JEREMY DOUGHTERY

Mapping Out a Bright Future

How a Data Science and Machine Learning student parlayed an impressive internship into a job offer.

Story written by Mark Cox

There's a lot of data in the world these days: some might even say too much.

> I liked how this degree focuses on using data as a tool to better understand and improve the real world.

Not Jeremy Doughtery, though. "I have always seen the potential for using the massive amounts of data out there right now for good purposes, to solve genuine problems," he said.

That's why, when he saw a new Data Science and Machine Learning degree announced at MSU Denver, he immediately took notice – and soon signed up.

"I liked how this degree focuses on using data as a tool to better understand and improve the real world," he said. "That mix of problem-solving, creativity and impact is what got me invested."

The degree program intentionally incorporates courses from both the Computer Science and Mathematics departments, in order to offer a double-edged learning experience. The idea is that students – by mastering complex concepts such as algorithms, data analysis and predictive modelling – will learn to turn data into insights, and intelligence into action.

Still, Doughtery is aware that his chosen field can sometimes get a tough press in the broader world – which he considers unfair.

"People sometimes associate data science and machine learning with things like chatbots and language models, or even those annoying targeted advertisements – but there is much more to it than that," he said.

"Once you dig in and really look, data science shows up in useful places everywhere – from environmental work and mapping to healthcare and logistics. It has real value to the world."

Incredible opportunities

While Doughtery's degree involves a lot of serious study, he hasn't just been stuck in a classroom for three years. In fact, the program places great emphasis on making sure students get out into the working world to gain experience and learn from professionals.

That's why Doughtery spent last summer on an internship with TCarta, a GIS (Geographic Information Systems) company that specializes in providing mapping and spatial analysis of marine and coastal areas.

The opportunity was made possible by the National Science Foundation's ASCEND Engine, which has been a workforce-development partner to MSU Denver for the past two years.

The ASCEND Engine supports students who are studying in priority areas centered on resiliency, sustainability and climate tech innovations. Its support has enabled scores of MSU Denver students – including Doughtery – to access incredible student internship opportunities with a broad range of pioneering agencies and companies.

> "Once you dig in and really look, data science shows up in useful places everywhere – from environmental work and mapping to healthcare and logistics. It has real value to the world.

Corey Goodrich, Managing Partner at TCarta, has personally seen the benefits that can arise from the National Science Foundation's funding of MSU Denver student interns.

"Getting real-world experience in a professional setting – and building their STEM workforce skills alongside other like-minded professionals – is invaluable for an intern," she said. "I've seen these internships directly impact a student's professional direction and decisions about their future."

Big achievements

At TCarta , Doughtery (alongside fellow intern Esmeralda Solis-Fuentes) was assigned a series of complex tasks, working with water and ocean data. He had to build maps and visualizations and create tools – all to help people better understand what is happening in marine and coastal environments.

> “I learned a lot, not just in terms of technical skills but also what it takes to run a successfull business.

“It was tough work but fascinating,” Doughtery recalled. “Our workload included intricate tasks such as mapping ocean depth, classifying the seafloor, and tracking tides or shoreline change.”

Over three months, the pair mapped 3,000km^2 of water and identified more than 61,000 rivers, lakes, ponds and coastlines across the globe. Their key success was swapping out older software for an AI-powered mapping tool, which was faster and boosted accuracy in hard-to-map areas.

Understandably, the team at TCarta was impressed. “Jeremy had great organizational skills and showed a high-level understanding of machine learning and software development,” recalled Felicia Nurindrawati, Machine Learning Engineer at TCarta. “He was also very inquisitive and offered a lot of bright, new ideas.”

Another bonus: He was incredibly low maintenance: “I found that Jeremy was able to understand problems very quickly, which meant we could get to more pointed tasks sooner.”

Job offer

While TCarta may have reaped a lot of benefit from his skills and hard work, serving an internship with the company turned out to be the most significant professional experience of Doughtery’s life.

“Because it’s a smaller company, I learned a lot, not just in terms of technical skills but also what it takes to run a successful business – often directly from the owners.”

Dougherty is by no means the first MSU Denver intern to pass through TCarta and likely won’t be the last. The company, it appears, knows when it is on to a good thing.

> But most of all, I just love working with caring people who know a great deal about our planet

"I've found that MSU Denver students are eager for real-world experience and in-person work.," said Goodrich. "They show up each day with a high level of enthusiasm and engagement, which makes them fun to work alongside."

And it appears that Dougherty has made an especially good impression: TCarta are set to make him a full-time job offer once he graduates in May this year.

"I could not be happier," he said. "Working with new and emerging technology to solve environmental problems is exactly where I want to be."

Successful journey

Given his own journey has turned out so well, what advice would Dougherty give to someone considering following in his educational footsteps and taking the Data Science and Machine Learning degree MSU Denver degree?

"It's a great choice, if you're someone who learns by actively doing stuff!" he explained. "And if you're willing to put in the effort and take advantage of the great internships on offer, it can really set you up for a promising career in the real world."

The attraction of the program, he explained, is that it provides a solid technical foundation while also giving students plenty of room to explore their own interests – whether that's AI, data analysis, or applied work such as geospatial or cloud systems.

When Doughtery looks back now at his past experiences – all the dropped applications, failed interviews, prior experiences that didn't lead to full-time offers – he appreciates that they were merely steps on the road to this destination.

"I had been worried about graduating without any clarity on what might come next, but having this opportunity on the horizon has demonstrated that all the hard work was worth it," he said.

Looking ahead, Doughtery hopes to stay in this industry and build a lasting future.

"I find the work very fulfilling and learn something new literally every day," he said. "But most of all, I just love working with caring people who know a great deal about our planet."