



COMPUTER SCIENCE

SPRING 2014 NEWSLETTER

Message from the Chair; Dr. James Geller

Dear NJIT CS Graduate:

Do you own shares in IBM, Apple or Google? Do you have a mutual fund or a retirement account? How often are you checking the value of your investments; daily, weekly or yearly? Are you keeping track of the annual shareholder conferences? And when you read about amazing things happening at Google, are you thinking "my guys did this, my Google stock will go up"?

Or maybe you think you don't own any technology stock. Allow me to disagree with you. Your NJIT diploma is just like a technology share. When NJIT is doing something great then your share is going up. In the past 25 years, NJIT has put up one new building roughly every two years, or at least renovated a building from bottom to top. In September 2013, NJIT opened seven new buildings, six of them fraternity houses, the seventh a brand spanking new Albert Dorman Honor's college building, with class rooms, dorm rooms, a gym, a convenience store and a pizza restaurant. If you haven't been here in 10 years, NJIT does not look like you remember it.

In September 2013 NJIT also surpassed a total enrollment of 10,000 for the first time. We are in the third phase of a new hiring plan, bringing in 50 young, energetic, motivated, new faculty members with state-of-the-art research experience. Computer Science has hired two new faculty members as part of this plan, in exciting areas such as biomedical informatics and big data. A third hire has been approved and might be finalized by the time this article appears in print. Current and



new faculty members of the Computer Science Department, together with their PhD students, are making big steps forward in research areas such as Cyber Security, Mobile and Vehicular Networking, Bioinformatics, Medical Informatics, Scheduling, Software Engineering, Risk Analysis, Big Data, Multi-Media and XML Databases, Data Warehouses, Computer Vision, Face Recognition, Computer Support for Education, Cloud Computing, Memory Management, Multi-Core Systems, etc.

During the last several months a stream of famous visitors has stopped by at the Computer Science Department and given presentations on their leading-edge research. Look inside this newsletter to learn about Personalized Medicine (Dr. Yelena Yesha), applications of the "Internet of Things" (Dr. Dimitrios Georgakopoulos), Fully Homomorphic Encryption (Dr. Kurt Rohloff), Computer Modeling of Brain Injuries (Dr. Namas Chandra, who recently joined NJIT), and several others. Our own PhD students have also advanced during the last several months. Xiguo Ma defended his PhD proposal in a presentation on Algorithms for Similarity Search.

At the college level, the "mother ship" of the Computer Science Department, Dean Rusinkiewicz has initiated a new University Business Partnership with several local companies and is actively recruiting more member companies in computing-intensive subject areas. The Big Data Visualization Challenge, organized together with McGraw Hill S&P Capital IQ, drew 125 students, that is, 100 more students than expected.

All in all, the value of your NJIT stock has risen dramatically in the last two years, and what are we asking of you? I am asking that whenever you check on your retirement plan, you also check on what is happening at NJIT. Whenever you read about a shareholder meeting in the news, consider coming to an NJIT event, to see what we are doing for your shareholder value.

There is one big difference between your technology shares and your NJIT diploma. You can sell your holdings in company X ... and never look back, but nobody can ever take away your NJIT graduation from you. We are in this together, we truly are. Make the best of it. You're not an NJIT graduate? Then maybe consider becoming one!

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Cyber-Social Computing: Distilling High Value Information from the Internet of Things and Social Media by Dr. Dimitrios Georgakopoulos, *Information Engineering Laboratory CSIRO, Computational Informatics Division*

Date: January 24th, 2014

BIO:

Dimitrios Georgakopoulos is the Director of the Information Engineering Laboratory at CSIRO's Computational Informatics division and also an Adjunct Professor at the Australian National University.

ABSTRACT:

Recent advances in on-line social networking, sensing technologies and the Internet of Things (IoT), as well as mobile and cloud computing are blurring the boundaries between the physical, social and cyber worlds, and fuelling the astonishing growth of internet users in the past five years (from 1.158 billion in 2007 to 2.278 billion in 2013), causing an explosion of big data that is being produced at a high velocity from a myriad of cyber-physical and social sources.

Cyber-Social Computing encompasses real-time extraction of high value information from social networks and millions of cyber-physical systems in the Internet of Things (IoT), as well as the development of specialized cloud-based services to support this anywhere and from any device. Despite an ex-

panding array of business, government and scientific applications that require distilling knowledge from big cyber-social data, currently there is no easy way to manage and exploit such big data, do this in real-time, or formulate cloud services that make this possible anywhere via mobile devices. Therefore, Cyber-Social Computing requires the development of novel solutions for discovering on-line cyber-physical and social media sources, dynamically integrating such sources and their data, and analyzing billions of data streams and tens of years of historical data form on-line cyber-physical and social networks anywhere and in real time.

In this talk we provide an overview of joint research efforts involving prominent open source innovators towards developing IoT cloud solutions for big-data exploitation. In particular, we discuss four interrelated research projects that aim to develop an open source software platform that will help springboard IoT application development in academic research institutions and SMEs around the world. In this talk, we mainly focus on the development of IoT solutions to support dynamic and semantic-based discovery and integration of internet connected

cyber-physical devices as needed by each application, techniques for stream processing and real-time aggregation/summarization of IoT data, and corresponding IoT cloud services. Next, we present on-going research in developing big data aggregations techniques, such as incremental clustering and anomaly detection for crowd sourcing. Finally, we outline a unified approach for big cyber-social data management and analysis that involves real-time aggregation/summarization as the main way of having users interacting with big data, extracting high value information, or reducing the data size to a level than more traditional data analysis solutions can be applied.

We also present as case studies three of the largest cyber-social systems in the world (in terms of the number of data points and data velocity they manage) we have developed at CSIRO in the domains of digital agriculture, smart energy grids, and disaster management, and discuss how these systems utilize real-time cyber-social data aggregation/summarization to help raise agricultural production, reduce energy consumption, and mitigate disasters by providing situation awareness.

Enabling Big-data Scientific Workflows in High-performance Networks by Dr. Chase Qishi Wu, Associate Professor, University of Memphis

Date: February 12th, 2014

BIO:

Dr. Wu completed his Ph.D. dissertation at Oak Ridge National Laboratory (ORNL) and received his Ph.D. degree in computer science from Louisiana State University (LSU) in 2003. Dr. Wu is currently an Associate Professor at UM and a Collaborative Research Staff member at ORNL.

ABSTRACT:

Next-generation e-science is producing colossal amounts of data, now frequently termed as “big data,” on the order of terabytes at present and petabytes or even exabytes in the predictable future. These scientific applications typically feature data- and network-intensive workflows comprised of computing modules with intricate inter-module dependencies. Application users oftentimes need to manually configure their

computing workflows in distributed environments in an ad-hoc manner, which significantly limits the productivity of scientists and constrains the utilization of resources. Our research is focused on the development of an integrated and automated workflow solution to enable extreme-scale scientific computations in high-performance networks. Together with science collaborators at national laboratories within the US Department of Energy, we design a three-layer workflow architecture where the workflow performance is optimized through the co-scheduling of computing and networking resources based on resource abstraction, bandwidth reservation, and workflow mapping. This talk provides a brief tutorial on big data scientific applications and shares our research results on various enabling technologies based on rigorous algorithm design, theoretical dynamics analysis, and real network implementation, deployment, and evaluation.

Coming Transformations in Market Intelligence by Dr. David Rothschild; Economist, Microsoft Research

Date: April 24, 2014

Dr. David Rothschild, an economist with Microsoft Research New York City, will speak about coming transformations in market intelligence in the presentation, “Eliciting and Aggregating Information from Laypeople: Polling, Prediction Games, and Social Media Data.”

For over 75 years, survey research has been relatively static. There is a standard procedure: ask a random sample from a representative group of users or a focus group what they would do, and then report the results. Rothschild will demonstrate how survey research can be more efficient in creating both a snapshot of the present and a forecast of the future, with new data found online and from social media,

new questions for polling and prediction games, and accompanying aggregation methodology that utilizes more cost-effective, non-representative samples. Rothschild’s primary body of work is on forecasting and analyzing public interest and sentiment. Related work examines how the public absorbs information. After joining Microsoft in 2012, he has been building prediction and sentiment models and organizing novel/experimental polling and prediction games. This work has appeared on both Bing and Xbox. He correctly predicted 50 of 51 Electoral College (presidential election) outcomes in February of 2012, and 21 of 24 Oscars in 2014. Rothschild has a Ph.D. in applied economics from the Wharton School of Business at the University of Pennsylvania.

Dissertation Proposal Presentation and Defense: Design and Analysis of Algorithms for Similarity Search Based On Intrinsic Dimension by Xiguo Ma, PhD Candidate, Department of Computer Science, NJIT

Date: February 27, 2014

ABSTRACT:

One of the most fundamental operations employed in data mining tasks such as classification, cluster analysis, and anomaly detection, is that of similarity search. It has been used in numerous fields of application such as multimedia, information retrieval, recommender systems and pattern recognition. Specifically, a similarity query aims to retrieve from the database the most similar objects to a query object, where the underlying similarity measure is usually expressed as a distance function.

The cost of processing similarity queries has been typically assessed in terms of the representational dimensions of the data involved, that is, the number of features used to represent individual data objects. It is generally the case that high representational dimensions would result in a significant increase in the processing cost of similarity queries. This relation is often attributed to an effect known as the curse of dimensionality. However, the observed effects of dimensionality in practice may not be as severe as expected. This has led to the development of models quantifying the complexity of data as so-called intrinsic dimension.

The generalized expansion dimension (GED) is one of these models, which estimates the intrinsic dimension in the vicinity of a query

point q through the observation of the ranks and distances of pairs of neighbors with respect to q . This dissertation is mainly concerned with the design and analysis of search algorithms, based on the GED model. In particular, three variants of the similarity search problem are considered, including adaptive similarity search, flexible aggregate similarity search, and subspace similarity search. The good practical performance of our proposed algorithms demonstrates the effectiveness of dimensionality-driven design of search algorithms.

Committee members:

Dr. Vincent Oria, Dissertation Co-Advisor, Associate Professor, Department of Computer Science, NJIT

Dr. Michael Houle, Dissertation Co-Advisor, Visiting Professor, National Institute of Informatics, Japan

Dr. Alexandros Gerbessiotis, Associate Professor, Department of Computer Science, NJIT

Dr. Dimitri Theodoratos, Associate Professor, Department of Computer Science, NJIT

Dr. Yi Chen, Associate Professor, School of Management, NJIT

Dr. Philip Korn, Researcher, AT&T



Exploring the Maze of Mix Network and Malware by Dr. Xinyuan Wang, Associate Professor Department of Computer Science, George Mason University

Date: February 10th, 2014

BIO:

Dr. Xinyuan Wang is an Associate Professor in the Department of Computer Science at George Mason University. He received his PhD in Computer Science from North Carolina State University in 2004 after years of professional experience in the networking industry. His main research interests revolve around computer networks and system security – including malware analysis and defense, attack attribution, anonymity and privacy, and VoIP security.

ABSTRACT:

The concept of MIX is fundamental to all anonymous communication networks, and almost all existing anonymous networks use traffic mixing and transformation to achieve anonymity. It has long been believed that flow mixing and transformations would effectively disguise network flows and thus achieve good anonymity. In the first half of this talk, an investigation of the fundamen-

tal limitations of flow mixing and transformation in achieving anonymity will be discussed. How active flow watermarking in packet timing could transparently make a sufficiently long flow uniquely identifiable, thus breaking the anonymity of all practical anonymity networks (e.g., Tor, anonymizer.com) will also be described.

In the second half, the talk will cover some of the key obstacles to effective malware analysis and defense and how binary analysis could be used to address them, specifically focusing on how to analyze sophisticated malware that is protected by cryptographic algorithms such as packing (i.e., self-modifying code), encryption, and digital signatures.

Some surprising results will be presented, on how much of the cryptographic operation and secrets can be recovered from the execution of a potentially obfuscated binary executable. Finally, a frank discussion how to recover obfuscated malware code from memory dumps will round out the talk.

Progressive Ranking Based on a Dominance List or How to cope with the Curse of Dimensionality in Multi-criteria Search by Dr. Karine Zeitouni, University of Versailles, France

Date: February 20th, 2014

BIO:

Dr. Karine Zeitouni received her Ph.D. in Computer Science from the University of Paris 6 in 1991. She is a Professor in Computer Science at the University of Versailles-Saint-Quentin-en-Yvelines. Her main research interest lies in spatiotemporal databases and knowledge extraction, with a focus on applications in the fields of transportation, environment and health.

ABSTRACT:

Preference queries aim at increasing personalized pertinence of a selection. The most famous ones are the skyline queries based on the concept of dominance introduced by Pareto. Many other dominances have been proposed. In particular, many weaker forms of dominance aim at reducing the size of the answer of the skyline query. In most cases, applying just one dominance is not satisfying as it is hard to conciliate high pertinence, i.e. a strong dominance, and reasonable size of the selection.

In this talk, I will present a generic approach allowing the user to decide what dominances are reliable, and what priorities between them should be respected. Based on the concept of dominance list, new operators have been defined in order to progressively rank the dataset or select the top-k, which provides a great flexibility to the user.

Feature Engineering for Large Scale Predictive Modeling with Electronic Health Records by Dr. Fei Wang, Researcher, IBM

Date: February 4th, 2014

BIO:

Dr. Fei Wang is currently a research staff member in the Healthcare Analytics Research group, IBM T. J. Watson Research Center. He received his Ph.D. from the Department of Automation, Tsinghua University in 2008 and his major research interests include data and visual analytics as well as their applications in social and health informatics.

ABSTRACT:

Predictive modeling lies in the heart of many medical informatics problems, such as early detection of some chronic diseases and patient hospitalization/readmission prediction. Typically those predictive models are built upon patient Electronic Health Records (EHR), which are systematic collections of patient information including demographics, diagnoses, medications, lab tests, etc. and

referred to as Patient Features. High quality features are of vital importance to building successful predictive models. Presented during this talk are two feature engineering technologies to improve the quality of the raw features extracted from original patient EHRs:

(1) Feature augmentation, which constructs more effective derived features from existing raw features by exploring the event sequentially.

(2) Feature densification, which imputes the missing feature values via knowledge transfer across similar patients.

Along with each technique, a visual interface has been developed to facilitate the user's exploring the derived features; and finally, a parallel predictive modeling platform built for efficient training and testing large scale predictive models will also be introduced.

Large-Scale Structured Sparse Learning with Applications in Brain Initiative and Health Informatics by **Dr. Heng Huang**, *Associate Professor, University of Texas at Arlington*

Date: February 17th, 2014

BIO:

Dr. Heng Huang is an Associate Professor of Computer Science and Engineering (CSE) at the University of Texas at Arlington (UTA) and director of the Computational Science Lab in CSE at UTA. Dr. Huang received the PhD degree in Computer Science at Dartmouth College in 2006 and then joined UTA as an assistant professor. His research areas include machine learning, big data mining, bioinformatics, health informatics, computational neuroscience, computer vision, and medical image analysis

ABSTRACT:

Sparsity is one of the intrinsic properties of real-world data, thus the sparse learning models provide great opportunities to analyze big, complex, and diverse datasets. By enforcing properly designed structured sparsity, we can integrate the specific data structures into the learning models to simplify data models and discover predictive patterns for big data applications. To address the challenging problems in current big data mining, we proposed several novel large-scale structured sparse learning models for multi-dimensional data fusion, heterogeneous task integration, group-structured data analysis, and longitudinal feature learning. We applied these new structured sparse learning models to analyze the multi-modal brain imaging and genome-wide array data in Imaging Genomics and discover the phenotypic and genotypic markers to characterize the neurodegenerative process in the progression of Alzheimer's disease and other complex brain disorders. We also utilized the structured sparse learning models to analyze electronic medical records and predict the heart failure patients' readmission using the first 24-hour emergency room data.

Computer Modeling Methodology in the Simulation of Brain Injuries Due to Blasts and Impact by **Dr. Namas Chandra**, *Ph.D., PE*
Center for Injury Biomechanics, materials and medicine (CIBM3), NJIT

Date: March 25th, 2014

BIO:

Dr. Namas Chandra is Professor of Biomedical Engineering and Director of the Center for Injury Biomechanics, Materials, and Medicine. He completed his PhD in Mechanical Engineering in 1986 at Texas A&M University. His research interests include computational mechanics of materials at various scales, superplasticity, interfaces, nano-bio materials, experimental mechanics, blast- and blunt-induced traumatic brain injury. Recently, he joined NJIT as the Director of CIBM3 and Professor of Biomedical engineering.

ABSTRACT:

Soldiers and peacekeepers face continued blast threats from IEDs and landmines. Motor vehicle accidents, sports concussions and fall all cause head and brain injuries. Computer modeling has played a vital role in understanding the injury event and the prediction of the injury severity. The acute and chronic neurological, pathophysiological, and behavioral effects of single or repeated exposures to blasts are not known. We have combined an integrated approach of experiments and computations to answer these questions. Based on MRI/CT

data on human beings and animal models, anatomically accurate geometric models as well as 3D finite element models have been built. The numerical models are then validated based on experimental data available in the literature. Also, different size shock tubes were carefully designed and built; the blast characteristics inside the tubes are then validated against measurements in actual field blast testing. The blast tubes will be operational in early spring 2014 and will be housed in the basement of the GITC building. These validated primary blasts are then used to test on head forms, Post-Mortem Human Surrogates (cadavers), and a series of animal models (rodents and pigs). Precise stress measurements in PMHS and animal models show sharp pressure pulses in the front and diffuse pulses throughout the brain. Histological and immune-histo-chemical and proteomic measurements show blood-brain barrier damage and neuronal plasma permeability in different regions of the brain. Based on mortality, a dose-response curve has been developed that relates peak overpressure (and hence different explosive strengths) to injury. Some in-vitro results of the neuron stretch injury model under different strains and strain-rates are also presented.

Personalized Medicine by **Dr. Yelena Yesha**, *University of Maryland*

Date: January 31st, 2014

BIO:

Yelena Yesha is a tenured Professor at the Department of Computer Science and Electrical Engineering, the University of Maryland, Baltimore County.

ABSTRACT:

Personalized Medicine is the systematic use of an individual patient's information to optimize the patient's therapeutic care and diagnosis process. Information about the patient's clinical, genomic and metabolic characteristics can be used to tailor medical care that meets the individual's needs. Preventive or

therapeutic interventions can then be focused on those who will benefit, sparing expenses and side effects for those who will not. It also classifies individuals into subpopulations that differ in their susceptibility to a particular disease or their responses to a specific treatment.

Personalized medicine with evidence-based approach offers solutions to the treatment of complex chronic diseases like diabetes. Pharmacogenomics is an emerging field of personalized medicine that examines the impact of genetic variation on the responses to medications. This approach is aimed at tailoring drug therapy at a dosage that is most appropriate for an individual patient, with the po-

tential benefits of increasing the efficacy and safety of medications.

However, an ever-growing gap exists between accumulating knowledge derived from basic scientific and clinical research and its use at the bed-side by the practitioner. Integration of all the information present in various databases is a challenging task. To add to the efforts of resolving this issue, we propose to develop a Web-based clinical decision support system that will enable the physician to personalize care in real time, at the point of care, for the specific patient. The patient will also have timely access to the relevant knowledge.

Enabling Practical, Secure Computing through Fully Homomorphic Encryption by **Dr. Kurt Rohloff**, *Senior Scientist, Distributed Systems Research Group, BBN Technologies.*

Date: *January 27th, 2014*

BIO:

Dr. Rohloff received his Bachelor's degree in Electrical Engineering from Georgia Tech and his Master's and PhD. in Electrical Engineering from the University of Michigan and is currently a senior scientist in the Distributed Systems research group at BBN Technologies as well as the Chief Designer and Lead Architect of the SHARD triple-store, a highly scalable storage system and query engine for graph data and the SQUIRE streaming graph data query engine. (SHARD has been benchmarked to perform faster than current commercial triple-stores).

ABSTRACT:

One of the first major breakthroughs of computer science

in the 21st century is the demonstration of public-key Fully Homomorphic Encryption (FHE). FHE allows sensitive data to be encrypted such that arbitrary programs can be securely run over the encrypted data where the output, when decrypted, is equivalent to the result of running the original algorithm on the unencrypted data.

Unfortunately, FHE was not practical when it was discovered - it was several orders of magnitude too inefficient to be economically feasible. This talk will review our advances in FHE, from theory, implementation and application perspectives. We discuss our implementations in both software and hardware. We also discuss our plan to continue this R&D that will enable practical secure out-sourced computation.

Towards Science of Gesture-Based Authentication: Security and Memorability by **Dr. Janne Lindqvist**, *Rutgers University*

Date: *April 14th, 2014*

BIO:

Dr. Janne Lindqvist received his D.Sc. degree in Computer Science and Engineering from Helsinki University of Technology, Finland in 2009. He is currently an assistant professor of electrical and computer engineering and a member of WIN-LAB at Rutgers University.

ABSTRACT:

We study the security and memorability of free-form multitouch gestures for mobile authentication. Towards this end, we collected a dataset with a generate-test-retest paradigm where participants (N=63) generated free-form gestures, repeated them, and were later retested for memory. Half of the participants decided to generate one-finger gestures, and the other half generated multi-finger gestures. Although there has been recent work on template-based gestures, there are yet no metrics to analyze

security of either template or free-form gestures. For example, entropy-based metrics used for text-based passwords are not suitable for capturing the security and memorability of free-form gestures. Hence, we modify a recently proposed metric for analyzing information capacity of continuous full-body movements for this purpose.

Our metric computed estimated mutual information in repeated sets of gestures. Surprisingly, one-finger gestures had higher average mutual information. Gestures with many hard angles and turns had the highest mutual information. The best-remembered gestures included signatures and simple angular shapes.

We also implemented a multitouch recognizer to evaluate the practicality of free-form gestures in a real authentication system and how they perform against shoulder surfing attacks. Our work shows that free-form gestures present a robust method for mobile authentication.

PolyPassHash: Protecting Passwords In The Event Of A Password File Disclosure by **Dr. Justin Cappos**, *Computer Science and Engineering Department, New York University*

Date: *April 16th, 2014*

BIO:

Justin Cappos' research interests fall broadly in the area of systems security. He focuses on understanding high-impact, large-scale problems by building and deploying systems. His dissertation work on package management has been adopted by popular Linux package managers, enhancing the security of millions of Linux servers worldwide.

ABSTRACT:

Password file disclosures are a frequent problem for many companies, which make their users the target of identity theft and similar attacks. This work provides a new general cryptographic technique to prevent an attacker from efficiently cracking individual passwords from a stolen password database. PolyPassHash employs a threshold cryptosystem to protect password hashes so that they cannot be verified unless a threshold of them is known. (This is conceptually similar to

encrypting the passwords with a key that is only recoverable when a threshold of passwords is known.) Even if the password file and all other data on disk are obtained by a malicious party, the attacker cannot crack any individual password without simultaneously guessing a large number of them correctly.

PolyPassHash is the first single server, software-only technique that increases the attacker's search space exponentially. The result is that even cracking small numbers of weak passwords is infeasible for an attacker. PolyPassHash achieves these properties with similar efficiency, storage, and memory requirements to existing salted hash schemes, performing tens of thousands of account authentications per second. When using the current best practice (of salting and hashing), cracking three passwords that are comprised of 6 random characters on a modern laptop would take under an hour. However, when protected with PolyPassHash, cracking these passwords when using every computer in existence would take longer than the estimated age of the universe.

DeepCS by Atreyee Sinha

DeepCS is the academic club of the College of Computing Sciences (CCS) under the Graduate Student Association. DeepCS works toward enhancing the student-faculty interaction, and creating a co-operative forum where all the graduate students share their work and ideas, and enhance the learning experience at NJIT. With the help of CCS, DeepCS organizes tutoring sessions every semester to assist graduate students in understanding some of the challenging CCS courses.

Along with GSA, it has organized several workshops, talks, contests and exhibitions over the years. Some of the key events include:

- AFS Workshop
- Latex Workshop
- Photography Workshop
- DeepClick - the Photography Contest and Exhibition
- Graduate Student Project Day

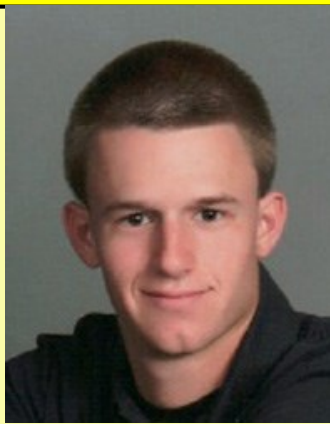
- End of Semester Party and Feedback Session
- Technical talks

The annual photography exhibition of DeepCS, named DeepClick was held recently in March at the Campus Center Gallery for a week. This year, it received over 150 entries and that number had to be reduced by about half at the selection stage, which was very difficult given the high quality of the photographs. At least one entry from each participant was chosen, while not losing sight of the goal — arranging a varied visual feast for the students, staff, faculty and alumni of NJIT. This second edition of DeepClick was much appreciated by the viewers.

DeepCS and GSA proudly present the first ever Graduate Student Project Day (GSPD) during the last week of April, 2014, aimed specifically at Masters Students to help them showcase projects they have done as part of their Masters program at NJIT.

Outstanding Freshman

Meet Rex Macmillan; Computer Science freshman, Honor Student and Men's Division 1 Baseball Player with a 4.0 GPA. He is one of 53 Albert Dorman Honors College students who ended the fall 2013 semester with a 4.0 grade point average. Rex sees himself not as innately intelligent but rather as conscientious and persevering. He even has a semi-jocular mantra that sums up his approach to academic success: "The first half of doing well in college is getting your work in on time," he says. "The other half is getting it right." Katia Passerini, the interim dean of the Albert Dorman Honors College, says: "The college does all it can to attract, support and encourage students like Rex and Briana. The college has a team of advisers who help students define their interests and adjust their class schedules."



Read more at <http://www.njit.edu/features/student/honors-gpa.php>

The Association of Computing Machinery, NJIT Student Chapter by Alrashid Jamalul

The Association for Computing Machinery (ACM) is an international professional society whose main objective is to provide the world with a better understanding of the advances within the computing field. The ACM established within NJIT, on the 4th floor of the GITC in room 4402, is a student chapter which provides several services to the school including tutoring, workspaces, and the ability to establish Special Interest Groups (SIGs). Our membership primarily consists of Computer Science (CS) and Information Technology (IT) majors, but we welcome any major who deals with the computing field, which includes students from computer, electrical and mechanical engineering, and Digital Designers. The organization meets weekly, on Fridays 12:00pm - 1:00pm in order to discuss future events and possible job opportunities for its members. Of late, the most important event we've held is an introduction to

Git and Github, in which we covered the basic concepts of how to use Git and discussed the motivation behind using it. The event was held by both previous and current Webmasters Grant Butler and Luke Greenleaf in that respective order. The turn-out for the event was much bigger than we had anticipated, which led to some of the audience being forced to stand for a while, until we could provide more seating. In terms of projects that we have currently running, the most significant one is the game that's being submitted as a contender in the E3 competition. The lead of the project is Ed Conroy, the head of the Game Development SIG and the team consists of members from his SIG. We are also hoping to establish more workshops based around practical skills that apply to real world applications, and improve relationships between us and other clubs like the Robotics and SIGGRAPH clubs.

In Demand

On March 5th, 2014, Career Development Services hosted the Spring Career Fair, its largest ever, with 180 employers and 350 recruiters coming to NJIT to recruit students for full-time jobs, summer internships and co-ops.



Among the 180 organizations registered to attend the fair was Seattle-based Amazon Corp., a first-time attendee. Other industry leaders that attended included AT&T, Johnson & Johnson, Prudential and Verizon. NJIT has the majors most in demand by employers, according to statistics compiled by the U.S. Bureau of Labor Statistics and the New Jersey Division of Labor and Workforce Development. "This spring, employers were especially interested in hiring students who major in information technology, computer science and engineering," said Gregory Mass, executive director of Career Development Services. Career fairs are an effective way for students to find jobs. Last year, 15 percent of NJIT's May 2013 graduates reported finding jobs through the career fairs.

Read More at <http://www.njit.edu/features/sceneandheard/careerfair-spring14.php>



COMPUTER SCIENCE

Newsletter Editor: Sean Ibanibo

About Us

The Computer Science Department at NJIT, part of the College of Computing Sciences, is one of the largest Departments at NJIT. It is also one of the largest Computer Science departments among all research universities in the New York metropolitan area.

The Department offers a full range of degree programs in computer science (BA/BS, MS and PhD), in addition to emerging interdisciplinary programs, e.g., Software Engineering (MS), Bioinformatics (BS/MS), and Computing and Business (BS/MS). The Bioinformatics degree is also available in a pre-med option.

The BA/BS programs in Computer Science are accredited by the Computing Accreditation Commission of ABET; <http://www.abet.org>.

The **mission** of the Computer Science Department is to

- Provide quality undergraduate and graduate education in both the theoretical and applied foundations of computer science and train students to effectively apply this education to solve real-world problems thus amplifying their potential for lifelong high-quality careers and giving them a competitive advantage in the ever-changing and challenging global work environment of the 21st century;
- Conduct research to advance the state of the art in computer science and integrate research results and innovations into other scientific disciplines;
- Provide computer science education and training to students in other departments at NJIT and Rutgers-Newark, and
- Provide computer science expertise to the people of New Jersey and the nation.

The **vision** of the Computer Science Department is to build a strong research and teaching environment that responds swiftly to the challenges of the 21st century.

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