**IT Capstone Projects - Fall 2019**

Presentation Day Guide

Date: December 13th (Friday), 2019

1. **Overview: Total: 24 projects** (16 undergraduate capstone projects and 8 graduate projects)

**17 projects will be presented** (14 undergraduate capstone projects and 3 graduate projects)

**7 teams have presented their projects at project owner’s locations.**

1. **Reception: 7:30AM - 8:00AM**. Breakfast and reception.
2. **Poster Session: 8:00AM - 8:50AM**, J Building, 3rd Floor.
3. **Formal Presentation Session: 9:00AM - 11:00AM,** this session is for detailed report of student projects. Each team will have up to 25 minutes to present the project plus 5 minutes for Q&A.
4. **Note for Evaluators:**
5. All project evaluations will be done through Google forms which are available at [msit.kennesaw.edu/capstone](http://msit.kennesaw.edu/capstone). The undergraduate and graduate projects have separate evaluation links.
6. The evaluation links will be sent to you by email. All project teams will be asked to include the evaluation link in the first page of their slides (scannable QR code for smartphone and the actual link). Or scan the QR code on the right. The room coordinator can also assist in getting the links too.
7. Please make sure your smartphone/laptop has good connection so that you can submit your evaluation. If you need help to connect to Kennesaw Guest Wi-Fi, the password is kennesaw (all lower case)
8. You only evaluate the projects presented in your assigned room. Please also visit your assigned projects during the poster session. Please visit the posters not in your assigned room if you have extra time.
9. Please pay attention to following evaluation items during poster and presentation session.

* *Poster design*: the quality and creativity of the poster, including style, layout, content, readability, media use, etc.
* *Team talk in poster session*: how well does the team communicate with the audience?
* *Presentation slides and content*: quality of presentation slides and content; covered major aspects of the project in a logical flow.
* *Presentation skill and performance*: how well did the team talk to the audience about the project and answer questions? Does the team demonstrate confidence and enthusiasm?
* *Overall impression on the quality of the project* such as completion of the project goals and deliverables; quality of the solution and work; application of appropriate technologies, practices, and methods
* *Overall impression on demonstrated good project experiences* related to soft skills, including communication, team work, dealing with challenges, learning, research, documentation, project management, etc.

1. **Room and Evaluators Assignments**: full-time faculty members are assigned projects; part-time faculty and IAB members can feel free to choose the presentations you are most interested in.

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| **Room #** | **Assigned Full-Time Faculty Evaluators** | **Project # and Starting Time** |
| **J-106** | **Chi Zhang (room coordinator)**, Susan Vande Ven, William Forsyth; | **Project UX01**: 9:00AM  **Project UX02**: 9:30AM  **Project UX03**: 10:00AM  **Project UX04**: 10:30AM |
| **J-109** | **Halstead-Nussloch (room coordinator)**, Zhigang Li,Ming Yang; | **Project UX05**: 9:00AM  **Project UX06**: 9:30AM  **Project UX07**: 10:00AM |
| **J-130** | **Hossain Shahriar (room coordinator)**, Rebecca Rutherfoord, Dawn Tatum; | **Project UY01**: 9:00AM  **Project UY02**: 9:30AM  **Project UY03**: 10:00AM  **Project UY04**: 10:30AM |
| **J-131** | **Jack Zheng (room coordinator)**,Richard Windland , Shirley Tian, | **Project UY05**: 9:00AM  **Project UY06**: 9:30AM  **Project UY07**: 10:00AM |
| **J-132** | **Meng Han (room coordinator),** Seyedamin Pouriyeh, Ying Xie | **Project GL01**: 9:00AM  **Project GL02**: 9:30AM  **Project GL03**: 10:00AM |

1. **Capstone Project List**

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| **Graduate Capstone Projects** | | |
| **#** | **Description** | **Sponsor** |
| GL01 | **Robotic Process Automation**: McKenney’s Inc is a construction company whose employees engage in multiple repetitive tasks. The goal of the project was to create 'robots' for four different (business) processes to either automate the entire process or achieve at least 80% automation. The team used multiple technologies including UiPath, Salesforce, PowerShell scripting and Microsoft Excel. The team was able to automate the process of data extraction from Salesforce Reports to a 'SmartSheet' (cloud based excel style service) document. The team also automated the process where a new employee is hired, the robot creates an account on a third-party application assigning permissions.  **Student Team**: Arunima Choudhary, Danielle Bacud, Demi Evangelatos, Juston Bryant, Steven Staebler | Shaun Hunt, CIO, McKenney’s Inc. |
| GL02 | **Distributed Wi-Fi Availability Monitoring:** Develop a low cost and scalable solution that monitors the campus Wi-Fi network from an end-user’s perspective and collects information and statistics that can be used to form a picture of the end-user experience on our Wi-Fi network. The biggest objective is to create a set of dashboards to visualize the data collected by the devices to help improve the performance of Wi-Fi network throughout KSU campus and improve the end-user’s experience.  **Student Team**: Ruth Barraza, Matthew Reese, Tammara Johnson, Tonya Geiger | Mr. Hunter Eidson. KSU – UITS. |
| GL03 | **Data Mining of Twitter with Python Crawler**: The primary goal of this project is to develop a crawler using Python that is capable of collecting tweets over time based on predetermined keywords. The data collect will be stored in a database for further analysis. The secondary goal is to find patterns among tweets that correlate with security incident. More specifically, this is an attempt to link tweets expressing negative sentiments toward a company to publicly reported security incidents.  **Student Team**: Jake Sciotto, Maitri Patel, Tyler Moore, Avery Hui | Jason Trauger, Home Depot. |
| GL04 | **Phishing Awareness Training Application**: The Phishing Awareness Training Application gives users an interactive training experience and seeks to increase awareness around common phishing threat indicators. Users are presented with many learning opportunities including being presented with sample phishing emails and training assessments.  **Student Team**: Sammy Box, Travis Brown, Nicholas Moore, Quincy Nwagu, Wesley Steverson.  **The student team presented their project at UITS and will not present at IAB meeting.** | Mr. Edward Moses. KSU-UITS |
| GL 05 | **Anti-Skimming Project**: The use of credit and debit cards in everyday life has made it easier for individuals to make financial transactions without having to have any interaction with another human begin. Going to purchase gas, retrieving physical cash from a financial institution, or even buying items from your local grocery store have become easier by using a credit/debit card. While technology has made it easier for consumers to make purchases, it has also allowed criminals to easily retrieve the credit/debit card info from customers from those ATM/Gas pumps using skimmers. These skimmer devices tend to preform like a man in the middle attack by capturing the data from the cards as the financial information is being retrieved from the ATM/Gas pump. The purpose of this project is to understand how a skimmer works and construct one of our own design that works consistently. Once the Skimmer has been deconstructed and the datasheet is created, we will develop at least three countermeasures that can be deployed to stop the skimmer from capturing the consumers information.  **Student Team:** Chinmaya Desai, Matthew Cornwell, Emeka Onyekwuluje, Dilafruz Inomova, Kavitha Chitty  **Due to non-disclosure agreement with USSS and NCR, the student team presented their project at a different location.** | Mr. Alan Davis, USSS  and  Mr. Joe Sumpter, NCR |
| GL 06 | **PiBrain AI Scan**: PI Brain AI Scan is a machine learning project. The project is about extracting data from PDF and scanned images using machine learning and deep learning techniques. The overall Project goal is to automate the manual process of calculating the exact working hours of each employee using ML/AI Techniques. Project responsibilities includes extracting the data from the given PDF and scanned images of employee punch cards and save the extracted data in CSV file.  **Student Team**: Sai Akshara Kadempally, Chavi Agrawal, Sonal Thakre, Krithika Subramanian  **The student team presented their project at ADP on 12/6/2019 and will not present at IAB meeting.** | Dr. Raji Balasubramaniyan and Yiting Luo, ADP |
| GL 07 | **The Conference Room of the Future:** A web application will be built for the conference room that facilitates the meeting organizers to help choose the conference rooms based on number of attendees and provides details of the available conference room based on the requirements. A notification alert system that reminds about the end of the meeting. The web application will be using HTML and TypeScript (Angular) for front-end, and Node.js, MongoDB, and Python for the back end. The database helps to store the required data related to the event details and conference rooms.  **Student Team:** Sai Nikhila Kasthala, Ashim Thapa, John Kane, Shayan Shamskolahi, Tommy Travis  **The student team presented their project at Shaws Inc. on 12/4/2019 and will not present at IAB meeting.** | James Carter, Shaws Inc. |
| GL08 | **Android App Development**: Android Studio upgrades their development process each year. As of now Mutable live data is a new trend to Andorid app development. The project sponsored by WorkLLama LLC is to develop branded application using Mutable Live data design. Design back end architecture to make it adaptable with mutable live data.  **Student team**: Md Arabin Islam Talukder, Aina Falade, Sai Sannihith Cheerla  **The student team presented their project at WorkLama on 12/10/2019 and will not present at IAB meeting.** | Mr. Krishna Vedula, CTO, Worklama LLC. |

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| **Undergraduate Capstone Projects** | | |
| **#** | **Project Description** | **Sponsors** |
| **UX01** | **Optimum Power and Beam for Satellite Communication: Fo**r satellite networks, the efficient management of satellite downlink communication resources is crucial. To support a broad spectrum of users with small terminals at high rates, narrow transmit spot-beams on the satellite are used. Since satellite transmitter resources are expensive. There can be many spot-beam coverage cells within the satellite service area. Thus, modern scanning techniques need to be proposed to time-share these precious resources. An optimized design of the multibeam antenna pattern and scheduling can further improve the efficiency of transmission and power management. This study hypothesize that the use of a parallel multibeam scheme with optimum power allocation can achieve a substantial power gain and reasonable proportional fairness. We formulate the problem senario as an Optimization and use software simulation to reach the solution. | Dr. Sumit Chakravarty |
| **UX02** | **College of Professional Education Data Analytics:** The College of Professional Education (CPE) collects demographic and marketing data on students that enroll in our classes or attend events. This data can be analyzed to provide valuable information about market trends, types of students who attend, cities where students are coming from and many other things. CPE hired a Business Analyst in early 2019 whose main focus is performing analytics of prospective and enrolled students and the data we gather from them. During the first half of 2019, this individual had to step away from this role to serve as the Interim Marketing Director. Now, this individual has been able to step back in to the Business Analyst role and is just getting started in developing the position. The objective of this project is to use data analytics to gather valuable information (trends, geographic locations, student types, etc.) that will be used to make business and marketing decisions. | Dr. Lis Hames |
| **UX03** | **ELSYS Software Center:** Creating a website that our ELSYS employees can use to automatically request software that has been approved by our team, and that request would automatically kickoff an installation of that software. This would require scripting, creating a full-stack website, and working with our back-end infrastructure to prepare the software to be available on the website from both a permissions and availability level. | Wes Hogarth |
| **UX04** | **Deploying a Real Time Analytics Cluster:** This project aims to develop a cluster in CCSE cloud for real time streaming data analytics | Dr. Pablo Ordonez |
| **UX05** | **Salesforce Project:** The College of Professional Education (CPE) purchased CRM (Customer Relationship Management) software called Salesforce in early 2018. Salesforce is a cloud computing service as a software (SaaS) system. It is used as an email marketing tool, but is also utilized as a customer relationship management database. The software tracks student data, demographics and marketing and engagement history. We have been "live" in the system since January 2019 and now have about 6 months of data. Salesforce is a robust and complex software system and we are currently only utilizing a fraction of what is available as far as the capabilities of the system. One of our next steps is to determine how to best utilize the system and to explore what other features/functionalities are available that we could use. Second, we need to analyze the data to make business decisions about our customers and our marketing efforts. Third, we are looking to automate processes, whether they be marketing or business processes, whenever possible. The objective of this project is to explore the Salesforce system and configuration and determine what additional features would be most beneficial to CPE's marketing efforts and business processes. | Dr. Lis Hames |
| **UX06** | **Mobile Health Application Uses and Reliability:** There has been numerous mobile health apps developed that can assess our health status, gather and process data, and integrate with EMR systems. Some apps are capable of analyzing images to accurately predict or monitor health conditions such as blood glucose level. This project will investigate (i) the typical apps that can identify health parameters, (ii) types of data they process, (iii) how errors, noises or attack data can alter their properties, (iv) how to safeguard the apps and sensors to prevent the privacy and security of individuals. A prototype to be build showing proof of concepts. | Dr. Hossain Shahriar |
| **UX07** | Non-Invasive Fall Detection Using Computer Vision: Non-invasive Wi-Fi sensors have gotten attractions among healthcare professionals for better health outcome and potentially saving lives. The sensors can be integrated into everyday environment like restrooms to capture vital statistics such as heart rate, respiration rate, and assist in seeking help and living better. At this moment, least attention is given to smart restroom technologies for healthy living support. This project would like to develop a prototype of non-invasive health monitoring system. | Dr. Hossain Shahriar |
| **UY01** | This project is targeting at develop an AI Assistant for both iOS and Android platforms.  According to the National Institute of Mental Health (NIMH), one in five adults in the United States (17.9 percent) experiences some type of mental health disorder. Mental illness not only reduces an individual’s quality of life, but it also links with increased health spending. Our AI assistant Mcare will resemble an instant messaging service. The digital health technology asks about your mood and thoughts, “listens” to how you are feeling, learns about you and offers evidence-based cognitive behavior therapy (CBT) tools. Interactions with Mcare aim to emulate a real-life face-to-face meeting, and the interaction is tailored to the individual’s situation. | Dr. Meng Han |
| **UY02** | Video streaming is a popular multimedia on demand service nowadays. It has a lot of applications, include video-on-demand, video conference call, virtual reality, and etc. However, due to the nature of best-effort UDP streaming protocol, these multimedia applications suffer packet delay and loss, which will cause the degradation of received video quality. In order to compensate for the video slice damage, different algorithms and methodologies have been proposed. Traditional algorithms use interpolation or redundant data to estimate the damaged slices. However, they all have different types of drawbacks, such as increased bandwidth consumption and reduced compression ratio. Also, the quality of recovered video slices are not satisfactory. In order to overcome these difficulties with traditional algorithms, we propose an AI and deep learning based methodology, which imitate the capabilities of human eyes to estimate the damaged slices. In this project, we will create a large amount of training data and also set up a deep learning neural network to achieve our goals. Through this project, students will gain experiences in video streaming, error recovery, and will also step into the areas of AI and deep learning. | Dr. Zhigang Li |
| **UY03** | Non-invasive Wi-Fi sensors have gotten attractions among healthcare professionals for better health outcome and potentially saving lives. The sensors can be integrated into everyday environment like restrooms to capture vital statistics such as heart rate, respiration rate, and assist in seeking help and living better. At this moment, least attention is given to smart restroom technologies for healthy living support. This project would like to develop a prototype of non-invasive health monitoring system. | Dr. Hossain Shahriar |
| **UY04** | There has been numerous mobile health apps developed that can assess our health status, gather and process data, and integrate with EMR systems. Some apps are capable of analyzing images to accurately predict or monitor health conditions such as blood glucose level. This project will investigate (i) the typical apps that can identify health parameters, (ii) types of data they process, (iii) how errors, noises or attack data can alter their properties, (iv) how to safeguard the apps and sensors to prevent the privacy and security of individuals. A prototype to be build showing proof of concepts. | Dr. Hossain Shahriar |
| **UY05** | The College of Professional Education (CPE) collects demographic and marketing data on students that enroll in our classes or attend events. This data can be analyzed to provide valuable information about market trends, types of students who attend, cities where students are coming from and many other things.    CPE hired a Business Analyst in early 2019 whose main focus is performing analytics of prospective and enrolled students and the data we gather from them. During the first half of 2019, this individual had to step away from this role to serve as the Interim Marketing Director. Now, this individual has been able to step back in to the Business Analyst role and is just getting started in developing the position.    The objective of this project is to use data analytics to gather valuable information (trends, geographic locations, student types, etc.) that will be used to make business and marketing decisions. | Dr. Lis Hames |
| **UY06** | Capstone participants will build out an environment of virtual servers to replicate on a small scale a real world setup. Ideally there should be at least two servers setup on at least 1 host with a management appliance as well.    If resources are available, replication should be setup between two hosts so that if connectivity is lost, the "business" applications on the down hosts will still be available. This environment could also include workstations in a domain environment with login rights, group policies, and access controls given out by a virtualized domain controller.    Once the setup is done, the environments created should be tested by them to prove that catastrophic loss will not affect the overall function of the environment. After their testing is done, I will come in and purposefully break components and see how the environment reacts. Once that is satisfied, the environment will need to be repaired back to full functionality. | Mr. Brent Dominy |
| **UY07** | For this project, the students plan on setting up an ASA 5506x firewall. They will configure the firewall to send Syslog data to a server that is running splunk enterprise. They will use the Syslog information to create databoards that are relevant to network security. | Mr. kristopher Barnette |