TITAN TECH TALK

ANALYTICS:

The future of
Data and Decisions

Analytics: Predicting the future at CSUF

What is Data Analytics

It's nearing lunch time, your stomach growls in anticipation while your wallet nervously whimpers. You have to decide how best to satisfy your hunger but keep in budget for the rest of the week. So you do a quick cost-benefit analysis. If you go to X restaurant then you can get a filling meal and save half of it for tomorrow's lunch, thereby saving money.

Data analytics influences almost every decision an individual makes in their personal and professional life.

"I think the best way to describe it is the idea that you are using information about people to make informed decisions about how they will behave in the future," said Dr. Pearl Galano, Data Scientist for the Division of Infor-

mation Technology.

Dr. Galano is a behaviorist, by training, and focuses on people and people's behavior and how their decisions can be predicted with data.

"The data allows us to dig deeper into figuring out how to help these students complete their degree," Dr. Galano said. "That's the goal – to get them through the university. So how can we use the data we have to better understand their situation and then figure out what the most important factors are in predicting student success and retention."

In order to do that, Dr. Galano and others at IT use "Big Data," or large amounts of data, from multiple sources.

IT compiles data to see current graduation rates.
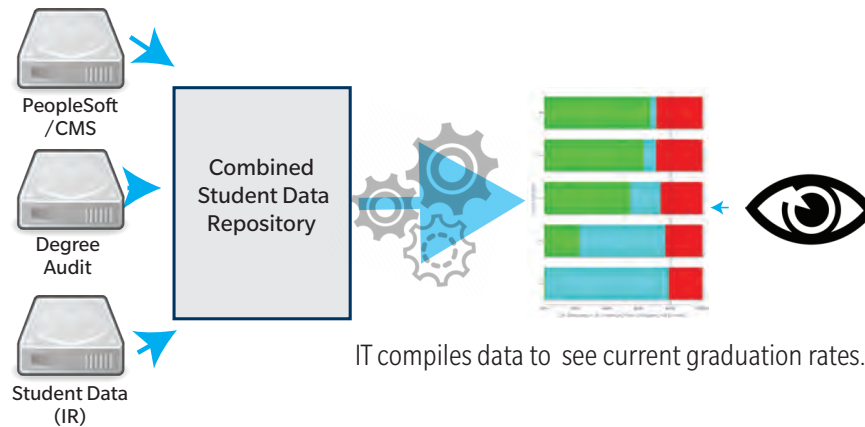
Analytics on Campus

Some of IT's goals are to help improve student persistence and graduation rates University-wide, and to narrow the achievement gap for underrepresented students. To do this, we use a Student Success Dashboard that compiles information from PeopleSoft/CMS enrollment data, Degree Audit Data and Institutional Research Student Data. This combined data provides the campus with a dashboard showing current graduation rates for our student cohorts.

The Dashboard allows us to easily view and summarize (and compare) graduation rates by college (department, major), cohort (first-time freshman vs transfer), parent's education (underrepresented status) and ethnicity.

We used this Dashboard to identify those students who have not graduated and not enrolled. From there, advisors are able to reach out to those students and encourage them to enroll. In Fall 2013, 30% of those at-risk students decided to continue their education.

The use of a student success dashboard is already implemented at other CSUs, such as CSU Northridge, CSU Los Angeles, CSU Dominguez Hills, CSU San Bernardino, San Jose State and San Francisco State is currently in the process of implementing a Student Success Dashboard.

The Future of Data Analytics on Campus

Technically speaking, anytime anyone deals with large amounts of data, they're doing data analytics. Dr. Galano and Matthew Badal are using a different type of data (not just numbers) to build an iTuffy Chatbot*.

"It's not the traditional data people think of, which means it's not numbers and statistics, it's what we call unstructured data, which refers to words and phrasing," said Dr. Galano.

Anytime someone deals with "Big Data," they work with either structured or unstructured data.

Dr. Galano said structured data is what most people think of when they hear 'data.' They see an Excel spreadsheet with a lot of numbers on it.

She is, however, particularly excited about unstructured data, what she refers to as the "new frontier." Unstructured data uses documents that have a lot of words and different phrases on it.

"The fact that we've acquired IBM Watson and we can use it to analyze unstructured data is really exciting for future analysis," said Dr. Galano.

The Future of Data Analytics at CSUF

Ayushi Aggarwal has changed her career path to dictate the current and future trend of her field. The Information Systems and Data Science Graduate student is in her final semester at Cal State Fullerton and is currently the President of the Business and Data Analytics Club (BDAC) on campus.

Aggarwal studied and worked as an IT Engineer back in her home country of India before coming to Cal State Fullerton to expand her education. It was here that she decided a career in Management Engineering would better compliment her skills and she was exposed to the world of Data Analytics.

"You see, analytics was used when nothing, not even computers existed," Aggarwal said. "Even a farmer analyzes when he has to sow seeds, based on the weather, but nobody had referred to it as analytics, and no one had used it with artificial intelligence before. It's now all coming together."

The Business and Data Analytics Club was founded at CSUF about 4 years ago, according to Aggarwal. The club serves "everyone who wants to pursue a career or has an interest in decision sciences, business analytics and marketing analytics."

Aggarwal encourages all students who express any interest in the data field to look into the Business and Data Analytics club. "It's a data driven world and if you feel as though you're a part of it come join us, meet people and network," she said. "We have professionals from the industry come by and talk to us and you can network with them. You get to know what the industry expects and you can mold yourself to that because technology is always changing."

Ayushi Aggarwal is the president of the Business & Data Analytics Club at CSUF

As the field of analytics continues to grow, Aggarwal hopes her club grows with it.

"Analytics is very important, you can't do anything without a decision and a decision is best made when it's through analytics. You save a lot of time, energy and money. And it's much more accurate," she said.

Analytics played a huge part in the 2016 Presidential Election, said Aggarwal. Both candidates relied heavily on data acquired through various polls and social media to find out how they were doing and where they needed to divert their attention to. "It's a big thing. Imagine, two people competing for the highest job in the nation having to fall back on analytics to win. It's not just companies who rely on analytics anymore," Aggarwal said.

"When you know what people are thinking, you're prepared."

After she graduates in May, Aggarwal wants to find a place for herself in a growing company where she can use and develop her skill sets. "I'm not currently aiming for a huge high tech company. While that is a dream job, I see that 10 years down the line. For now, I want to work for a company where I can slowly work myself up the ladder. A company who wants to hire a fresh business analyst," she said.

She encourages students struggling with their chosen major and career path to dig deep and look at what they want to do. "The pressure of money and the pressure to go somewhere in life will never end," Aggarwal said. "The pressure may even increase as time goes by. But if you fall into the pressure you will struggle. Instead, do what you like and go at your own pace."
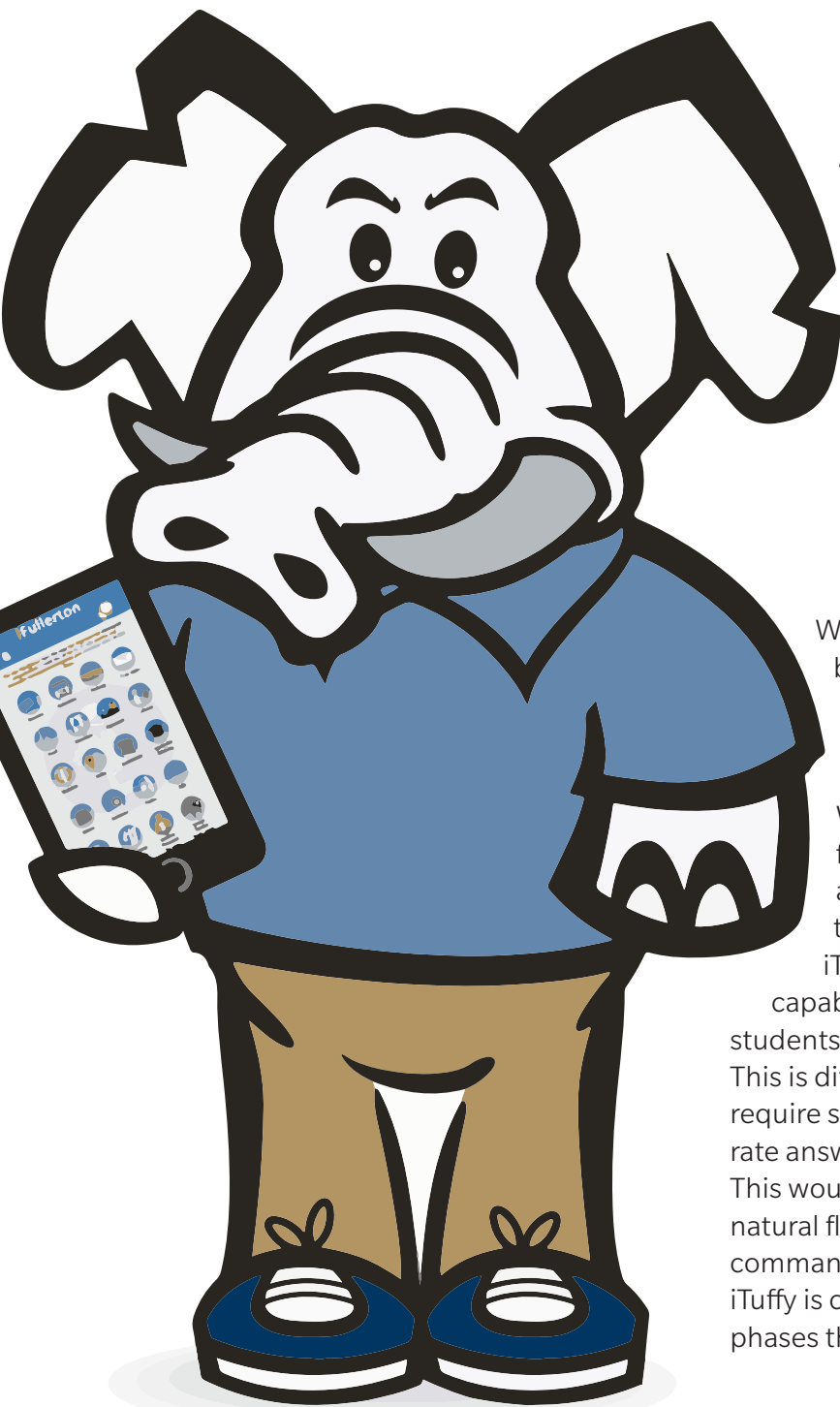
Have a question, just ask iTuffy

"Hey iTuffy, Where can I get my official transcript?"

"Your official transcript can be requested from Admissions & Records."

"Where is that?"

"Admissions & Records is located in LH-114."

"Are they open?"

"Admissions & Records is open from 8am-5pm, Monday-Friday."

With the help of IBM Watson, Cal State Fullerton is building iTuffy, an interactive assistant for students. The goal of this project is to increase student success and retention by ensuring they get the answers to their questions, easily at any time. Whether you're running around campus trying to find a building or burning the midnight oil worrying about graduation, you will have a campus resource that can answer your most urgent questions 24/7. iTuffy uses IBM Watson's cognitive computing capability, a machine learning based process that lets students speak and ask questions as they normally would. This is different than traditional "key word" applications that require students to use a specific phrasing to get an accurate answer.

This would allow students to ask questions in their own natural flow instead of having to adhere to a strict set of commands.

iTuffy is currently in production and has began it's testing phases this semester.

TechDay 2017

This year's TechDay kicked off when robot, BB7 (decked out in Titan gear) introduced Dr. Lin Zhou, P.h.D. and Nirmal Mukhani for their keynote address. The two Master Inventors from IBM Watson were just two of the attractions at IT's most successful TechDay yet.

Every year, the Division of IT throws an event aimed at educating the campus community on the different advances and issues facing the IT world. This year, we focused on the analytic tools and applications used to transform Data to Decision-making.

Dr. Zhou and Mukhani's presentation touched on Watson's capabilities and how to create highly engaging and personalized education solutions at scale.

After the keynote, TechDay visitors dispersed and attended breakout sessions and demonstrations on topics from Home Security to applying Business Intelligence with Data Science.

The event featured sessions by Disability Support Services (DSS) with two sessions about using accessible technology for teaching and learning and making teaching materials more accessible. DSS was joined at the vendor tables by Freedom scientific and Abled Advocators, a student-run disability advocacy club.

Always a favorite part of TechDay, students, faculty and staff flocked to the second floor of the library to meet with some

From left, BB7, from Planet Alderon, Dr. Lin Zhou, Master Inventor from IBM Watson, and Amir Dabirian, VP/CIO for the Division of Information Technology

of our many tech-related vendors.

This year's event drew great crowds to each demonstration and breakout session as well as the vendor areas. We plan to continue this occasion in the future and would like to extend a warm thank you to all of our vendors, speakers and volunteers.

TITANS REA

ACH HIGHER

CONGRATULATIONS CLASS OF 2017

New Apps Inspire Student Creativity

Ever wanted to create inspirational photos and share them on the web? What about videos or Websites?

Adobe has come out with a series of three web and mobile applications that allow users to create visually striking photos with overlaid texts, fun videos and professional looking websites.

Adobe Spark Post, Video and Page are accessible through the web, as well as through the App Store (The Spark mobile apps are currently only available to iPhone users, Adobe is currently working on an Android version of the apps).

This semester, IT visited a few classrooms and gave the students a workshop on the three applications. Later, the students used Spark to complete a campus resource assignment.

"My BUAD300 students enjoyed how easy it was to use. Their initiative and creativity with the different features of Adobe Spark, such as music and voice-overs, added a fun component to what used to be a more standardized presentation," said Kate Guerrero, Director at Mihaylo Career Services. "As a result, it heightened their initiative and we got to see some really creative work."

Adobe Spark can be used to overlay text on top of photos and share them straight to social media, quickly put together photos and videos and create in depth websites.

Faculty can use Adobe Spark Page to showcase their syllabus and include photos of assignment examples. They can also use them in lieu of PowerPoint presentations.

Titans can use Adobe Spark Video to easily create a video depicting a recipe for a chocolate cake, followed by another video showing the proper workout for after you eat the cake.

The easy to use function of the app allows users to be creative without worrying whether or not their ideas are easily executable.

Have fun!
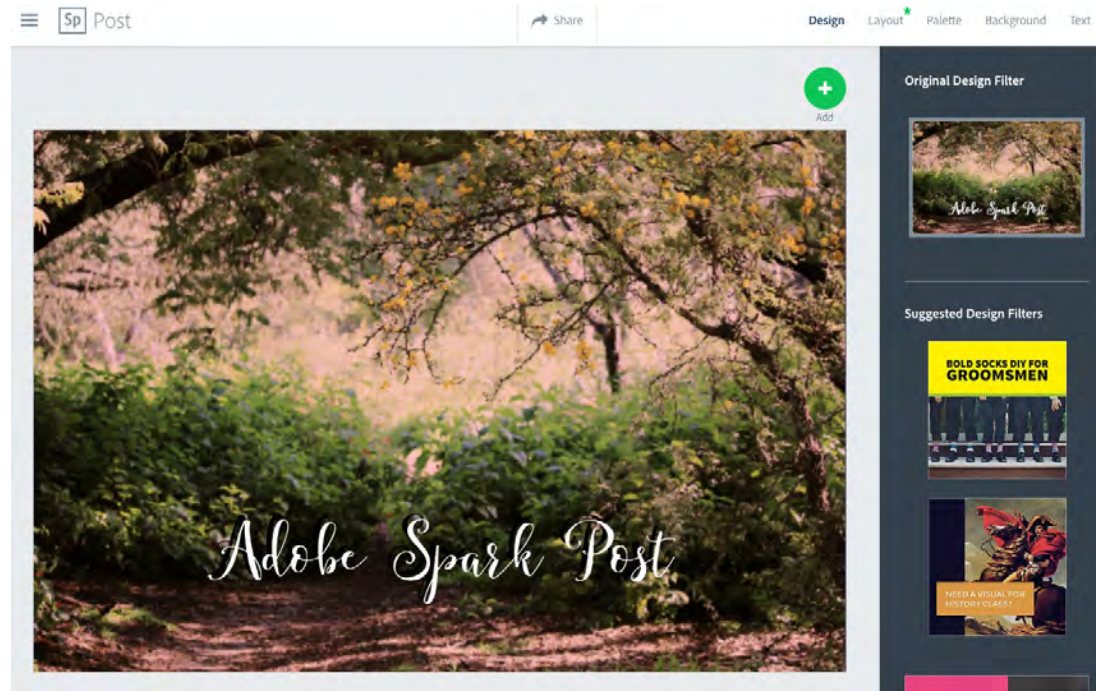
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Fullerton Arboretum