



**IRF**  
GLOBAL

# Practical Data Science for Roadway Professionals

Online Training

January 31 - February 23, 2023



## Online Training

16 Professional Development Hours



# Practical Data Science for Roadway Professionals

## January 31 - February 23, 2023

### Online Training

## Background

With the recent advances in data science and artificial intelligence in every industry, including transportation infrastructure and highway operations, it is important for roadway professionals to learn the fundamental components of data science to implement them in their day-to-day practice. Contrary to the general belief, in order to understand and implement these tool and techniques in roadway construction, operations and management, no prior coding or computer programming experience is needed.

The main goal of this online training is to introduce the fundamentals of practical data science relevant to transportation and roadway experts. Various aspects, such as the use of different data processing tools, data visualization, data mining and artificial intelligence will be discussed through online hands-on tutorials. Participants will be guided through various interactive course modules and hands-on tutorials to develop skills and knowledge to employ various data science tools on real-world example datasets. Roadway professionals, highway practitioners and local highway agency engineers will learn and benefit from the various aspects of practical data science that can be employed and implemented in their operations.

### Why Online?

- Earn 16 Professional Development Hours
- Expert training by professionals for Professionals: access IRF's unique curriculum and lectures developed by world-class specialists
- Accelerated learning processes: get up to speed and gain new insights in less time and with no travel constraints
- Full access to learning materials and session recordings
- Small classrooms & scheduled One-on-One sessions with instructors
- Self-paced options available
- Interactive group projects and case studies
- Receive IRF Certification



IRF Global is now recognized as an approved training provider by the Chartered Institution of Highways and Transportation (CIHT), a respected professional body that provides transportation professionals with recognition, support and business insights to accelerate their careers and influence the future of the sector.

## Format

The Lectures will be taught over a four-week period with live 2-hour online sessions held on Tuesdays and Thursdays of each week. Upon completion of the training program, the IRF will administer an online knowledge test. IRF will work with each individual participant to ensure they pass the examination.

## Learning Objectives

- ✓ Understand the fundamental concepts of data science and artificial intelligence
- ✓ Learn about the practical applications of data science for roadway and highway agencies
- ✓ Become familiar with various data visualization, data mining and data processing tools
- ✓ Learn about the emerging topics in practical data science for transportation and roadway applications
- ✓ Become familiar with the tools to implement and execute data management and processing methods

## Target Audience

- National Road & Transport Agency Managers
- Highway Engineers and Managers
- Federal and State Road Safety Agencies
- Road Safety Professionals
- Traffic Management Professionals
- Private Consultants & Contractors

## Instructor



**Mehran Mazari, Ph.D.**

**Assistant Professor, California State University Los Angeles**

*Dr. Mehran Mazari* is an Assistant Professor in the Department of Civil Engineering at Cal State LA, specializing in Transportation Infrastructure, Materials and Applied Data Science, Artificial Intelligence (AI) and Machine Learning (ML). He is the faculty director of Sikand Center for Sustainable and Intelligent Infrastructures (SITI-Center) and founder of Sustainable

Infrastructure Materials Research Lab (SIM-Lab) at Cal State LA. His research interests include sustainable and resilient transportation infrastructure, transportation infrastructure materials, and non-destructive evaluation of transportation infrastructure. He is member of technical committees at the Transportation Research Board of National Academies of Science and Engineering and co-chair of the LTPP subcommittee of the Highway Pavement Committee of the American Society of Civil Engineers (ASCE). Dr. Mazari has published more than 60 peer-reviewed journal and conference papers. He has been actively involved in several national and state research projects, including the National Highway Cooperative Research Program (NCHRP) and Federal Highway Administration (FHWA), among others.

# Schedule

**Tuesdays & Thursdays (12:00 – 2:00 PM US EST)**

## **Tuesday, January 31, 2023**

- Introduction and Background Fundamental Concepts of Data Science Big Data and Artificial Intelligence (AI)

## **Thursday, February 2, 2023**

- Sources of Data for Transportation Infrastructure Transportation Data Management and Storage Exploring Knowledge from Roadway Data

## **Tuesday, February 7, 2023**

- Introduction to Data Science Tools Types of Data and Variations
- Tools to Process and Visualize Data

## **Thursday, February 9, 2023**

- Introduction to Data Visualization
- Visualization Tools and Methods
- Best Practices in Data Visualization for Transportation Applications

## **Tuesday, February 14, 2023**

- Story Telling with Data
- How to Present Various Data Sources Extract Patterns from Data

## **Thursday, February 16, 2023**

- Introduction to Artificial Intelligence (AI) Applications AI Methods and Tools for Roadway
- Agencies Innovations and Advances in AI

## **Tuesday, February 21, 2023**

- Introduction to Machine Learning (ML)
- Applications of ML in Transportation
- Innovations and Showcases of Practical ML for Roadway Data

## **Thursday, February 23, 2023**

- Hands-On Data Visualization Tutorial
- Step-By-Step Implementation of a Practical AI Tool
- Roadway Data Sample and Implementation of Data Science Tools

## Registration

- 1,400 USD IRF Members / Groups of 3 or more
- 1,700 USD Non IRF Members
- 1,000 USD US State DOTs & City Officials

Registration: <https://www.irf.global/event/ds23-online-training/>

For any support, please contact [melabyad@irf.global](mailto:melabyad@irf.global)

## System Requirements

### Computer Requirements

#### Operating System

*Windows 7 - Windows 10, Mac OS X 10.9 (Mavericks), macOS Catalina (10.15), Linux, Google Chrome OS, Android OS 5 (Lollipop) - Android 9 (Pie), iOS 10 - iOS 12, Windows Phone 8+, Windows 8RT+*

#### Web browser

Google Chrome (most recent 2 versions)

Mozilla Firefox (most recent 2 versions)

Internet Explorer v11 (with Adobe Flash if running Windows 7)

Apple Safari (most recent 2 versions)

Microsoft Edge (most recent 2 versions)

#### Internet connection

1 Mbps or better (broadband recommended)

#### Hardware

2GB of RAM (minimum), 4GB or more of RAM (recommended)

Microphone and speakers (USB headset recommended)

# GLOBAL

KNOWLEDGE • ADVOCACY • EDUCATION  
BEST PRACTICES • BUSINESS OPPORTUNITIES

**Better Roads. Better World.**



**IRF**<sup>®</sup>  
— GLOBAL —

## **International Road Federation**

### **GLOBAL HEADQUARTERS & SECRETARIAT**

Madison Place

500 Montgomery Street, Fifth Floor

Alexandria, VA 22314 USA

Telephone: +1 703 535 1001 Facsimile: +1 703 535 1007

### **REGIONAL OPERATIONS**

Brussels, Belgium | Accra, Ghana

Nairobi, Kenya | Kuala Lumpur, Malaysia

### **TRAINING INSTITUTES**

Alexandria, VA USA | Dubai, UAE | Zagreb, Croatia

**[www.IRF.global](http://www.IRF.global)**