Center for Data Science - (CDS)
Newsletter
2021 - 2022

Issue 10 - Spring 2022

- Center Highlights
- Upcoming events and news
- Get to know DSC students
- Spotlight on our faculty
- Spotlight on our alumni
Awards, Honors, Accomplishments:
- Professor Jacob Furst appeared on Chicago Tonight to discuss potential government regulation and mitigating the harms of social media after Facebook and its subsidiaries were down for about seven hours.

- Roselyne Tchoua, Ph.D., is an Assistant Professor in the School of Computing was selected for the 2022 Equity Research Fellows at Sinai Urban Health

Grants and Funding
- Professor Peter Hastings received a three-year, $455,094 grant from the U.S. Department of Education for the Graduate Assistant in Areas of National Need (GAANN) program.

DSKUS: Data Science South Korea/US Global Lab
Prof. Settimi and Prof. Ustun were awarded a grant from the United States Embassy in Seoul (via the US State Department) to begin a “Data Science Exchange” program between Hanyang University (program lead) in Seoul, DePaul University, and Indiana University. The program titled DSKUS (Data Science South Korea/US Global Lab) is running this Spring quarter and involves 20 Korean and American students that are working together on data science projects related to policy issues of interest to the US and Korean governments.

As part of the cultural exchange component of this program, students will take turns traveling to the USA and South Korea. Students from Hanyang University will spend a week in Chicago from May 14th - to May 21st, while eight DePaul Data science students and two Indiana University students will travel to Seoul in mid-June. During their stay, the students will learn about innovative applications of data science and AI from university researchers and industry leaders. Students receive a small stipend and travel and accommodation expenses are covered by the program.
Assistant Professor Roselyne Tchoua, Ph.D., selected for the 2022 Equity Research Fellows at Sinai Urban Health

Sinai Urban Health Institute (SUHI) is a nationally-recognized community research center that collaborates with community members and organizations to identify and address health inequities in some of the most underserved communities in the city.

Roselyne Tchoua, Ph.D., is an Assistant Professor at the School of Computing, DePaul University. Her research interests revolve around scientific information extraction. She joined DePaul Center for Data Science to continue working in computer science, extracting insight from data using machine learning, natural language processing techniques, and crowdsourcing. Dr. Tchoua was selected from a diverse pool of applicants from universities across the US for the SUHI Equity Research Fellowship program 2022.
About Roselyne Tchoua

Dr. Roselyne Tchoua is an Assistant Professor at the School of Computing who teaches and researches topics in data science. She enjoys working in the fascinating space between computer science and other science fields, extracting insight from data using machine learning, natural language processing, and crowdsourcing. She is interested in methods to inject expert knowledge into machine learning models. Dr. Tchoua received her Ph.D. in computer science from the University of Chicago, focusing on Hybrid Human-Machine Scientific Information Extraction, specifically extracting materials data from the textual content. Before going to the University of Chicago, she was a scientist at Oak Ridge National Laboratory (ORNL) in the Scientific Data Group, building an interface to enable physicists to monitor simulations running on supercomputers. Since joining DePaul, she has continued research at the intersection of data science and materials science and started working with medical and healthcare applications.

Congratulations on your recent SUHI fellowship award, tell us more about this recognition.

This is an exciting new project and new opportunity to apply data science in the real world. Here, we are working with Community Health Workers (CHW), who assist patients, referred to them by social workers after they are discharged from the hospital. The overall goal of the project is to provide better care to these patients and decrease the chances that the patients will be back in the Emergency Department (ED). The interesting characteristic of the CHWs is that they are members of the community of the patients and serve as the link between them and the hospital; they also collect information called Social Determinants of Health (SDoH). This is a very interesting and important topic, as we all hear more about health equity. Therefore, I have been working with collaborators at SINAI Health System and submitted a couple of proposals. I am interested in systematically analyzing data that has been collected by CHWs so far and determining the extent to which it can be used to predict readmission to the ED. This fellowship is a great opportunity to officially work with SUHI, (Sinai Urban Health Institute), the health equity arm of Sinai.
We would love to hear about the research projects that you found to have the most impact on your field.

When I think of my most interesting work, my most recent work comes to mind. Here are two of my recent projects:

**ELSIE-Blob (published):** There is a lot of interest in Natural Language Processing (NLP), especially in commercial systems like Personal Assistant or identifying chemical names from text using machine learning models, but a cumbersome (and costly) topic that is rarely discussed is: how to get labeled data? Now, large companies like Google get access and computing power to process the entire internet, but scientific applications spend months, years creating quality training data. I am interested in efficiently extracting data to generate training data for the machine learning models. My Ph.D. student is building a system to identify important sentences from scientific articles, using an ensemble of approximate rules, before they can be automatically labeled by machines or manually labeled by experts.

**Similarity-Based Uncertainty Scores (published):** Recently, I worked with two undergraduate students in the MedIX Research Experiences for Undergraduates (REU) led by Dr. Raicu and Furst, who worked on assistive technology to highlight uncertain X-Ray images of lung cancer nodules. The goal was not to classify these nodules as malignant or benign but to help radiologists focus on “hard” cases based on how these X-Ray images clustered in a carefully chosen feature space. Using limited labeled data, and a Siamese Convolutional Neural Network (SCNN), the students generated new features for the images before clustering them. This allowed them to find well-clustered areas but also data placed on the outskirts of not-so-well-formed clusters, or in between clusters that could be flagged as needing more attention from radiologists. This study was validated by comparing our results to nodules that were the subject of disagreements amongst radiologists.
Throughout your career, was there an “aha” moment when you realized the power of data?

Yes. My first “aha” about the power of data and visualization, in this case, came while I was still working at ORNL. My colleagues and I had built a workflow for physicists running simulations on supercomputers. The workflow was efficiently writing data from the simulation, processing it, and displaying it on an easy-to-use dashboard providing an at-a-glance view of the simulation results. While demoing our software, the physicists started “arguing” about the validity of the results, the output images displayed on the dashboard – and forgot about the software. I realized at that moment that this was a success story. They were less interested in the details of our implementations since they were not trained computer scientists, than in their own results.

Since then, I’ve had similar experiences with materials scientists for example, and it fuels my ambition to solve real-world problems by enabling domain scientists to achieve their goals without having to be trained data scientists. Data scientists do not need to be trained in other fields either, but they need to be trained to work in interdisciplinary environments and to ask the right questions to build their models.

What do you enjoy the most as a professor at DePaul?

When I joined DePaul, I was really excited to learn about the DePaul Center for Data Science, the faculty, the different projects, and collaborations with the industry. I learned about several projects with entities in Chicago itself. For me, it is exciting to be in a field and at a place where I am not too far removed from the application and the impact of the work I am doing. I feel motivated to participate in and encouraged to bring more interdisciplinary research projects and collaborations geared to solve real-world scientific problems. I really enjoy discussing ideas with colleagues and students who share my general interests. That’s the best part. I also enjoy teaching my courses because they are so directly related to my projects that ideas flow in and out of the classroom.
Alumni Spotlight
Beth Steele

Beth Steele's vacation in Peru with her new friend, Panchito! She loves to travel and has gone on over 20 cruises!

I grew up in the western suburbs but have lived in the city for much longer now! I live in the South Loop with my husband and cat. After 20 years in the incentive travel business where I had the opportunity to travel the world, I was looking for a new career direction. As a former Mathlete in high school, I had long lost touch with my math-y side but still loved analytics when I had a chance. I started hearing about predictive modeling and data science and the more I learned about that field, the more interested I became. After I got my masters in Predictive Analytics/Data Science at DePaul, I lucked into a first job at a large media agency and absolutely love it!
DePaul Center for Data Science interviewed Beth Steele to get to know her journey within the Data Science domain

What influenced your decision to attend DePaul?
Since my husband is a professor at DePaul (Adam Steele, HCI at CDM), it made the decision pretty easy! Probably would have chosen the program anyway, because I loved the flexibility of having remote classes (even pre-pandemic) and the ability to watch recordings at any time when life gets in the way.

What was the career path that led you to your current position?
This is a second career for me so it was definitely not the typical path. Once I was hired at Spark, I have had the opportunity to build a Business Intelligence platform and practice which has grown into a team of 20+ people across three countries! I've also done a fair amount of modeling focused primarily on marketing mix modeling with actionable business insights for our clients.

Python or R? What’s your work preference or the one you work with the most?
I was able to do some work on R but our company still primarily uses SAS.

What was the most challenging part about the time you were at DePaul and what was the most fun part about being a student at DePaul University?
Python programming class almost killed me since I hadn’t done any programming before! Getting an A in that class was the highlight for me!

What advice do you have for current DePaul students who want to pursue a career in data science?
Data Science has such a broad definition, narrowing down what you want to do day to day is the first step. Do you want to spend your day in big data finding anomalies or architecting a customer database from which to identify customer patterns or do you want to build regression models and extract insights for business decisions? Once you do, talk to people who are doing the job in an industry you are interested in pursuing and see if your idea of the job matches the actual job.
GET TO KNOW
OUR DATA SCIENCE STUDENTS
Adam J. Hecktman is a Director in Microsoft Philanthropies. In this capacity, he works to advance the company's mission by making the opportunities of our rapidly evolving digital economy accessible to all people, particularly those most at risk of being left behind. Adam works to create a future where everyone has access to the benefits it provides and the opportunities it creates. He builds global philanthropic partnerships with like-minded corporate social responsibility and philanthropic organizations. Adam sits on a number of boards in Chicago's thriving civic sector including the Chicago Public Library Foundation, The Chicago Cook Workforce Partnership (the Workforce Board), 1871, and Genesys Works Chicago. A lifelong Chicagoan, Adam lives in the Old Town neighborhood with his family and dogs.
1) What do you love the most about working with in the field of data science?
My focus on data and data science reflects the promise that it can have to improve the lives of people all around the world. It can be used to derive insights that improve the way people live, work, and learn, as well as provide tools to address society's most pressing issues. I love that moment when you spot the trend, see the telling point, build the predictive model that you know will have a positive impact on lives.

2) Share with us a few highlights of your experience as a data science student at DePaul
I am a non-traditional student (I’m 56). The highlight of my experience as a data science student has clearly been learning from the other students and professors. DePaul students and teachers are a diverse group of people, each bringing something of their background to tackle data science challenges. I’ve met so many interesting, thoughtful, and inspiring people that it gives me great optimism about the next generation of technology leaders.

3) Why did you choose to pursue a degree in data science and what are your career goals?
My goal is to apply my data science education to help solve some of Chicago's most intractable social issues. My retirement plan is to use my skills to partner with non-profits, public sector professionals, civic technologists, thinkers, doers, researchers, and anyone else who believes that data science applied to social impact can improve lives in [Chicago]. I also plan to share my experiences and knowledge with anyone else who sees the promise of data science for social impact.

4) What advice would you give to someone who wants to get into data science today?
Simply start. Find out where you are at in your journey and start your education there. Never coded before? Pick up some python. Math is rusty? Take a linear algebra class. Want to start right away? Build some data visualization with whatever tools you know (Excel? Great!). And then meet others who are ahead of you on their journey. Talk with people who are doing it, teaching it, and have been learning it for longer. It is a large community, indeed. However, there are many people out there who want to see you succeed and want to share their success with you!
Rawan Hammad
Graduate Student - Data Science Computational Concentration.

She /Her. MS Data Science – computational methods concentration online student with a 3.9 CGPA. Currently interning as a data scientist at the Federal Reserve Bank of Minneapolis ‘where we pursue collectively towards an economy that works for all of us.’ I specifically assist with some of the modeling tasks relating to the Dodd-Frank Act Stress Test, which promotes the financial stability of the United States. I am from Jordan and initially came here on a student visa, lived in a few places but finally built a home in Minneapolis, Minnesota. I play League of Legends in my spare time and enjoy rollerblading in the summertime.

CONTACT INFO: HTTPS://WWW.LINKEDIN.COM/IN/RAWAN-HAMMAD/
1. What do you love the most about working with data/in data science?
I love the ability to make decisions and predictions using data analytics and I’m inspired by the value it brings to various industries. Data Science allows us to find patterns and detect risk ahead of time, as well as helps us find solutions at a faster rate than we have in the past.

2. Share with us a few highlights of your experience as a data science student at DePaul
The best part about being a Data Science student at DePaul University is the ability to work closely with knowledgeable professors. The program is perfect for those committed to a full-time job as the professors are willing to work around your schedule and answer your questions even during off-hours. The curriculum is always up-to-date and keeps up with the ever-changing data science industry, and it gives you the opportunity to explore different paths including research, marketing, healthcare, engineering, and more.

3. Why did you choose to pursue a degree in data science and what are your career goals?
I was introduced to data science concepts and programming languages for modeling in my undergraduate degree. Later on, I was inspired by the many TechTok (Technology TikTok) influencers and I realized this is a field I may excel in and enjoy. My goal as a data science student is to pursue a career in policy and decision-making backed by data, which is why I just accepted an internship in quantitative analytics at the Federal Reserve Bank of Minneapolis.

4. What advice would you give to someone who wants to get into data science today?
The skills that are known as “intelligence” can be taught through exposure and interactive learning. If you don’t have previous experience in Data Science, DePaul University is one of the best places to learn those skills from scratch. Regardless of your educational or professional background, Data Science concepts apply to every industry you can imagine, and your opportunities for growth are limitless.
Motorola Solutions Foundation Scholarship

The Motorola Solutions Foundation Scholars Program promotes the growth of a diverse data science workforce by immersing five underrepresented sophomores in a rigorous research program at the DePaul Center for Data Science. With one-on-one mentoring, students carry out a 12-month data-driven project, gaining technical proficiency, academic experience, and 21st-century data science skills.

Meet the selected students:

Jake Peterson
UGRD BS IN COMPUTER SCIENCE
MENTOR: PROF. JACOB FURST

Hello all, my name is Jake Peterson. I am currently majoring in Computer Science with a minor in Mathematics here at DePaul University. My research areas are computer vision, machine learning, and data science. Outside of research, I am the president of the Computer Science Society at DePaul, an avid painter, and an experienced barista. After graduation, I plan to work as a software engineer while preparing for graduate school applications. My academic goals include, but are not limited to, a Juris Doctor degree and a graduate degree in computer science.
Ashley Calles
BS IN COMPUTER SCIENCE
MENTOR: PROF. DANIELA STAN RAICU

Hello! My name’s Ashley Calles. I’m currently a Junior at DePaul University, majoring in Computer Science and minoring in Math and Data Science. My current research project is on the computer-aided diagnosis of lung nodules. When not working on research or classwork, I enjoy hiking, snowboarding, and reading.

Aashad Abubaker
BS IN COMPUTER SCIENCE
MENTOR: PROF. THIRU RAMARAJ

My name is Aashad and I am currently studying Computer Science at DePaul University as an undergraduate. Some of my interests lie in mathematics and analyzing massive amounts of information for patterns. In my free time, I like to hang out with my friends, play sports such as basketball and soccer, and play video games.

Nailah Ali
BS IN COMPUTER SCIENCE
MENTOR: PROF. ILYAS USTUN

Hi! I’m Nailah. I’m a sophomore at DePaul studying computer science. Outside of school and research, my interests include language, nutrition, and fashion.
The Data Science South Korea/US (DSKUS) Global Lab is a cross-national project between Hanyang University in Seoul, DePaul University, and the Indiana University. With the support of the U.S. Embassy in South Korea, a selected group of students from the three universities will collaborate virtually to solve unique data science challenges with real-world implications. As part of the program, DePaul students will receive a scholarship of $1500 and will travel to Seoul to meet face-to-face with their team members and to interact with industry leaders in data science and AI in South Korea. Travel and accommodation expenses will be covered by the program.

**Project 1:** Political instability due to climate change, e.g. migration-related or food security or social unrest  
**Mentor:** Prof. Raffaella Settimi

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**Yejin Chae**  
**BS in Data Science,**  
**Hanyang University, South Korea**

I'm Chae Yejin, currently a junior at Hanyang University. I am majoring in data science. I want to experience a lot of things that can help me develop myself, and I want to work related to my major after graduation. I am glad to participate in this project and I think I can learn a lot from this project.

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**Chae Lin Lim**  
**MS in Management Information System,**  
**Hanyang University, South Korea**

I am studying for an MIS master's degree at Hanyang university graduate school. I am interested in Big data analysis, finance, and information systems. I am glad to do projects for people’s future and meet new friends through the DSKUS program.

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**Calvin Milligan**  
**MS in Data Science,**  
**Indiana University, USA**

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**Nicholas Mobley**  
**MS in Computer Science,**  
**Indiana University, USA**
Highlights for DSKUS global lab continued

Project:2  Addressing climate change and reducing reliance on coal-fired plants, expanding renewable energy sources, reducing the industrial use of fossil fuel, and accelerating a transition toward electric and hydrogen-powered vehicles.

Mentor: Prof. Hyungwook Kim, Hanyang University, South Korea

Byeongho Choi
MS IN DATA SCIENCE, DEPAUL UNIVERSITY, USA

Hi, I am Byeongho Choi. I am getting a master’s in data science at DePaul. I have various interests in data analysis projects. This unique experience would be very precious since three universities collaborate. In my spare time, I love going out with friends, restaurants, tours, watching movies, and playing sports like tennis, and golf.

Tyler Boudart
MS IN DATA SCIENCE, DEPAUL UNIVERSITY, USA

Tyler is currently in his last quarter of the Data Science Masters Program, with a concentration in Computational Methods. During his time at DePaul University, he has served as the Treasurer and Co-President of the Data Science Student Group. He recently assumed the role of Assistant Director of Finance and Analytics with Levy Restaurants at the United Center. In his free time, Tyler is passionate about coffee and enjoys roasting coffee at home.

Seongcheol Kim
MS IN INTELLIGENCE COMPUTING, HANYANG UNIVERSITY, SOUTH KOREA

I’m doing my master’s course at Hanyang University and majored in intelligence computing. My research interests are artificial intelligence and machine learning, especially time series data and natural language processing. Since I was a kid, Chicago has always been my favorite city to visit. I’ve been to other cities in the US, but not Chicago. So I am looking forward to going to Chicago this time and meeting many people through this DSKUS program.

Sarah Choe
MS IN MANAGEMENT INFORMATION SYSTEM, HANYANG UNIVERSITY, SOUTH KOREA

Hello, I am Sarah Choi. I’m a Ph.D. student from Hanyang University. My major is measurement information systems. I’m interested in big data analysis related to SNS. Also, recently, I’m interested in image analysis. I’m learning a lot from participating in DSKUS.
**Project 3:** Disinformation campaigns, particularly related to social media use in different countries such as authoritarian states like Russia or China  
**Mentor:** Prof. Kyungsik Han, Hanyang University, South Korea

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**Michael Ing**  
**MS IN DATA SCIENCE**  
**DEPAUL UNIVERSITY, USA**

I am a Master of Data Science student with one class left. I have a 10+ years COBOL/DB2 and 5+ years JAVA/Oracle software development experience for a financial company in Chicago. I enjoy developing software, solving its attendant issues and studying theology—I have an MDiv in Theology.

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**Jin Jae Lee**  
**MS IN DATA SCIENCE**  
**HANYANG UNIVERSITY, SOUTH KOREA**

Hello. I am Jinnae Lee, majoring in Data Science at Hanyang University. I am currently in the third semester of the master's program and working as a researcher in Professor Casey Bennett's lab. I am delighted to be able to do this meaningful work with DePaul University and Indiana University students.

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**Varsha Sajja**  
**MS IN DATA SCIENCE**  
**DEPAUL UNIVERSITY, USA**

Hey! I’m Varsha, an International student from India pursuing a master's degree in Data Science. My experience for a couple of years as an Operations Analyst & Data Quality Engineer in an IT industry gave me clear insights and led me to learn nascent technologies and tools through my graduate degree. I am a graduate assistant at DePaul’s CDM; tutoring students in Data Science courses. While I’m not keeping busy with learning, you can find me at the beach watching sunsets.

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**Jiyeong Oh**  
**BS IN DATA SCIENCE**  
**MENTOR: KYUNGSIK HAN**

Hi, my name is Jiyeong Oh. I am currently studying data science as a junior student in Hanyang University, Korea. With the goal of becoming a Data Scientist who contributes to social and corporate development through the insights, I am exploring through various experiences to determine what domains of data I will deal with, in the future. Running interesting team projects with students from other countries, DSKUS has been exposing me to learn the use of data science for tackling real-world international policy.
Highlights for DSKUS global lab continued

Project 4: Mitigating disruptions in the global supply chain caused by the continued COVID-19 pandemic, could be transportation-related in general or industry-specific, e.g. semiconductors

Mentor: Prof. Ilyas Ustun

Cody Le
MS IN DATA SCIENCE
DEPAUL UNIVERSITY, USA

I am a student from Los Angeles, California in the graduate data science program and have been working in higher education for over a decade. I have been fascinated by the ways technology has developed and curated for learning or for human assistance in recent years, which sparked my desire to pursue data science at DePaul University. Besides space exploration and going green, I never miss a marvel show and loves baby yoda.

Euidam Kim
MS IN NUCLEAR ENGINEERING
HANYANG UNIVERSITY, SOUTH KOREA

My name is Euidam Kim, a graduate student of nuclear engineering, radiation science and safety lab in Hanyang University here in Korea. I am in my 6th semester of the integrated M.S.-Ph.D. course, and researching deep-learning-based radiation sensitivity prediction using high dimensional multi-omics data. I really like watching MLB, making some food, and traveling around the world.

Carlos Guzman
MS IN COMPUTER SCIENCE
DEPAUL UNIVERSITY, USA

My name is Carlos Guzman, and I am currently in the MS in Computer Science program at DePaul. I am primarily interested in Artificial Intelligence and Robotics, and I wish to work in these fields after I graduate. I am currently freelance Math and Computer Science tutor.

Jang Hoon
MS IN INTELLIGENCE COMPUTING
HANYANG UNIVERSITY, SOUTH KOREA

I am a student at Hanyang University in Korea who is studying data science. And I aim to gain insight through data and make innovative or efficient changes. Currently, I am mainly studying algorithms and machine learning techniques.
**Project 5:** Partnering to provide responsible, well-targeted development assistance around the world, especially in Southeast Asia and Latin America ... how and where should foreign aid be targeted to return the biggest benefits

**Mentor:** Prof. Patrick Shin

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**Spoorthi Chamala**  
MS IN DATA SCIENCE, DEPAUL UNIVERSITY  
DEPAUL UNIVERSITY, USA

I am in my final quarter pursuing a master's in data science with a concentration in computational methods. It's been an exciting journey at DePaul. I am looking forward to continuing my journey as a data scientist to help drive better decisions.

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**Hansae Cho**  
MS IN INTELLIGENCE COMPUTING  
HANYANG UNIVERSITY, SOUTH KOREA

I was born in South Korea in 1995. I am currently a Master's student in Data Science at Hanyang University, participating in several data science projects to solve real-world problems. After undergraduate graduation, I did an internship at Episci.Inc in CA by remote working. My main interest is human behavior data.

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**Eunseo Yoon**  
BS IN DATA SCIENCE  
HANYANG UNIVERSITY, SOUTH KOREA

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**Gerardo Sandoval**  
MS IN DATA SCIENCE  
DEPAUL UNIVERSITY, USA
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OUR MISSION

Our educational mission is to nurture the growth of the next generation of data scientists and computer scientists to better prepare them for data-related computing careers. Students work on state-of-the-art research and practice activities under the supervision of faculty members.

Thank you!

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