

the debugger




Computer Science Department • Indiana University of Pennsylvania



Fall 2012
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Dr. Rose Shumba
Editor-in-Chief

Suggestions?
Submit to:
shumba@iup.edu

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Suggestions?
Submit at:
shumba@iup.edu

EDITOR'S NOTES

It's here, the Fall 2012 edition of the debugger. I know everyone has been waiting. The good news is that it's here and worth the wait!

First and foremost, I would like to welcome back Dr. Oblitey to the Chair's position. Dr. Oblitey is the longest serving faculty of this department as of today. Dr. Oblitey and Dr. Mary Micco were instrumental in the starting of the Information Assurance Program at IUP in the 30's, just kidding, in 2001 (not bad, right?). Welcome Dr. Oblitey. We all look forward to working with you.

This is a very juicy edition, with every update you have been waiting for. There is a very informative read from the Chair with the "happenings" in the department. Also included are articles on the 2011 Information Assurance Day, programming team and colloquium series and extensive updates and news from alumni. This time I invited the Presidents of the Computer Science and the Information Assurance Clubs to write a paragraph on what they did in the fall. The clubs are doing some very interesting things.

Please consider being part of our 2012 IA Day program. Thank you, Yvonne, for putting together the Alumni Updates and News. Please alumni, keep on sending Yvonne latest news and updates. We love to hear from you.

ENJOY!

From the Chair

William Oblitey



Hello everyone,

At the time I am writing this it is getting close to the holidays and so I start by wishing everyone happy holidays. Classes are now over and many of the faculty members are entering their final grades into the system. If you could come by the campus now, you will find it as quiet as it can be and this is the way it has been at the end of Fall exams.

The very first news I want to share with you is that our college, the College of Natural Sciences and Mathematics, now has a new dean. Dr. Deanne Snavelly, who is a physical-analytical chemist, started work as our dean in August 1, 2011. She comes to us from Bowling Green University where she served as interim associate dean of the College of Arts and Sciences and interim dean of the graduate college and vice provost for research.

I also need to tell you, although I'm sure this is not news to you that Dr. Shubra has retired. We had a grand retirement party for him and some of you attended. The party for him was not because we were happy to see him go, it was because we were happy with his contributions to the department. Those of you who were at Shubra's retirement party, it was very nice to see you. It was also very nice to see those of you who made it to the homecoming breakfast. I want to appeal to all of you to plan to show up for the next homecoming breakfast. We promise that the food will be great, as usual, but most of all it is good to meet and visit with your classmates and share your background stories with each other. The homecoming breakfast provides you with such opportunity.

Other news to share with you is that Dr. David Smith was promoted to the position of associate professor. We were very happy for him as I am sure you also are for him. It will be nice to send him a few cards to show your gratitude on his promotion. There is one other happening that is not so pleasant to share with you as it involves the resignation of one of our faculty members. We were joined by Dr. Debzani Deb in the fall of 2009. She was wonderful with the students and they loved her teaching. Unfortunately, at the beginning of this academic year, she had to leave us so that she can cease the commuting to and from North Carolina for both her and her husband.

Well now for the wonderful news. Our degree program in the Languages and Systems track has been accredited by the Computing Accreditation Commission of

ABET. The accreditation is good till September 30, 2017 after which we have to request renewal. ABET is the accrediting agency for academic programs in applied science, computing, engineering, and technology. The department had to go through a rigorous plan of checking our courses with course objectives and requirements to ensure that they met the necessary criteria. We are grateful to Dr. Terry Fries for his leadership in getting the accreditation.

On November 10 Dr. Shumba conducted her annual Information Assurance Day in the Delaware Room in the HUB. She brought in speakers from such renowned firms as Allegheny digital, Highmark of Pittsburgh, First Commonwealth Bank of Indiana, and the Federal Bureau of Investigations (FBI). Dean Snavelly opened the program with some welcoming remarks and our SEAL also came all the way from Fort Mead to share a few remarks. The program was well-attended and we deem it another success.

We will like to hear from you concerning how things are going with you. If you happen to be in the neighborhood, we will appreciate your coming to chat and to see what changes we have made to your department. We will also appreciate your volunteering to come and do a colloquium. Nice talks about your company will help you in recruiting upcoming graduates and place you in the good books of your HR personnel. 🖥️

Alumni Corner

Andy Weiss (1993)

Alumni News/Updates

Dr. Shubra,

When I read of your retirement in the latest Debugger issue, I just had to send you this note.

I graduated IUP in 1993 with a Computer Science degree. More than 18 years later, your teaching and attitude have stuck with me. The things I learned from you are touchstones that I still revisit on a daily basis. I am sure I am one of thousands of students who can say the same thing.

The most important things I got from you are not the algorithms or the book-knowledge, but rather the approach and the attitude toward things. The course material was secondary to the approach and attitude. You taught me a very common-sense way of looking at things, no-nonsense, pared-back to basics. Even complicated database topics were broken down into very general concepts before being tackled. Your pragmatism stood out, and adopting it myself has served me very well.

As a person, you were the most approachable and amenable of all my educators. That was remarkably important to me, I can't overstress that. It felt more like we were learning things together with you, rather than being "taught at" by you. I felt like I was under your wing, instead of just "in your class". I can't tell you how big an impact your use of the term "gang" had. "Hey gang, let's review the assignment again," or "You did a great job, gang" ... that little word really made a big difference, it made me feel we were your peers or collaborators, that you were "one of us".

I own not one but two copies of "[Fundamentals of Database Systems](#)" by Elmasri. One copy is for me, the other is to loan out to coworkers when I need help illustrating a concept. And illustrating concepts is something I find I do more and more often with the younger engineers. That book was required for your CO319 course (Database Systems). That course stands out as the best class I can remember taking at IUP, hands-down. It was FUN to learn the material, it wasn't work but actually FUN, like doing a challenging crossword or solving a tough Sudoku.

If you impart any advice to younger educators, let it be not technique or methodology, but attitude and demeanor.

Sincerely,

Andy Weiss
IUP Class of 1993



FEATURED

Andy Weiss



News/Updates

UPDATES



Dewey Miller (1994) and his wife Dr. Greta Stamberg welcomed their first child on May 17, 2011. Trevor Nathan was born 22” long and weighed in at a healthy 8 lbs 10 oz. All are doing well and are enjoying the experience like they have never enjoyed anything else (except when Dewey had Dr. Cross for COSC 319). As of July 6, little Trevor Nathan’s stats are impressive – 7 weeks old; 12 lbs 10 oz, 24.55” long.

Mike Lancaster (2002)

Mike graduated in May 2002 and began working for EQT Production, a natural gas drilling company and largest producer in the Appalachian basin which is head quartered in Pittsburgh. Over the years he has been promoted and is now a Technical Manager for all of the EQT Production Application which includes a large SOX / ERP system with over 1800 database tables. Additionally, in 2010 he lead an effort to implement a \$1,200,000 system which went very well, was on time, and under budget. Also he began moonlighting developing about ten iPhone apps most notable of which are PokerCaddy and SquareUpMax which is currently #1 new action game and #2 Puzzle app on the appStore. He encourages students in college to begin developing iPhone apps for extra cash, if it was this easy to access the market when he was at IUP it would've been awesome to have extra spending cash. He also got married and has two beautiful baby girls along the way. He appreciates the education he received at IUP.

Michael Pace (2003)

Michael is married to Amber Pace (Slippery Rock University – 2005) and they have one daughter Aubrey (age 2) and a son (Micah) to be born soon. Michael works at UPMC as a Systems Administrator and is also a Certified Information Systems Security Professional (CISSP).

Jason Plank (2011)

Jason is engaged to Kelsey McClelland (Art Institute of Pittsburgh – 2011 / Web Design and Interactive Media) and they have set a wedding date of June 8, 2011. Congratulations.

Daniel Usher (2010) is an Application Developer at U.S. Steel, working through Synergy Staffing, a staffing agency. He is a member of the Inventory Applications team under the Business Intelligence group working on the software

iTrack/Steeltrack that tracks steel from the time it leaves U.S. Steel to the time it reaches its final destination. The section where Daniel is assigned is primarily a Java shop but also uses a lot of SQL.

AFTER 2011 GRADUATION, WHERE ARE OUR GRADUATES?

May 2011

Matthew D. Baumgartner is a Software Engineer at Learning Sciences International in Blairsville, PA where he develops and maintains large scale web applications using the Groovy on Grails web development framework and MongoDB database.

Jason DiDomenico is a Proposal Analyst with Bayer Business and Technology Services located in Pittsburgh, PA. He is part of its Regional Services Division working with the Proposal Development Group. As a side note, Jason wrote how the education he received at IUP directly helped him get to where he is today. He sees the importance of knowing the software development process inside and out, frontwards and backwards because businesses today not only want a software developer that can program the solution but also one that is able to invent a solution while still being able to describe how to do it to explain to a customer. In 2011, Bayer hired 7 people out of the hundreds of applicants who applied. Three of the 7 are IUP graduates (2 - Business and Jason -Computer Science) surpassing graduates from CUM, PSU, Pitt, etc. Bayer personnel “like” IUP graduates for the quality education they receive while at the University.

Jason Plank is a programmer with Quintech Electronics and Communications, Inc. which is located in Indiana, PA.

Brian Marks is an Assistant IS Security Engineer with Concurrent Technologies Corporation based in Johnstown, PA.

Steven Popovic is a Software Developer for Wesco Distributions, Pittsburgh, PA. He is improving its inventory management software working primarily with COBOL and JAVA.

Craig Uss is employed with PNC Financial Services Group as a Software Engineer (working as a Mainframe and Distributed Applications Programmer). He has been placed in the Customer Information group which is primarily a Mainframe shop.

Phillip Yu is a Mainframe Generalist (Enterprise Analyst III) for First Tennessee Bank.

August 2011

Luke Shaheen is the Web Developer for U.S. Masters Swimming (usms.org) at its headquarters in Sarasota, Florida. USMS is the governing body for adult swimming in the US. If you are 18+ and you'd like to swim either competitively or just for fitness (65% of our 56,000 members fall into this category), then you join USMS. Luke and his boss are the only two full-time developers working on the website, which permits Luke to play a role in choosing what the website priorities/projects are. The organization is 40 years old, but the website is only 10 years old, and previous to Luke, his boss was the only person working on the website. There are numerous projects to do, and as a result, the company is very busy. The environment is where an application is created one week and the next day it goes live and affects the entire organization and the hundreds of thousands of people who visit the website each month.

Luke is learning a lot, and is very thankful for Dr. Shubra, Dr. Smith, Dr. Wolfe, and the rest of the Comp Sci department at IUP for preparing him for this position. He has been able to directly apply the security knowledge learned in the Information Assurance track to the infrastructure at USMS. The swimming website he built while at IUP, SwimUtopia, is still around and continues to grow in popularity in the swimming community.

December 2011

In January, **David Burkett** will be starting as a software engineer at Cerner, a healthcare technology company in Kansas City. He will be developing software that will be used at physicians' offices, as well as at hospitals. The software will also most likely interact with hardware designed by Cerner.

Christopher Gilliland is working for CSSI in King of Prussia, PA. His title is consultant. For the first year, he will be working with other consultants on coding projects that CSSI acquire. After this induction period, he will be working through the entire software life cycle from getting the requirements from customers to performing maintenance on the codes he produces.

WHAT ARE CURRENT COSC STUDENTS DOING?

Brydon DeWitt (May 2013) In the Fall 2011 Semester, I will be studying abroad at Nagoya Gakuin University. This plan of mine came about as a result of a long held affinity for Asian culture in general. Over time, I had taken a great deal of interest in Asian art, music, architecture, martial arts and, as a Computer Science

major, modern technology. So, after deciding to take a Japanese language course, I thought, "What better place to experience all of these things than Japan?" So, only a few weeks into the course, I began to collect information about studying abroad. Now, I'm on the last few steps before I walk onto the plane and begin my brand new experience! I am very excited.

During my time in Japan, I will primarily be studying the Japanese language and culture. The program is offered by the Institute of Japanese Studies (IJS) and includes several courses such as Japanese Literature, Religion, Language, History, Tourism, and even Karatedo and other sports. Several field trips are scheduled throughout the semester, too.

Overall I think it will be a fun and educational experience. I'm not just looking forward to going to Japan but I'm also excited to see how much I have changed after I come back. I'm sure that I will have many fun and interesting stories to share once I come back home.

EVENTS

The Annual Computer Science Department Alumni Homecoming Breakfast was held on Saturday, October 1, 2011, from 8:30 AM-10:00 AM. Alumni in attendance included the following individuals and their families:

Jason Agostoni (1997), George Altenbaugh (1987), Kirk Anderson (1987), Dave Currence (1979), Eugene "Mitch" Ferguson (1996), Ed Karloski (2011), Ed Kuzemchak (1988), Mark Minser (2000), Rich Murphy (1987), Michael Pace (2003) Jason Plank (2011), Harold Price (1978), Donna Rosenberger (1981), Michael Rudge (1983), Donald Spade (2008), Craig Uss (2011)

Also in attendance were several of the department's present and past faculty/staff members and their families: Soundararajan "Raj" Ezekiel, Daniel Frederick, Terry Fries, Carol Miller, William Oblitey, Charley Shubra, David Smith, Yvonne Dougherty





Mark the Date: Saturday, October 6, 2012

VS.



The 2012 IUP Homecoming Day is scheduled for Saturday, October 6. Our annual Computer Science Alumni Homecoming Breakfast is tentatively set to begin at 8:30 AM in Stright Hall and conclude at 10:00 AM due to the parade starting at 10:00 AM. Remember the Pregame will be held in the Oak Grove, and the Kidz Karnival starts at 11:00 AM. At 2:00 PM the IUP Crimson Hawks will take on the Slippery Rock University Rock. This schedule is tentative.

More details to follow in an email regarding the alumni breakfast.

Please check the Alumni Relations website for additional information:
<http://www.iup.edu/homecoming/default.aspx>



From the Programming Team

Dave Smith



Hello everyone,

In October, IUP sent four teams to compete at the ACM Regional Programming Contest held at Youngstown State University. There were around 120 teams from universities/colleges spanning Western Pennsylvania, Ohio, Michigan, Indiana (state), and Ontario (Canada) participating in the competition. On the IUP teams were seniors David Burkett, Joshua Schwartz, Aaron Waibel, and Courtney Wirtz; juniors Eric Carroll, Davidjohn Gerena, Matt Sulkosky, and Tom Taylor. The sophomores were Kyle Adamski and Travis Deyarmin.

All found the experience to be challenging and rewarding. The ACM East Central region is highly competitive as it includes many notable computer science schools such as Carnegie Mellon and University of Waterloo. I am pleased to report that three of IUP's teams came in at 58, 74, and 75. I was excited to see the one team solve the first problem in 90 minutes. Interest in the programming teams has grown over the last year. A stable number of students have been attending the weekly practice sessions which involve solving one or two difficult algorithmic problems.

I am looking forward to the Spring competitions held at CMU and PACISE.



Colloquium Status Updates

Waleed Farag



Hello Everyone,

This is Dr. Farag, the Department Colloquium Series Coordinator. Below, I'll briefly provide you with the recent status of our colloquium particularly during the fall of 2011. For several years, the Department colloquium series has been very active. Generally, our colloquium series is very beneficial to our students as it introduces them to industry-related topics and provides them with chances to interact personally with future employers. In several of these talks, speakers representing various Industrial entities have met with our students and collected resume from them. As the coordinator, my responsibility includes various activities related to inviting speakers' from academia and Industry, arranging for their visits, and ensuring the success of their presentations. It is also my pleasure to report that over the past few years the Computer Science Colloquium Series has been revived and has featured a number known scholars. Moreover and due to budget constraints, the series has been in operation with basically no budget. Therefore, we would like to express our sincere appreciation to all speakers who volunteered their time and efforts to visit IUP and deliver these talks at our colloquium.

Although our series has featured a number of nationally recognized scholars in the field, it also featured many of our loyal alumni who came back to IUP to present their experience and success stories to the newer student generations. Our Department Web Site is always updated with plenty of information about each talk including talk abstract, date, flyer, presentation if any, and biography of speakers. Please check the following link for complete details <http://www.iup.edu/page.aspx?id=72705>.

Three talks were delivered in the past fall. The first one titled "Recent Data Breaches: DigiNotar" was given on 9/28/2011 by Joshua Waibel who is a senior Technology Operations Analyst at PNC bank and is also one of our alumni. The talk familiarized our students with the DigiNotar latest data breach and the impact of the failure of a digital certificate authority on the overall security of an institution. The talk included discussions, raised during the Q&A session, about the

general effect of the recent experiment that compromised the well-known AES encryption standard.

The second talk was presented by Sean Hastings on 10/19/2011 and has the titled “Adobe Flex: A Framework for Building Rich Internet and Mobile Applications”. Sean is an AMS Center Associate at Deloitte LLP. He presented an interesting talk centered on the use of the Adobe Flex in developing Rich Internet Applications and mobile applications. The talk highlighted several features of the Flex platform and discussed its advantages including the existence of very large audiences that have flash already installed in their machines.

On Wednesday – 12/2/2011, the last talk titled “Performance Testing and Application Lifecycle” was presented by KD Weeks and Nate Stuyvesant of Genilogix. Nate is the CTO and a senior partner for Genilogix, an information technology risk mitigation firm based in Pittsburgh while KD Weeks is a senior system performance consultant at the same company. The talk discussed application life cycle and when and where various types of testing need to be conducted. The emphasis was on performance testing and the identification of various systems’ bottlenecks under various operating conditions.

I hope this briefing managed to familiarize you with our series and please contact me if you are interested in presenting at one of our talks.



The 2011 Information Assurance Day

The Computer Science Department in collaboration with the Institute of Information Assurance Education at IUP hosted the 4th Annual Information Assurance day on November 9, 2011. This was an all-day event, which was very well attended, and featured a wide range of speakers on various topics in Information Assurance.

Featured speakers included Mr. David C. Brown of Business of CyberSecurity, Inc., co-presenters, Mr. Greg Porter and Mr. Matthew Stewart of Allegheny Digital and Robert Morris University respectively, Mr. Mark Yanalatis of HighMark, Pittsburgh, Special Agent Jason Pearson and Special Agent Mr. Keith Mularski of the Pittsburgh Division of the Federal Bureau of Investigation (FBI), and Mr. Douglas Brown of the First Commonwealth Bank, Indiana.

The two FBI Special Agents presented on **“What keeps me up at night...”**. This was a presentation on Botnets, Malware, Cyber Crime & the Criminal Underground.

Mark Yanalatis’s presentation was titled, **“Red Teaming approaches, rationales, engagement risks, and methodologies”**. The presentation discussed Red Teaming approaches, rationales, engagement risks, and methodologies. “Low-and-slow” traditional open-sources intelligence collection and tradecraft techniques are force-multipliers in successful exams.

Matt Stewart presented on how to make sense of all of the security data generated by multiple devices. His presentation was based on the fact that a clear picture of meaningful attacks and how to mitigate them can be gained through the aggregation and correlation of data collected from key points on the network including firewalls, intrusion detection systems, hosts and vulnerability assessment solutions.

Gregg Porter’s presentation was titled **“Using open community software to identify network based security risks to sensitive Information”**. The presentation provided key considerations for using open community software to identify network based security risks to sensitive information.

Douglas Brown presented on **“Information Assurance, an IT Audit Perspective”**. The presentation was on how auditing relates to information assurance.

David Brown's presentation was titled, "**Four Essential Requirements for Securing Your Enterprise**". He presented on a new approach to cybersecurity that will change your perspective and help your organization to build better defenses.

Some of the full presentations are available on the IA websites. The presentations were very informative, very well attended and very well received. Audience included IUP Technical Support Services personnel, faculty from our IA collaborating partners and Pennsylvania Highlands Community Colleges, and faculty and students from IUP. Each session had at least 60 attendees.

The event was a great success. Thank you to you all who made this event such a success, our presenters, and our collaboration partners.



Club Updates

Computer Science Club **Courtney Wirtz**

The Computer Science Club has many accomplishments for the Fall Semester of 2011. Our members have sponsored and set up a free tutoring program that extends assistance to all students in a Computer Science course in an effort to strengthen interest and improve grades in lower level courses. We have also had guest speakers given by upperclassmen who presented technical topics to broaden Computer Science knowledge. We have strong expectations for the spring semester including a field trip, fundraising activities, and various other events planned involving the university community. We will continue the tutoring program in the future.

Information Assurance **Joshua Schwartz**

In the Fall 2011, the Information Assurance group has been exploring topics in information security and software assurance such as system exploitation, web application vulnerabilities, and open source intelligence. The majority of these topics were explored hands-on using virtual machines in the isolated Cyber Security lab. The group also established a presence on social media, such as Facebook and Twitter, to ease collaboration and community outreach.

In the Spring 2012 semester, the group will continue to explore security related topics through lab and presentation work. Notably the group plan's on hosting a Cyber Security Capture the Flag event, which will allow students or faculty to test their wit and problem solving skills in areas such as web architecture, digital forensics, reverse engineering, binary analysis, steganography, and network traffic analysis.





DEPARTMENT OF COMPUTER SCIENCE

Stright Hall Room 319
 210 South Tenth Street
 Indiana, PA 15705-1048
 (724) 357-2724 - Fax

Faculty Member	Office Location	Phone	Email
Dr. Sanwar Ali	Stright 330	357-7994	sanwar@iup.edu
Dr. Soundararajan Ezekiel	Stright 332	357-6102	sezekiel@iup.edu
Dr. Waleed Farag	Stright 334	357-7995	farag@iup.edu
Mr. Daniel Frederick	Stright 332A	357-6104	dfredrk@iup.edu
Dr. Terry Fries	Stright 317	357-4492	t.fries@iup.edu
Ms. Andrea Morman	Stright 339	357-7995	admorman@iup.edu
Dr. William Oblitey	Stright 321	357-4491	oblitey@iup.edu
Ms. Therese O'Neil	Stright 318	357-2283	toneil@iup.edu
Dr. Rose Shumba	Stright 335	357-3166	shumba@iup.edu
Dr. David Smith	Stright 306	357-4478	dtsmith@iup.edu
Mr. Joseph Shyrock (Computer Lab Manager)	Stright 103	357-4720	joseph.shyrock@iup.edu
Mrs. Yvonne Dougherty (Secretary)	Stright 319	357-2524	ydougher@iup.edu

