Powering Digital Transformations For Safer, More Efficient Industry

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About me

Leading Product Management, outward-facing engineering and building partnerships

Connecting with developers, users, and customers along with standards organizations like the OGC

Software Engineer in 3D computer graphics and high-performance GPU computing for 6+ years

Lecturer at University of Pennsylvania
Teaching **GPU Programming**
Cesium is a software platform for making 3D geospatial data easier to visualize, analyze, and share.

3D content pipelines
The best available tiling tools to optimize a variety of data for streaming

Analysis
GPU-accelerated 3D geospatial analysis

Visualization
Open source web-based runtime engine

Curated 3D content
Ready-to-stream 3D assets

Streamable formats
Web-friendly open standards for 3D streaming
A few examples of what our customers are doing using Cesium®
Interoperability and Portability using Open Standards

Working with standards organizations to drive innovation in the US. Dept. of Defense

Delivering Value at the Tactical Edge
Leveraging 3D Geospatial for Commercial Real Estate
NORAD Tracks Santa
1,000,000+ lifetime downloads and millions of users across markets
CESIUM® is the software platform for making 3D geospatial data valuable to users.

Imagery & Terrain

Interior & Exterior BIM

Vector Data

3D Buildings & Photogrammetry

Point Clouds
Imagery & Terrain
Interior & Exterior BIM
Vector Data
3D Buildings & Photogrammetry
Point Clouds
Introduce Cesium

Let’s talk Digital Transformation
Imagine if you could:

- Have a God’s eye view of your production sites, every sensor, every second, in 3D
- Have an automated system to tell you when energy infrastructure needed maintenance
- Train operators and crew at the exact site they are going to work on, virtually and safely
- Provide a detailed interactive and immersive report about the environmental impact of any site
Digital Transformation

- Allows business to transform themselves into technology driven
- Remove inefficiencies of old process
- Leverage technology to drive safety, efficiency, and productivity
Themes in Digital Transformation

- The Internet and Handheld Technology
- Information is king - and easiest to digitize
- Discontinuation of physical things
  - Or, using technology to move physical goods (eg. retail)
- Efficiency, effectiveness, speed, safety
- Analytics to drive it all
Digital Transformation in Geospatial

- It's older than you think

The first images from space were taken on the sub-orbital V-2 rocket flight launched by the U.S. on October 24, 1946.
Digital Transformation using Geospatial

- It's older than you think
- But we're just getting started

Planet Labs maps the entire globe every day
Consumer drones are making it much easier to collect data
We're mapping from the ground too

The first images from space were taken on the sub-orbital V-2 rocket flight launched by the U.S. on October 24, 1946.
Earthworks
Underground

Subsurface data such as cross sections and boreholes
Underground

[Image of underground infrastructure and geological layers]
Underground
Planning and Maintenance
Applications of AR/VR
Applications of AR/VR
Growth in 3D geospatial data + similar growth in user expectation & opportunity

Growth in software to make 3D geo data valuable

Widening gap between data and software driving demand for a platform

circa 2000

circa 2010

2020

sensor & vehicle advancements

IoT pervasiveness

Machine Learning

Edge computing

computing trends
Computing foundations
Cloud, edge, IoT, GPU, 5G

Open standards & platforms

Sensor + vehicle availability

Heterogeneous data
Digital Transformation of Energy using Geospatial?

How much overlap can we find?
Digital Transformation in Energy

- Continuous monitoring of information and resources from the field
  - “God’s eye view”
- Better training, simulation, and after-event review
- Remote management, mobility, and control
- Robotics
- Improved efficiency, safety, and speed
- Shaping public policy
Digital Transformation in Energy - Why Now?

- Commoditization of data capture and processing tools
  - Ability to collect frequently, with high-resolution, and make it available over the internet
- Availability of high-resolution global data and analytics
  - Combine data with real-world geospatial data for immersive insights
- Post-COVID world may look very different
- Growth in renewables presents the opportunity for a new start

You can’t be everywhere at once, but you can have all the information in one place, anywhere.
Digital Transformation is going to happen!

The question is not of “if”, but “when”.

How can all of us, together here at the intersection of Energy and Geospatial, drive that forward?
Thank you

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