# New Data Analytics Programs!
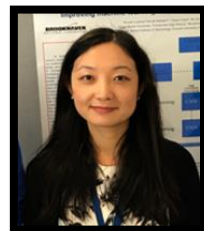
**Welcome to the Computer Science Newsletter!**
This is a newsletter brought to you from the Computer Science Department to cover all news and events that are happening in the department, along with Spotlights, new programs, thoughts from the chair, etc.!

**New Faculty**
This fall 2017 we are pleased to welcome many new staff members to the Computer Science Department. Those members include new fulltime and new ¾ faculty members. We welcome our new fulltime staff Dr. Bo Sun and Dr. Vahid Heydari who have offices in the Computer Science Department on third floor Robinson. Our new ¾ staff includes - John Manz, Martin Shumowitz, and Doug Riecken. We welcome them all to the Rowan University family!

**Faculty Spotlight**

Dr. Bo Sun is a new professor this semester. She is a professor of ten years with a Ph.D in modeling and simulation. Previously, Dr. Sun was a professor and chairperson in the Computer Science Department at Lincoln University. Coming to Rowan University allows Dr. Sun an opportunity to do more with her research and more time to focus on her students. Dr.Sun will be teaching Computer Animation and Senior Advanced Topics. She enjoys Rowan University and feels that the students are "very mature and very comfortable." Dr. Sun is also looking for capable students to participate in her research with undergraduate and graduate students. The students must have a passion for 3D graphic design, preferably with knowledge of Unity and possess at least a 3.5 GPA. We welcome Dr. Sun to our department and are very excited to see her contributions to the department!

**Announcements**
FAFSA is ready for next year so file as soon as possible, also finals are coming up so please use tutoring in room 304!

## Thoughts From The Chair

It is my pleasure to welcome you to the Department of Computer Science at Rowan University. In recent years, the department went through a tremendous transformation. We grew from about 250 students primarily majoring in Computer Science to over 900 students pursuing various undergraduate and graduate degrees. The Computer Science Department also continues to grow its curricular offerings in many cutting-edge computing disciplines including mobile development, cyber security, big data, cloud computing, parallel processing, bioinformatics, virtual reality, computer game design, and others. We continue to expand our curricular and research collaboration efforts with industrial partners that include Lockheed Martin, ASRC Federal Mission Solution, the Federal Aviation Administration, JP Morgan Chase, Bristol Myers Squibb, Perka, and others. Many of our students end up working for industry leaders and top government organization such as Amazon.com, Symantec, Lockheed Martin, ASRC Federal Mission Solution, Federal Aviation Administration, US Navy, FBI, Perka, Comcast, SAP, and many others. We encourage you to come visit us and explore the multitude of exciting opportunities offered by our department.

Sincerely,

Vasil Hnatyshin

Department Head

Department of Computer Science

Rowan University

# Invited Speaker Series

Each week during this semester the Department of Computer Science holds our Invited Speaker Series. Speakers from several prestigious companies including AFMS, JP Morgan Chase, and Lockheed Martin present topics such as internship and interview tips, secure coding, Agile development, and much more. Please come out to join this informative series. All talks are held on Tuesdays from 6:30pm-8pm in Westby 111.

*Kim Davis presented Agile Development Software Engineering on 10/10.*

# New CUGS Opportunity in Cyber Security

**"Cybersecurity market is expected to grow from $75 billion in 2015 to $170 billion by 2020"***

**Targeted towards** students with majors in the entire general university population (other than those offered by the Computer Science department) with a keen interest in Cyber-Security, is a brand new Certificate of Undergraduate Studies. The increasing volume and sophistication of cyber security threats - including targeted phishing scams, data theft, and other online vulnerabilities - demand that we remain vigilant about securing our systems and information. More and more companies actively seek graduates with the expertise in cyber security and bemoan the scarcity of graduates with these key skills. This CUGS would be very attractive to many employers looking to keep their companies safe in the new cyber-world.

**"A report from Cisco puts the global figure at one million cybersecurity job openings. Demand is expected to rise to 6 million globally by 2019"***

This new CUGS aims to develop graduates with a technical foundation in cyber security focused on the protection and defense of computer systems. Students will be able to articulate the core concepts of information assurance, asset protection, and cyber defense. Also, this CUGS can develop graduates who are able to identify, analyze, and remediate security breaches. Students seeking this CUGS will be required to complete a total of 4 courses. **One "General Security"** course must be completed, and **three** courses from the remaining four knowledge areas must be completed.

*Statistics from Forbes.com

## Debi's Corner

Welcome to all the new incoming and returning Computer Science Students. If you are new to CS, your not alone with over 900 other undergraduate students in our department. There are lots of opportunities to really help you become an integral part of CS. The ACM and ACM-W clubs are active and great ways to get to know other students and network for opportunities. I would also encourage you to make sure you sign up for this amazing thing called "CS Jobs List Serve!" Companines reach out to our department looking for CS students and graduates that include one-time projects to part-time and full-time positions in companies that often lead to fabulous careers. And don't dismiss the weekly Invited Speaker Series scheduled on Tuesdays at 6:30 in Westby 111. Many of these are sponsored by companies that will be on your radar for permanent job options. And lastly don't neglect to take advantage of our drop in tutoring! Currently located in Robinson 304, our tutors can make a difference in your GPA! Drop by for a one on one session. Lastly check out our Computer Science website (rowan.edu/cs) to find times and locations for these opportunities and more!

# Data Analytics

Current demand outpaces the supply of workers needed for businesses' with large data intake from customers, sensors, social media and the stock market. Jobs in Big Data require a convergence of statistics and computer science. Data analytics is the process of examining data to heighten the efficiency of a business or the incoming traffic of a business. Data is collected and used to categorize behavioral patterns of consumers and also to analyze what is considered by consumers for purchase.

The Department of Computer Science now offers a minor in Data Analytics! This program offers a more specialized version of a Computer Science minor for those students pursuing a variety of STEM degrees that do not want to minor in Computer Science. For Math majors, it provides a minor in a closely related field that is currently in demand and growing. The minor in data analytics program is designed to give students a strong background in programming, data structures, statistics, and data mining. The exposure to programming and statistical techniques is useful in any discipline and sought after by many employers. Obtaining a minor in data analytics will introduce data analytics techniques, tools, and methodologies which is beneficial to all students who choose to pursue the minor.

**Computer Science majors will not be able to receive this minor, but will be able to receive the corresponding concentration in Data Analytics.**

# Co-op

This year the department has paired up with Lockeed Martin, ASRC Mission Solutions, South Jersey Industries, and Keystone Industries to offer a coop program to CS students. The program is a partnership between a company and our university to combine classroom education with practical industry experience. This is the coop program's inaugural year and some select students have already secured their positions with these companies.
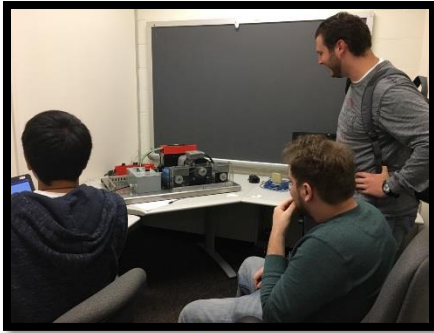
The program, lasting six to eight months, provides students with the opportunity to build a closer long-term relationship with their employer and make connections within the company. The program takes place during the Spring semester of the student's junior year and would end before the fall semester of senior year. It is recommended the student enrolls in summer classes to catch up after the program is over, either online or in person. This makes it possible for the student to accumulate work experience, and graduate with their Undergraduate degree on time in the traditional 4-year time frame. It is important for the student to consult their advisor before applying to the program so their course progression can be altered to accommodate the program.

The fall after the program, students would enroll in a new course being offered: Field Experience. It is a three-credit CS restricted elective in which students would complete coursework about their experience during their co-op.The new program is a very exciting opportunity to gain practical industry experience for qualified Computer Science students and will provide a jumpstart to candidates' careers. If you are considering applying, subscribe to the CS Jobs email list, where details about new positions are sent out weekly. If you would like to know more information about the program, talk to your advisor or Professor Chien.

# Proof Productions

Proof Productions, Inc. is a young company bringing to projects a renowned international team with over 200 years of collective experience. They are a full service scenic studio specializing in all types of projects from inception to completion. They have a fully staffed fabrication department including artists, carvers, sculptors, carpenters, electricians and metal fabrication technicians. Their expertise includes, but is not limited to, theater, TV/film, restaurant themes, exhibits, special effects, retail displays, corporate and special events, architectural and engineering support services.



Proof Productions is creating an innovative automation system to support the entertainment industry which is currently one of the top 5 economic engines in the US. Over 80% of production touring and venue incorporate this type of technology in their systems, creating opportunity for high paying careers with short term and long term contracts.

Beginning in fall 2017 Proof Productions began working with software engineering students to build an extension system of the automation that involves programmable logic controllers (or PLCs) that control motorized equipment. This is a new kind of project for Rowan CS students and Proof Productions has provided us with a lab which can be used to test and develop code which is an integral component in supporting this stage of the development.

Joe Loftis of Proof Productions states "The collaborative approach with multiple teams was a huge success in this very important foundation phase of the project. We now have very different and innovative approaches to consider as we continue into the next semester. Together with Rowan, we are on our way to becoming a leader in this industry."

# 4+1 Program

Rowan's Computer Science offers numerous degrees, certifications, and minors, but the Master's program is one of the most challenging and enriching academic endeavors the department offers. In addition to the traditional master's programs, the department offers 2 accelerated programs – BSMS in Computer Science and BSMS in Data Analytics. These accelerated programs offer a graduate degree in only 1 additional year, as opposed to the traditional 2 year track for receiving a graduate degree. Many of the students in the program are already working in industry and taking classes as well. Current students enrolled in the Accelerated Program, Damen Tomassi, Nick Pieros, and Stephen Rivera-Lau, shared their experiences in the program, including motivations to apply, benefits of, and insight for the direction of the program in the future.



*Stephen Rivera-Lau*

Having a graduate degree gives students an edge over other candidates for a job. It shows a higher motivation and drive to know more about Computer Science. Damen says, "In the industry it's a virtue to have an advanced degree younger. It presents the opportunity for

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leadership positions at a faster rate, and just overall accelerates your career." Especially with the accelerated program, many students will have a degree much earlier than the traditional Masters track.

The Accelerated program also has financial benefits. During your senior year you take four graduate courses, instead of the four CS restricted electives that are required for the BS. These four graduate courses count as your CS restricted electives. You pay for these 12 graduate credits at the less expensive undergraduate tuition rate. Stephen Rivera-Lau expressed that financially, it was beneficial because it meant that, in his case, he could receive both degrees in only 4 and a half years because of AP credits from high school which cut down on a whole semester from his Undergraduate degree.
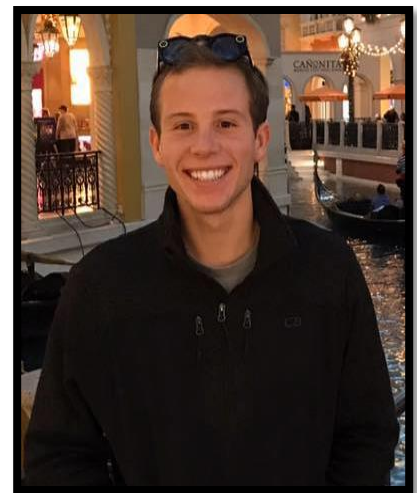


*Nick Pieros*

To apply to the traditional graduate degree program, candidates typically need a 3.0 cumulative GPA, but in Rowan's accelerated program, candidates are required to have a 3.5 GPA in Computer Science required courses. The requirements may seem intimidating, but it is not impossible. When Nick found out about the program, he realized he needed a 4.0 GPA his final Undergrad semester to be accepted. Nick explained, "I put in the time to get A's in all my courses, and by working with Dr. H. [she] helped shape things all together. It was a once in a lifetime opportunity. The Master's program was already in the back of my mind." Stephen said, "I didn't know it [the accelerated program] existed until one of my partners on a project told me. Once I found out, I just looked at the pre-requisites and just aimed to get the grades I needed." During Damen Tomassi's sophomore year, he considered applying and spoke to Dr. H. about the requirements, and recommendations for what classes to take. "When it came time to apply, the application was easy. I always had the program in mind." The application is only one page, and you need two letters of recommendation from faculty.

Having any college degree is a big asset for any resume, but having a Graduate degree sets the candidate apart from other applicants. Damen explains, "Participating in the Master's program improved my resume, because it sets you apart from other candidates... Employers will take a closer look at my application."

Graduate courses also deepen the students understanding of Computer Science, and offer you a stronger skill set than Undergraduate courses. Stephen reiterates this by saying, "Graduate courses go a lot more in-depth than undergrad courses. Coming out with a Masters is a big plus, because it sets you higher than other people with just an undergraduate degree, and in most cases, you'll get higher starting pay." Lastly, it creates more opportunities for you. Nick said, "Having a Master's degree shows you're willing to put in the extra effort, and you can apply yourself towards something beyond what's expected. It opens a lot of doors."



*Damen Tomassi*

Although there are many schools where you can obtain a master's degree, there's no experience like Rowan. The application process is streamlined and going to school with professors that are familiar and skilled is a benefit for which any student would be grateful. Nick applied to the program at Rowan, saying "I didn't want to wait because if I got into the

work field I'd get comfortable.  It would be hard to work and pursue a degree at the same time. The reason I chose to stay here is because I had the perfect opportunity. I knew most of the professors and the students, and I knew what would be expected of me.  Based on my undergraduate experience, I could say this is where it would work best for me."

Stephen said, "The 4+1 saved time, but also, I really liked Rowan as a university. Being able to go straight from undergrad into the masters with professors I know and courses I know that translate over into graduate versions made the transition easier than going to any other school. Rowan is also an accredited University, which makes it a lot more valuable than other Computer Science schools."

Damen stressed the practicality Rowan's curriculum has in the job industry: "Ever since I first came to this campus, it clicked for me. It was a natural succession of going from Undergraduate to Graduate courses here. I was familiar with the faculty and their teaching style, and the campus. Rowan offers a very practical-based education which teaches real job skills. I gained a skillset I never had here."

The Computer Science department here at Rowan is growing at a rapid rate, with enrollments higher than ever in the Undergraduate program.  With the department expanding this much, the Master's program is bound to grow and improve even more. Damen says, "The program will continue to improve as we hire new faculty from many academic backgrounds and job fields. It will remain popular with students, as the Computer Science field is exploding at a rapid rate."

Nick said, "It's going to change a lot. Based on how the undergraduate enrollment is going, if the graduate portion of the program reflects that, I believe there's going to be a sizable increase in the number of students enrolled, and I think that will lead to the program offering more courses in a set time-span. Classes offered only once a year, may be offered in both semesters."

Steven explained, "The program has grown. They always make sure the right staff is teaching the right courses. Courses are a lot more independent, but the professors still do care and Rowan aims to keep it that way. It's the same feel as going through Undergrad."

A graduate degree is extremely valuable to anyone's education and a desirable feature to employers, especially at Rowan, where a graduate degree can be obtained in a schedule that's convenient for the student and tracks that meet everyone's needs. If you are interested in obtaining more information about the graduate program or the accelerated track, reach out to your advisor or contact Dr. Gabriela Hristescu at hristescu@rowan.edu.