how we listen to and consume music. During this phase, we familiarized ourselves with all necessary programming environments, tools, and resources that we would require to build the project. Phase Three was based around experimentation and evaluation and, during this time, we tested our projects and ran various experiments to begin to support a claim we may have or discover something about our topic. I began to write my research paper during the second half of this phase, after getting a decent amount of data. Phase Four focused on project wrap-up, where we had to make any last minute changes to our projects or papers and put together a small presentation for the faculty and other REU students, describing what we had been doing over the course of the eight week program. In the end, I was able to write a comprehensive research paper that will be presented in Orlando, Florida at the IEE MASS2017 Conference on Mobile Systems. I found this research program through Dr. Chang and applied halfway through the spring semester. Overall, this program was an amazing opportunity to gain first-hand knowledge about conducting research. (For further information, please visit Temple’s REU website: https://cis.temple.edu/~avinash/TUREU/index.html.)
Zijian Zhang
NYIS, Inc. / Leonia, NJ

I was employed as a Full Stack Web Developer Intern at NYIS, Inc. from May 2017 to August 2017. I reported directly to the IT Director and collaborated with the Project Manager and UI Designer to develop a high quality mobile application in Wechat. I participated in the software development lifecycle from planning, requirement elicitation, UI designing, implementation, and testing. I designed and created backend RESTful APIs in LEMP stacks and a user-friendly frontend app in JavaScript, CSS, and XML. I worked with JSON, Git, and integrated core features, like MySQL and Memcached for database and cache storage.

Patrick Quirk
Delaware Valley Community Health / Philadelphia, PA

Delaware Valley Community Health (DVCH) is a non-profit, federally qualified health center. It has five main sites located in the Philadelphia area that gives care to any patient, regardless of their ability to pay for the visit. During the summer of 2017, I worked in the IS/IT department to research and develop a secure way to implement a mobile EHR supplied by NextGen Healthcare. This software will better the work/home life of clinical workers at DVCH as they seek to be able to access EHR information from devices other than a laptop or workstation. I had to consider the usefulness of the NextGen application in DVCH’s existing network of software and hardware while being mindful of security concerns that come with transmitting protected health information. I found that a mobile device management tool created by Citrix, called XenMobile, would be best for implementing this software. Budget and workflow constraints make it so DVCH can’t buy phones for every provided that wants to use the mobile EHR. A mobile device manager allows for workplace applications to be separated from personal information on the device. Security policies can be enforced so that sensitive information, like patient data, is not at risk while being accessed on a vulnerable device such as a smartphone or tablet. In the fall of 2017, as I continue to work at DVCH, I will be present for the final configuration and implementation of this mobile application as it is installed on the network and pushed out to users.

“Be so good they can’t ignore you.”
~ Steve Martin
Nick Eldering
_Globo / Jenkintown, PA_

From June to September, 2017, I interned at Globo, which is a web-based translation and interpretation service company. I was required to learn their project and write documentation, perform quality assurance testing, and be an access point to their database. Due to the company’s small size, I was often asked to help out on other projects as well. During my internship presentation, I will discuss how I used SQL to pull metrics for departments, wrote documentation for internal and external use, and discuss some of the one-time projects on which I assisted.

Mohammad Islam
_NPV Staffing, LLC / On-line_

During my internship, I gained practical knowledge on SQL, HIVE, and SQOOP queries which are often used in Hadoop to store and manipulate such information. In addition, I learned how to use the Spark Applications using the Scala on Hadoop to perform a task faster than Map Reduce. I have achieved some valuable knowledge on the Amazon Web Services, such as the S3 bucket to store data as an object for a certain period of time, EC2 instances to launch virtual servers and configure security and networking, and Identify & Access Management (IAM) to set permission for users, which will come in handy for me in the near future. This internship enabled me to feel the importance of a Big Data Engineering in the real world.

“Believe you can and you’re halfway there.”
~ Theodore Roosevelt

On Tuesday, December 5, Dr. Babak Forouraghi, Dr. Wei Chang, and Dr. Jean Smolen met with representatives from Shanghai Normal University (SNU) to discuss the recruitment of China students and possible student exchanges.

This summer, the CS department will develop a two week workshop for a group of 15 undergraduate students from SNU and other institutions in China. The goal of this workshop is to introduce the students to life at SJU in preparation for them to pursue graduate studies in Computer Science at SJU.
• **Nick Boyd** was accepted into Temple University’s REU Program over the summer and his research paper will be presented at the IEEE MASS2017 Conference on Mobile Systems in Orlando, Florida.

• On Saturday, November 11, **John Coleman**, **Alex Masgai**, and **Julie Osborne**, travelled to Washington College in Chestertown, Maryland to compete in the ACM National Intercollegiate Programming Contest. Congratulations to all and a big thank you to the team’s Coordinator and Mentor, **Dr. Wei Chang**!

• Congratulations to the following graduate students who were awarded Graduate Assistant positions for the Fall, 2017, semester: **Nicolas Eldering**, **Ameen Hai**, **Jingyu Wang**, **Yang Xu**, and **Zijian Zhang**.

• Welcome to the new, first-year graduate students from Shanghi Normal University in China: **Yifan Chen**, **Jungiang Hu**, **Youbin Huang**, **Ding Hui**, and **Wenhao Ruan**.

• **Scott Billman**, **Nick Boyd**, **Ting Hu**, **Patrick Quirk**, and **Zijian Zhang** gave informative presentations on the internship positions they held over the summer.

• The following students have graciously volunteered for the CS Mentoring Program: **Nick Boyd**, **John Coleman**, **Emily DeMarco**, **Abby Quinlan**, **Mike Riveria**, and **Nick Senatore**. This program pairs juniors and seniors with freshmen and sophomores. Mentors share their wisdom and provide support on various topics, such as course selection, study habits, internships, etc.

• **Scott Billman** will be working part-time at InfoMC in Conshohocken, PA, during the fall semester. He was offered this position after a successful internship over the summer.
CONFFERENCE REPORT
By: Nick Boyd (’18)

Over the summer I was fortunate to be accepted into Temple University’s REU program, where I conducted research on crowdsourcing, data clustering, and data processing. After spending eight weeks on Temple’s campus, I designed a musical framework that changes with its users and wrote a technical paper, titled “Crowdsourcing-Based Musical Predictions”, about my findings and results and submitted it to the 14th International Conference on Mobile Ad-hoc and Sensor Systems (IEEE MASS 2017): The Fourth National Workshop for REU Research in Networking and Systems in Orlando, Florida, where I presented my research.

Staying at the Royale Caribe Hotel in Orlando, I presented my research in a convention hall in front of other students, professors, and researchers. In the presentations session on October 22d, each person was given 15 minutes for presentations, including a question and answer session at the end. During my presentation I outlined the framework for my musical recommendation system. Outside of the conference, we had free time to travel around Orlando. Specifically, we went to Universal Studios and Cocoa Beach. Overall, this was a great experience and I strongly recommend to any computer science major to look into undergraduate research opportunities!

― Music is a higher revelation than all wisdom and philosophy.‖
~ Ludwig van Beethoven
On Tuesday, December 5, the Barbelin Bell Tower was adorned in Yuletide festive flare while the SJU Hawkappellas performed a Christmas concert. AMAZING talent! (Check out and like their Facebook page at: https://www.facebook.com/coedhawks/)

The Joy of Computing: Reaching Out to Non-Majors

In spring 2018, Professor Mary Krueger offered a new first year seminar course, *The Joy Of Computing*, which is specifically designed to introduce computer science to incoming freshmen. This course covers the basics of the internet, computer security, computer graphics, etc., as well as basic Python programming and its applications.

In fall 2017, the department also offered CSC-115 (*Intro to Computer Science*), which is a gentle introduction to computer science for non-majors. Students are introduced to basic programming constructs in a language, such as Python, as well as the basics of computer science.

“Joy to the world, the Lord has come, let earth receive her king.” ~ Isaac Watts (1719)

EYE ON IT ➔ The “Sighted” Wheelchair

From researches at Lulea University of Technology in Sweden: This wheel chair is able to sense the environment around it and use the information it gets to deliver messages to the user who may be visually impaired. The wheelchair has a joystick for steering and, with the help of a laser scanner, a 3D map is created of the environment. The map is then transferred to a haptic robot that the user can employ to feel “see” any obstacles in the way.

FALL 2017 EVENTS

Thursday, September 14
Career Fair

Thursday, September 21
Welcome to Fall Celebration

Thursday, September 28
Summer Internship Presentations

October
Cyber Security Awareness Month

Thursday, October 5
Guest Speaker: Dr. Ani Nenkova

Monday, October 9 - Tuesday, October 10
Fall Break

Tuesday, October 24
SAP Class Visit / Senior Interviews
Talk with Hawks / Hosted by Career Development

Thursday, October 26
Guest Speaker: Dr. Slobodan Vucetic

Saturday, November 11
ACM Programming Contest. Washington College

Tuesday, November 21
Graduation Celebration, hosted by the MSCS Saudi Students

November 22-27
Thanksgiving Break

November 30
Fall Internship Presentations

December 12-19
Finals / Winter Break Begins
Abstract

Traditionally, natural language processing practitioners work under the assumption that the direct goal of text analysis is to ultimately derive a semantic interpretation of text. We explore alternatives to this tradition and instead focus on detecting style differences first, deferring or entirely foregoing semantic interpretation. This “style, then semantics if need be” approach to understanding reflects typical human behavior and may prove beneficial for many practical applications of language processing. Under style we hope to capture how content is conveyed rather than exactly what facts are being communicated or what truth values one ought to assign to the expressed statements.

Main challenges in style analysis are the lack of clear definition of the required stylistic dimensions and firm understanding of the granularity on which style should be analyzed. Here we present initial task-dependent style analysis in the context of automatic summarization. We present results on word-, sentence- and paragraph-level and show first results connecting style analysis on each of these levels and the performance of an automatic summarizer.

Biography

Ani Nenkova is an Associate Professor of Computer Information & Science at the University of Pennsylvania. Her main areas of research are computational linguistics and artificial intelligence, with emphasis on developing computational methods for analysis of text quality and style, discourse, affect, recognition and summarization.

She obtained her PhD in Computer Science from Columbia University and was a postdoctoral fellow in linguistics at Stanford University before joining Penn.

Ani and her collaborators are recipients of the best student paper award at SIGDial in 2010 and best paper award at EMNLP-CoNLL in 2012. The Penn team, co-led by Ani, won the audio-visual emotion recognition challenge (AVEC) for word-level prediction in 2012. Ani was a program co-chair for SIGDial 2014 and NAACL-HLT in 2016.

“Language shapes the way we think and determines what we can think about.”
~ Benjamin Lee Whorf
Abstract

In this talk we will discuss the state of the art approaches for descriptive and predictive analysis of sequential data, such as text and event logs. A critical challenge in the analysis of sequential data is data representation, which refers to converting the raw data into a form that is suitable for machine learning algorithms. Many machine learning algorithms, such as neural networks, require the input to be provided as a fixed-length vector and, for a long time, this has been considered a major obstacle for successful learning from sequential data.

The recent progress in machine learning has resulted in several powerful ideas for better representation and learning from sequential data. Among these ideas, probably the most powerful are distributed representations and deep learning. We will describe the intuition behind these ideas and demonstrate their promise by showing our recent results on the analysis of micro-blogging data and medical records data.

Tell me and I forget. Teach me and I remember. Involve me and I learn.”
~ Benjamin Franklin
Abdullah Alghamdi (M.S. Computer Science /2009) was awarded a PhD in E-learning Information Technology from the UK this summer. He is currently working as an Assistant Professor at the University of Dammam in Saudi Arabia.

Leonard Armstrong (B.S. Computer Science 1985/M.S. Computer Science 1989) is using text mining of ad hoc service requests to determine high volume request areas that can be coded into a well-defined catalog of available services with associated times-to-complete. Related to this work, Leonard has applied to the Applied Data Science Program at Syracuse University to study text mining and other data science techniques to additional levels of detail. Leonard’s wife, Grace Killelea, presented her talk “Year of No Fear” at TEDx Pasadena on September 30, 2017, followed by presenting a talk on her bestselling book “The Confidence Effect” at the Pennsylvania Conference for Women on October 3, 2017.

Rich Burns (M.S. Computer Science /2006) is happy to share he is now a tenured, Associate Professor in the Computer Science Department at West Chester University.

Sara Cooney (B.S. Mathematics & Computer Science/2017) was spotted on the cover of the Summer 2017 edition of Saint Joseph’s University Magazine. As an undergrad, Sarah was a McNulty Scholar, member of Phi Beta Kappa and Upsilon Pi Epsilon honor societies, President of Pi Mu Epsilon (math honor society), a tutor for the Writing Center, and supplemental instruction peer leader. She is currently pursuing her PhD at the University of Southern California Viterbi School of Engineering.

Major Walt Fee (B.S. Computer Science /1994) recently moved over to the Enterprise Security Threat & Vulnerability Team at Progressive Insurance.

Chris Halpin (B.S. Mathematics/1992) returned to Hawk Hill in September to attend his 25th reunion. He had a wonderful time and enjoyed reconnecting with former classmates!

Scott Hine (B.S. Computer Science /2009) completed his Master’s in Information Science at Penn State Great Valley in 2016 and he currently works for QVC, Inc. as a Senior Application Developer. He and his fiancée will tie the knot on March 28, 2018!

Matt Karliner (B.S. Computer Science /2015) is working at Lockheed Martin in King of Prussia as a Systems Engineer. He recently enrolled in the SJU Business Intelligence Master’s Program.

Luigi Nuñez (B.S. Computer Science /2017) is currently living in Kampala, Uganda. Luigi was accepted as a Global Health Corps fellow and works as the E-Learning Officer at Population Services International—Uganda. His main roles include revamping quality data collection and using data and evidence to improve decision-making within the organization. Luigi moved to Uganda in July 2017 and will return to the U.S. in July, 2018.


Dmytro Yeroshkin (B.S. Mathematics/2009) paid a surprise visit to the department over the summer! Dmytro received his PhD from the University of Pennsylvania. He is currently a Visiting Assistant Professor in the Math & Statistics Department at Idaho State University. Dmytro’s research focuses on Riemannian Geometry with positive and non-negative curvature in generalized settings, such as orbifolds and manifolds with density. He is primarily working on manifolds with density as introduced by Bakry and Emery, with a focus on generalizing classical results to this new setting.