

## CTG Online News

Tue, 20 May 2014 14:20:00 EST

### Four Students Create Data Visualizations for the Metropolitan Transportation Authority (MTA)

By the time UAlbany students reach their senior year or are enrolled as graduate students, many are looking for experiences beyond classroom learning to start applying their new skills in a professional setting. Four University at Albany students – one graduate and three senior undergraduates – did just that, serving as interns on a data visualization prototype project at the Center for Technology in Government (CTG) during the Spring 2014 semester.

Students heading into MTA headquarters in NYC before final presentation. From left to right: Seth Lasky, Greg Venech, Daniel McKenna, Derek Werthmuller, Ping Li.

Students heading into MTA headquarters in NYC before final presentation. From left to right: Seth Lasky, Greg Venech, Daniel McKenna, Derek Werthmuller, Ping Li.

The students, Greg Venech ('14), Seth Lasky ('14), Daniel McKenna ('14), and graduate student Ping Li ('14) all came from UAlbany's College of Computing and Information.

Working under the guidance of Derek Werthmuller, CTG Director of Technology Innovation and Services and Jim Costello, CTG Web Application Developer, the students used sample reports and datasets provided by the MTA to develop more usable visualizations that provided at-a-glance comparisons across yearly, monthly and daily time periods to help identify trends and make projections. Users were also given the ability to interact with the visualizations by changing the display types (scatterplots, line charts, column charts, pie charts, bubble charts, 10-year timelines) or choosing different parameters to customize the display.

Throughout the project, the students learned about and implemented sound design and development principles such as User Experience, iterative development, and platform-independent, modular code as well as working in a team environment that included regular interaction with the client. From a technical perspective, the project exposed the students to advanced database design and SQL queries, PHP application programming, JavaScript (jQuery and D3.js) for the visualizations, and front-end web markup using HTML5 and CSS3. It also gave the students a taste of "big data" in dealing with datasets involving tens of millions of records.

All of the students pointed to the new technical and project management skills they learned over the course of the project as an important part of their time at CTG. However, the experiences they valued the most were the opportunity to work and professionally develop code as a team and to provide value to the MTA.

"Working with the team of students and mentors was a great experience," said Greg Venech. "I think we learned a lot from one another and whenever I had a question, Jim and Derek were more than willing to stop whatever they were doing to assist me."

"I am proud to have worked together with a team of kind and respectful colleagues, and will remember the time I have spent here for years to come," said Daniel McKenna.

"The most valuable experience is that we created real value for real enterprise," said Ping Li. "And at the same time, we got to practice skills we learned from school. I can sum up my experience as team work, communication skills and passion!"

Ping Li presenting data visualization at MTA.

Ping Li presenting data visualization at MTA.

The project culminated in a presentation by the students to the MTA staff at their corporate office in NYC on April 23, which was very well-received. Over the course of the project the students also had several opportunities to interact with and present the progress of their work to the MTA via online conferencing, building their confidence in both their presentation and communication skills.

"The opportunity to present to a major company and to even have that company's executives be impressed with our work was a great feeling," said Seth Lasky.

Looking forward, the students reflected on how their experience at CTG has impacted what they might pursue

after graduation.

"I came to the CTG with an interest in database administration and program development," said Daniel McKenna. "My experience here has given me a greater view on these topics and I definitely wish to find new opportunities for both subjects in the future."

"This project has definitely made me consider a career in data visualization," said Greg Venech. "While I might not pursue this track exactly, I am very sure that I will continue to use D3 throughout my career in web development. The environment at CTG is like none other and provided me a great place to transition into a real work environment."

Greg Venech presenting data visualization at MTA.

Greg Venech presenting data visualization at MTA.

"Throughout the course of this project, we were impressed with how well the students' respective UAlbany programs have served them," said Derek Werthmuller, Director of Technology Innovation and Services. "They were well prepared and eager to learn new skills to take on the challenging tasks of the project, easily moving between team and individual work. While we wish that they were here longer, we know their hard work and passion will lead them all to promising careers."