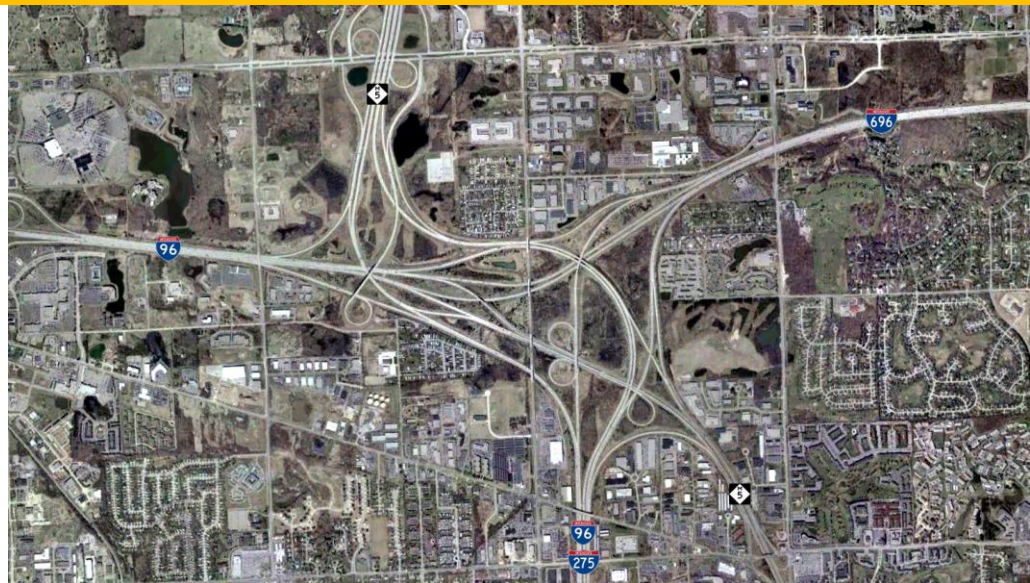


Detroit hopes AI software could help predict, prevent traffic crashes

A new pilot program coming to Detroit aims to use artificial intelligence software on top of existing traffic cameras to eventually predict and prevent traffic incidents.

The city has been awarded \$2 million in federal grant dollars to fund a pilot program establishing more than a dozen “smart intersections” within the city. By tracking crashes, and even near misses within those corridors, officials hope to be able to capture real-time data and better understand causes of traffic incidents.

“It’ll help us define these root causes so we can better aim our mitigation and our strategies to improve road safety,” said Tim Slusser, Detroit’s chief of mobility innovation, who noted Metro Detroit consistently ranks among the top metropolitan areas for traffic incidents and



road fatalities. “With this type of system, we believe when you start to characterize and understand root causes of these issues and implement a strategy based on that understanding, we can collect data and within a few months, we can see a new trendline.”

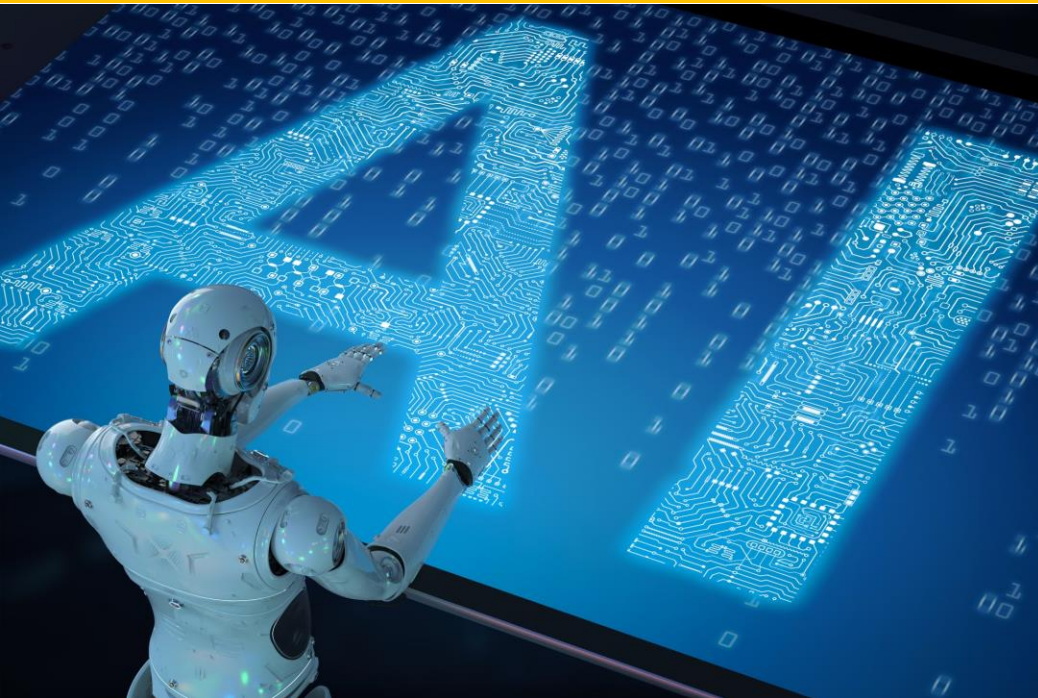
The smart intersections program will start with about 20 intersections picked based on U.S. census tracts considered transportation access disadvantaged. That means people in those communities spend more, and take longer, to get where they need to go.

Once active, the smart intersections will begin collecting data, like the number and types of vehicles that use the intersection. That will include passenger vehicles, trucks, public transit, bicycles, scooters, and even pedestrians on foot.

The systems will also collect data on crashes and near-misses, including short video samples of those incidents to be used for assessing the root causes of the situation. Slusser said the system

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wouldn't be constantly recording and saving video. But in the event of a crash or near miss, it could go back and record 15 to 30 seconds before the incident, and save the snippet for personnel to review later.

“If there was a near miss for example and it involved a pedestrian walking in the street, it could help identify, was the light red or green; was the pedestrian doing something wrong or was the driver; was it caused by improper timing of signals? Or maybe the light went out?” he said.

The software won't be used for, Slusser said, collecting or retaining any personally identifiable information, or to assist law enforcement in issuing a traffic citation for actions like speeding. Having real-time data would allow the city to assess whether changes are providing the intended safety improvements, rather than waiting on currently available data that can often lag by 12 to 24 months.

As of 2020, Detroit's traffic crash fatality rate per capita was the second-highest among large cities in the U.S., and the

city's pedestrian fatality rate was the third highest, according to the National Highway Traffic Safety Administration.

While the first stage of Detroit's smart intersections program is largely focused on data collection and review, the technology provides a lot of potential to expand its use. For example, the city could give the AI control over things like changing the timing of traffic lights and crosswalk signals on its own to avert or lessen incidents. The software could also be given the ability to alert emergency services when it detects a vehicle crash.

“I'm not comfortable saying today that we'll implement this, but we're going to explore this, we're going to understand its abilities and limitations and then we're going to make a formal decision on how we implement it,” Slusser said. Installing the technology for these smart intersections could also prepare the city for an autonomous vehicle future. Its infrastructure could be used to communicate with driverless vehicles with the flip of a switch.

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Career Guide

Quick and to the point Career Advice

Question: “**Andrei, I really want to secure a job in AI. What companies are a great place to start looking?**”

– Micheal Dowowski

Answer: Great question. First off, many AI positions concentrate in cities that already feature a thriving tech industry. The cities with the largest job concentrations include Michigan, Seattle, New York, and San Francisco. While remote positions exist, applicants may find more open positions in urban areas.

The organizations below curate development in AI and reveal how the tech applies to multiple disciplines.

Facebook

The tech and social media giant uses AI in its Oculus virtual reality products and software. With an emphasis on computer vision, the AI in Oculus headsets recognizes and tracks hand movement through cameras to interact with the virtual world.

Amazon

The online retailer develops natural language processing and speech analysis software for its Alexa digital assistant products.

Tesla

Tesla's self-driving software relies heavily on AI development and machine learning. The AI processes information such as traffic laws, street markings, and external cameras to perceive the road and respond to real-time events.

Ezra

Ezra combines AI with MRI technology to help detect cancer earlier and more accurately. The AI provides a more accurate 3-D rendering of internal organs and segments image scans to help radiologists identify abnormalities.

Get going You got this!

– Andrei

A simple guide to help you understand AI

Have you got your head around artificial intelligence yet? In the past six months, chatbots, like ChatGPT, and image generators, such as Midjourney, have rapidly become a cultural phenomenon. But artificial intelligence (AI) or "machine learning" models have been evolving for a while.

In this article, GIT will venture beyond chatbots to discover various species of AI - and see how these strange new digital creatures are already playing a part in our lives.

So how does AI learn?

The key to all machine learning is a process called training, where a computer program is given a large amount of data - sometimes with labels explaining what the data is - and a set of instructions. The instruction might be something like: "find all the images containing faces" or, "categorise these sounds". The program will then search for patterns in the data it has been given to achieve these goals.



It might need some nudging along the way - such as "that's not a face" or "those two sounds are different" - but what the program learns from the data and the clues it is given becomes the AI model - and the training material ends up defining its abilities.

One way to look at how this training process could create different types of AI is to think about different animals. Over millions of years, the natural environment has led to animals developing specific abilities, in a similar way, the millions of cycles an AI makes through its training data will shape the way it develops and lead to specialist AI models. So what are some examples of how we have trained AIs to

develop different skills?
What are chatbots?

Think of a chatbot as a bit like a parrot. It's a mimic and can repeat words it has heard with some understanding of their context but without a full sense of their meaning. Chatbots do the same - though on a more sophisticated level - and are on the verge of changing our relationship with the written word.

But how do these chatbots know how to write?

They are a type of AI known as large language models (LLMs) and are trained with huge volumes of text.

An LLM is able to consider not just individual words but whole sentences and compare the use of words and phrases in a passage to other examples across all of its training data. Using these billions of comparisons between words and phrases it is able to read a question and generate an answer - like predictive text messaging on your phone but on a massive scale.

Can I talk with an AI?

If you've used Alexa, Siri or any type of voice recognition system, then you've been using AI. Imagine as AI records the sounds as you speak, removes the background noise, separates your speech into phonetic units, and then matches them to a library of language sounds. Your speech is then turned into text where any listening errors can be corrected before a response is given. This type of artificial intelligence is known as natural language processing. It is the technology behind everything from you saying "yes" to confirm a phone-banking transaction, to asking your mobile phone to tell you about the weather for the day in a city you are travelling to.

VETERANS, GET READY TO POWER YOUR TECH FUTURE AT GLOBAL IT

Global Information Technology (Global IT) is approved by the Department of Veteran Affairs to receive Veterans benefits. We accept Chapter 33 Post 9/11 GI Bill®, Chapter 30 Montgomery GI Bill® for Active Duty, Ch 31 Vocational Rehabilitation and Employment (VR&E), Vet Tec, and VRRAP. Whether you are serving or have already served, Global Information Technology is here to work with you to start your IT career. These benefits may cover up to 100% of tuition and fees and housing allowance, courseware, and other training related costs as well.

The Department of Veterans Affairs (VA) will begin accepting new VET TEC Pilot Program enrollments for terms beginning on or after September 4, 2023. The Vet Tec program helps veterans get the technology skills they need to join some of the fastest-growing industries in the United States. Global Information Technology (Global IT) is approved by the Department of

Veteran Affairs to receive benefits under Vet Tec Program. Veterans participating in Vet Tec will receive high-tech training, tuition, and housing allowance assistance. Global IT is enrolling eligible veterans into a new pilot program called Veteran Employment Through Technology Education Courses (Vet Tec).

For more information about your specific benefits in regards to your service, call 248-557-2480 to set up an appointment with one of our School Certified Officers (SCO) (career advisors) or complete the inquiry form at <https://www.globalitech.com/va-p>



Fun & Interesting Facts about Technology

Artificial intelligence (AI) is a fascinating field that is constantly evolving. Here are some interesting facts about AI that you may not know:

AI has been around for decades. While AI is often thought of as a new technology, the concept has been around since the 1950s. Early AI systems were used to perform tasks such as playing chess and solving mathematical problems.

AI can help predict natural disasters. AI algorithms can analyze weather patterns and other data to predict natural disasters such as hurricanes and earthquakes.

AI is already all around us. AI is already being used in many areas of our daily lives, from voice assistants like Siri and Alexa to recommendation systems on streaming services like Netflix and YouTube.

AI can be used to diagnose diseases. AI can analyse medical images and identify early signs of disease, potentially leading to earlier diagnosis and more effective treatment.

AI can be used for natural language processing. Natural language processing is the ability of machines to understand and interpret human language. This technology is already being used in chatbots and voice assistants.

AI can be used for facial recognition. Facial recognition technology is being used for a variety of purposes, from unlocking smartphones to identifying criminals.

AI can help reduce energy consumption. AI can be used to optimize energy consumption in buildings, leading to reduced energy costs and a smaller carbon footprint.

AI is being used in space exploration. AI is being used to analyze data from space missions and make decisions about how to proceed, potentially leading to new discoveries and breakthroughs.

GIT thought Provoking corner



“Life is about accepting the challenges along the way, choosing to keep moving forward, and savoring the journey.”

— Roy T. Bennett, *The Light in the Heart*

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GIT October 2023

Career Services

Workshops - *A special message from Jennifer Bowden, GITs Career Services Manager*

Hello GIT students. I'm happy to announce our upcoming Career Services workshops and dates. Career workshops provide educational opportunities for students to learn about key career readiness skills and topics. These workshops will always span a gamut of topics including resume tips, navigating a career fair, and best practices for job interviewing, just to name a few. I look forward to seeing. RSVP with me here: jennifer.bowden@global-itech.com

Fri., October 6th, 3 p.m.
HTML5 Basics

Fri., October 13th, 4 p.m.
Creating a LinkedIn Profile

Wed., October 18th, 12 p.m.
Lunch and Learn: Networking

Fri., October 20th, 3 p.m.
Creating Excel Pivot Tables and Pivot Charts

Fri., October 27th, 4 p.m.
Resume Writing



A day in the life

Quality Assurance Tester

Quality assurance testers are technicians or engineers who check software products to see if they're up to industry standards and free of any issues.

This role is common for gaming systems, mobile applications and other technology that needs further testing and maintenance when recommended.

Testers can work on different software for IT companies, which may influence what degree or specialization they pursue.

These professionals should also have excellent time management and communication skills to help document test cases.

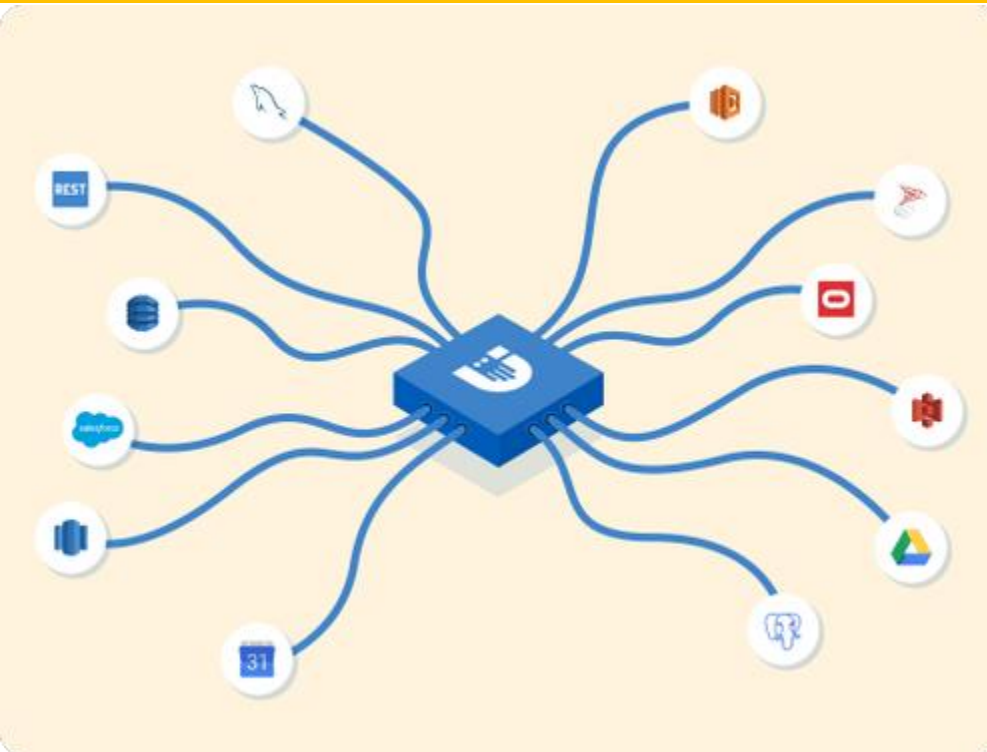
Data Science Career is the Hottest Profession in the New Era

Data Science on the Rise

Data science has become standard practice in the financial sector due to its ability to spot and foresee emerging trends. The corporate sector is rapidly adopting these building tools.

By comparing the effectiveness of various promotional channels, firms may cut unnecessary expenditures and emphasize those that provide the greatest return on investment (ROI). Because of this, a business may increase its lead generation without raising its marketing budget. This is why data science jobs are in high demand.

Businesses' most potent resource is data. It may be used to communicate a tale and as a decision-making tool. Fast business decisions can be made on better data than ever before. No matter what they do, every company has to enter the data business to survive in the modern economy.



21st century doing anything with big data will find this position important to its operations. In short, data science demand is growing because it represents the future of commercial decision-making. There's a significant need, but this has only raised the demand for skilled data scientists. However, many individuals focus on only acquiring the skills to enter the sector because of the rising demand.

Data Science Career is the Hottest Profession in the New Era

Globally, companies are struggling to make sense of the vast amounts of data at their disposal, and figuring out how to handle the even larger datasets of the future is an even bigger problem.

To succeed in data science, you need more than just a basic familiarity with code. You need a solid grounding in ML, programming, and statistics. A significant portion of a company's resources is

directed toward establishing a capable data analytics department by approximately 80 percent of businesses across the globe.

Even though artificial intelligence (AI) was becoming increasingly popular among startups, data science was still in its infancy. At least in companies that prioritize data and AI, its use has now reached the point where it is pervasive.

Banks, insurance companies, retail businesses, healthcare providers, and government agencies are all included in this category, causing the high data scientist job demand. The application of data science has also been very helpful in addressing societal crises, such as the spread of the COVID-19 virus and the effects of natural disasters.

Let's take a look at some Data Science fields:

1. Data Engineering

The field of data engineering was developed to collect, store, and analyze massive amounts of data. It's an expansive field that has

relevance across virtually all sectors. Organizations can collect vast amounts of data, but only if they have the right people and tools to clean and prepare the data so that it can be put to good use by data scientists and analysts.

2. Data Analysis

Analyzing data entails cleaning, altering, and processing raw data to extract useful information that can be used to guide business decisions are some of the most in-demand data analyst skills. The procedure provides helpful insights and statistics, often presented in charts, images, tables, and graphs, that can be used to mitigate the risks associated with decision-making.

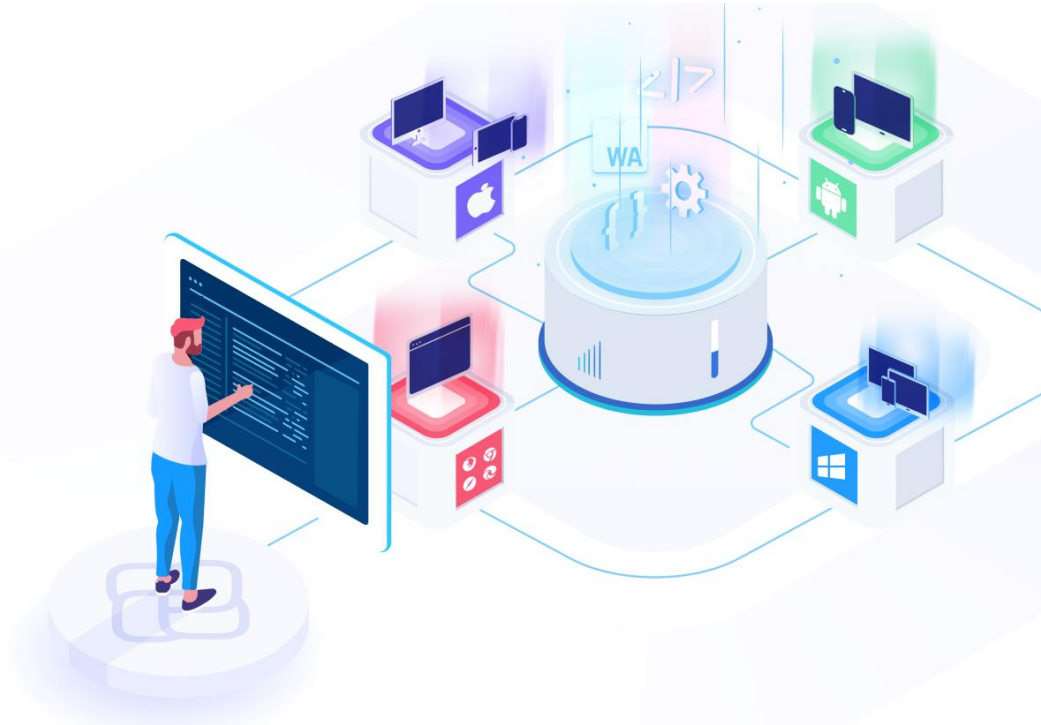
3. Data

Storytelling/Visualization

Data storytelling is a way to share information with a compelling story tailored to a specific audience. It is the last ten feet of data analysis and might be the most important part.

4. Machine Learning / Artificial Intelligence

The software can improve its



predictive abilities over time without being explicitly taught to do so through the use of artificial intelligence, known as machine learning. Algorithms trained by machine learning systems can use past data to

make accurate predictions about future results.

5. Data Science Research

Data science research examines large amounts of data using modern tools and methods to discover patterns that haven't been seen before, obtain useful information, and make decisions for businesses.

6. Data Science Leadership / Decision Science

Leaders in this field should be very careful when describing the problem they want their data science teams to solve. Many data scientists, especially those who are just starting out, can't wait to start preparing data and building models.

Learn Data Science with Python, Machine Learning, and AI skills offered at Global Information Technology and accelerate your data science career. Visit us at www.global-itech.com or call 1-866-GO-GIT-GO (464-4846).