

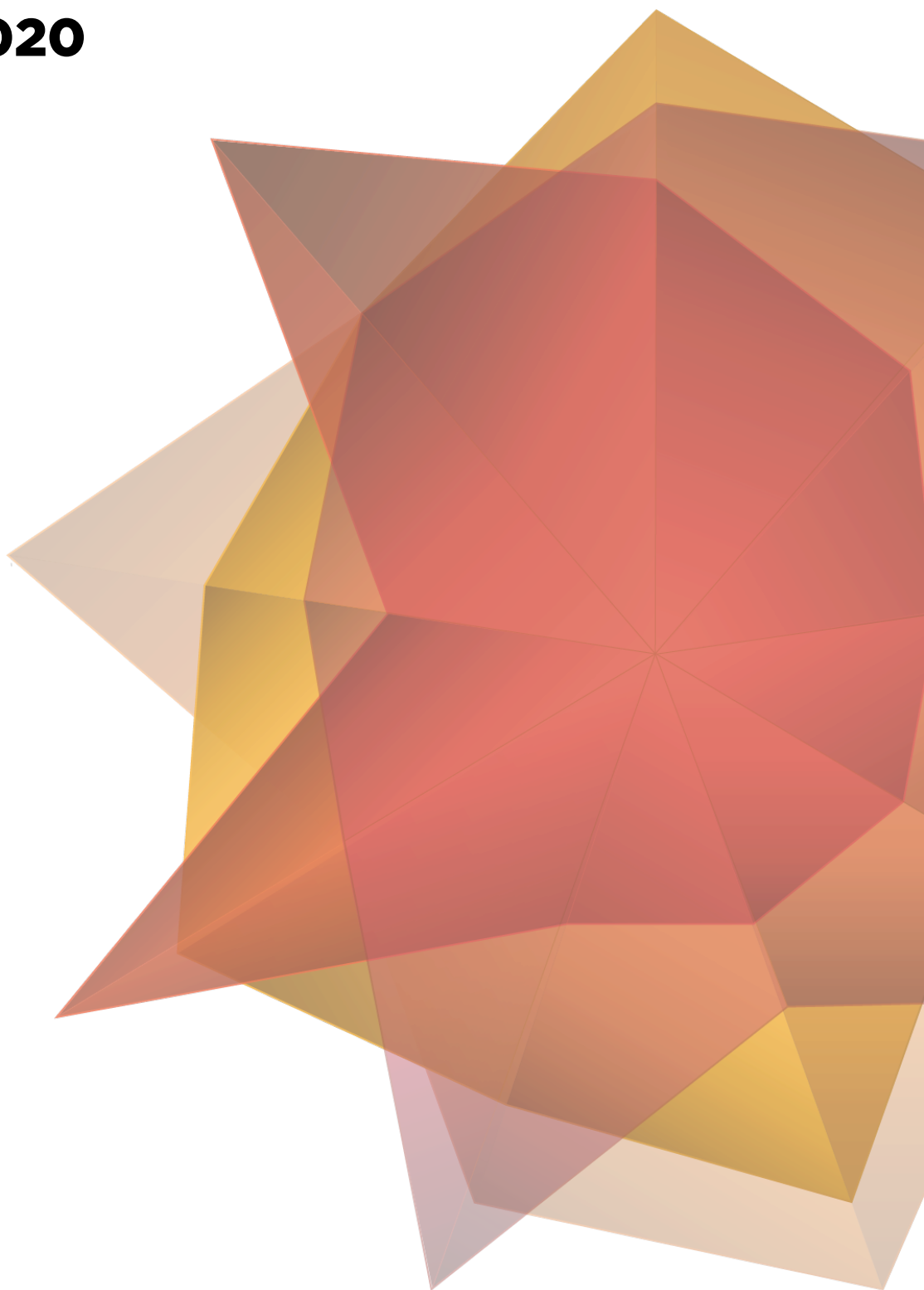
BIG DIVE

Edition 2020

#BIGDIVE2020

A project by

top~ix
WE DO CONNECTIONS



BIG DIVE 2020

BIG DIVE is back in a brand new format!

BIG DIVE is improving every year: learning from past experiences, carefully integrating **alumni feedback** and staying always **up to date on the latest innovation topics and market trends**.

This is the reason why, beyond keeping offering great teaching contents and **top-class lectures from the most valuable experts**, this year we decided to change our core format, moving from the four consecutive weeks program to the **four stand-alone modules**.

You can choose to follow one, two, three or all four modules, and to boost a specific skill or to attend a complete and immersive study path in Data Science, Machine and Deep Learning, Data Visualization and Data Engineering.

Module 01	Module 02	Module 03	Module 04
From Zero to Data Science with Python	Machine and Deep Learning intensive	Communicating and Visualizing Data	Deep Dive into Data Engineering
// Sept. 14-18	// Oct 12-16	// Nov 16-20	// Nov. 30 - Dec. 4

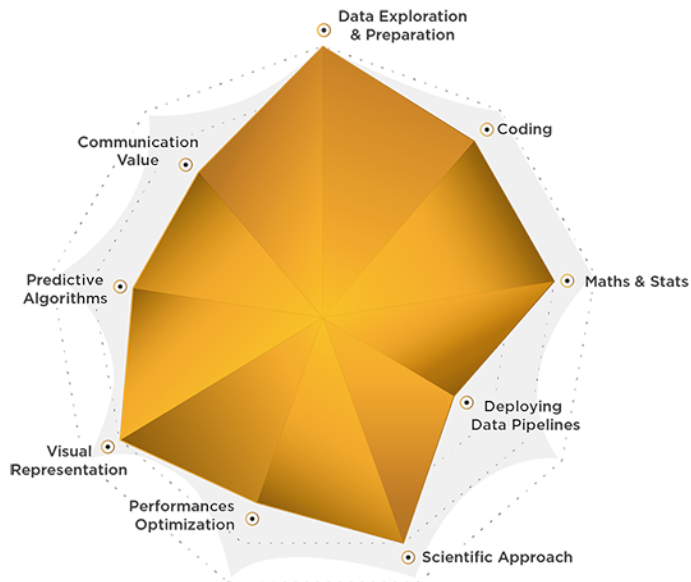
Bonus Event
Data HACKDROME (A.K.A. a long Data Hackathon)
// 2021 (t.b.d.)

You can choose to follow one, two, three or all four modules!

BIG DIVE Modules

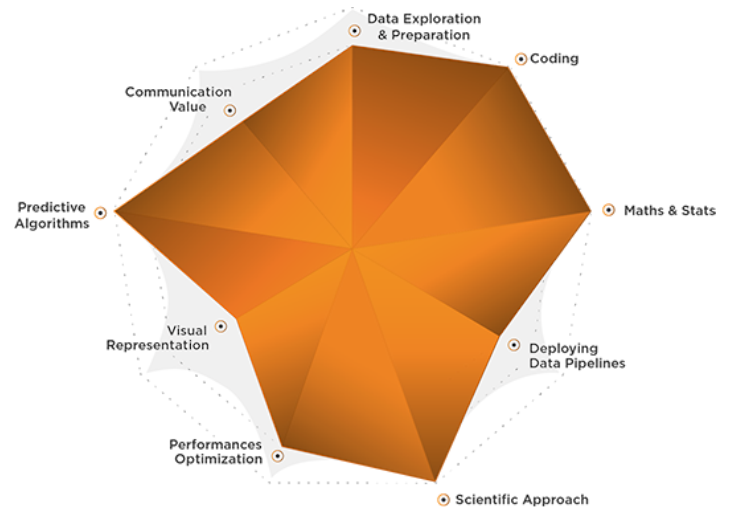
Module 01

From Zero to Data Science with Python



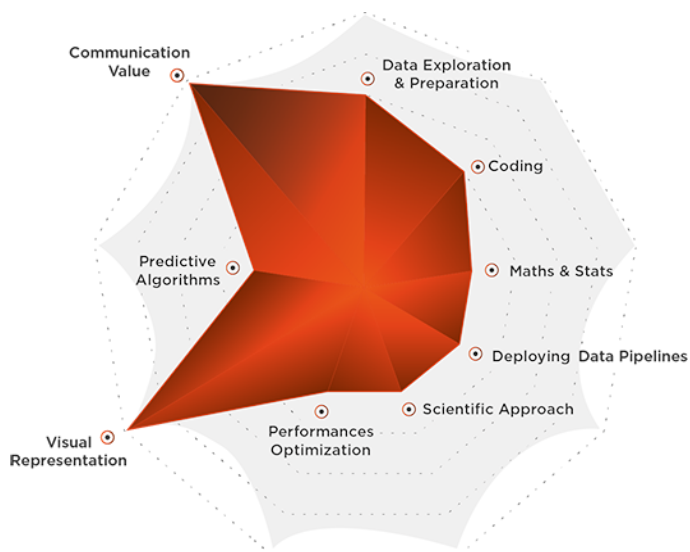
Module 02

Machine and Deep Learning intensive



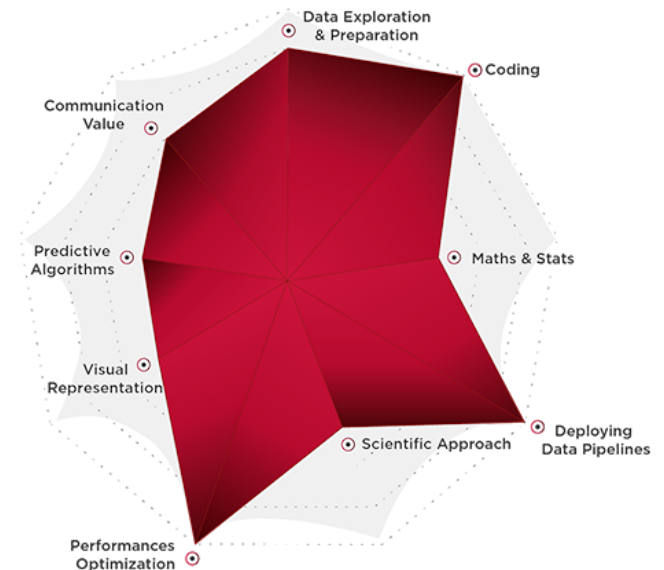
Module 03

Communicating and Visualizing Data



Module 04

Deep Dive into Data Engineering



Module 01

From Zero to Data Science with Python

// September 14-18



The course is aimed at **providing Data Science Fundamentals** using a hands-on approach and leveraging the powerful and comprehensive **Python language** and libraries. It is the perfect entry-point to **start your career as a Data Scientist** and, if you are a beginner, your pass for the advanced **BIG DIVE** modules delivered in 2020.

We'll teach you how to program in Python on Jupyter Notebooks, how to find, explore and clean datasets, how to create graphs and simple - but effective - data visualizations, and how to use some of the most common Machine Learning models.

Target

The course is perfect for people with **previous coding knowledge** willing to re-skill or up-skill their careers in the Data sector. **Maths and statistics** or **computer scientist** backgrounds are welcome. Great match: Python beginners or other programming languages developers, **STEM students** (from High School to PhD), analyst employees to be trained, R users who want to shift to Python, MOOC students who want to prove themselves in the real world.

Syllabus

- / Programming with Python (data structures, control flow, functions, ...)
- / Setting up and usage of Jupyter Notebooks for data projects
- / Key statistics concepts with NumPy
- / Handling different data formats with Pandas
- / Using Matplotlib and Seaborn for data visualizations
- / Preparing dataset and basic Machine Learning with Sklearn
- / Fundamental steps to create your data science project and maximize its impact

Resident teachers and lecturees

- / **Stefania Delprete** - Data Scientist at TOP-IX [resident]
- / **Nicola Occelli** - Engineer at TOP-IX [resident]
- / **Daniele Tonini** - Target Research [Lecture about Time series and Knime]
- / **Maurizio Napolitano** - FBK [Lecture about GeoPandas]

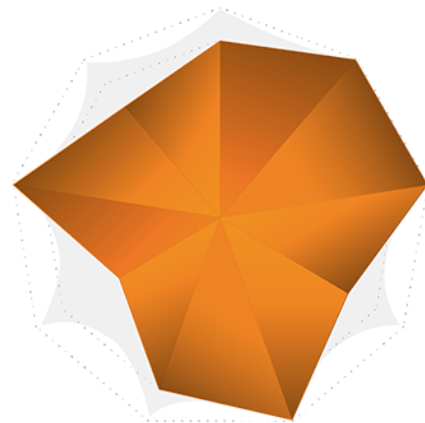
Pricing

EARLY PRICE		FULL PRICE	
Student	Regular	Student	Regular
€279.00	€349.00	€379.00	€449.00

Module 02

Machine Learning and Deep Learning intensive

// October 12-16



*This immersive week is aimed at **pushing forward Machine Learning and Deep Learning** skills in the specific field of Computer Vision. It starts with a Machine Learning introduction and continues with **advanced Neural Networks and backpropagation** lectures where you'll explore **Computer Vision** techniques on a dataset of images. The workshop ends with lessons in **Transfer Learning**.*

By attending you'll receive a boost in Deep Learning by using TensorFlow and Keras.

Target

This **advanced course** is perfect for people with a **solid Python language knowledge** and a robust background in maths and stats.

The course is perfect for data analysts, junior data scientists, data engineers who want to acquire ML/DL skills, Python developers, and PhD students who want to prove themselves in the real world. **By attending BIG DIVE Module 01 you will have all the necessary prerequisites.**

Syllabus and teachers

- / Introduction to Machine Learning and Data-Driven projects
- / Overview of ML tasks and hands-on sessions on ML algorithms with Sklearn
- / Statistical Learning Theory - with practical exercises!
- / Neural Networks and Backpropagation
- / Building from scratch and training Neural Networks with Tensorflow and Keras
- / Brief history of Deep Learning, with focus on Computer Vision
- / Building and training deep convolutional NNs with Tensorflow and Keras
- / Transfer Learning: feature extraction and fine-tuning

Resident teachers

- / **André Panisson** - Research Leader at ISI Foundation - Data Science Lab
- / **Alan Perotti** - Artificial Intelligence Researcher and Data Scientist
- / **Stefania Delprete** - Data Scientist at TOP-IX
- / **Nicola Ocelli** - Engineer at TOP-IX

Pricing

EARLY PRICE		FULL PRICE	
Student	Regular	Student	Regular
€679.00	€749.00	€779.00	€849.00

Module 03

Communicating and Visualizing Data

// November 16-20



The module is focused on exploring the **data visualization** field through **computational design approaches and information and communication theory**. By attending the course, the participants will learn to develop visual, interactive and web-based projects that make raw data perceivable through digital experiences and are able to **communicate value and insights** to different stakeholders (from manager and executives, to generic audience).

Target

This course is designed for **all the people who are interested in deepening the methodologies related to visualizing and communicating the value** of a dataset or of a data-driven project. Some examples of candidates who might be a perfect match are:

- / People with a solid background in graphic design who want to dive into an computational design journey and to create interactive web-based visualizations
- / UI / UX practitioners and software developers who want to add the Data Visualization skill to their toolbox
- / Journalists and humanists who are not afraid to write code
- / Data scientists or data analyst who want to add to their belt the tools and the mindset to create compelling “from data to value” stories

Syllabus

- / Foundations and best practices of information theory and data communication applied to a data project
- / Understanding the different Data Visualization approaches: from fully-computational (like D3.js) to point-and-click platforms (such as Tableau)
- / A light introduction to D3.js programming paradigm
- / Deep dive into Vega Framework
- / Prototyping effective data visualizations following the design process

Resident teachers

- / **Fabio Franchino** - Founder and Computational Designer at TODO
- / **Laura Pippinato** - Designer at TOP-IX

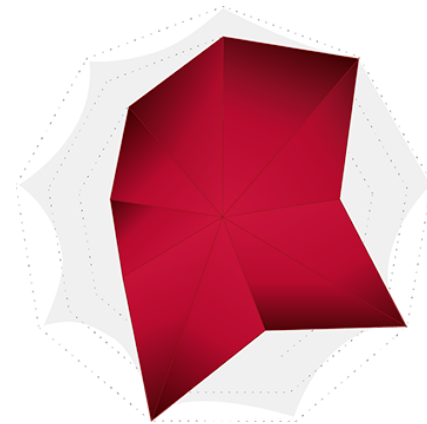
Pricing

EARLY PRICE		FULL PRICE	
Student	Regular	Student	Regular
€399.00	€479.00	€499.00	€579.00

Module 04

Deep dive into Data Engineering

// November 30 – December 4



Preparing, handling and storing a big amount of data play a key point in the data-driven processes. It's unfortunately common for organizations to misunderstand the data engineer and data scientists positions. According to a recent estimation, a good data team has two or three data engineers for every data scientist. The **market demand for data engineers is therefore expected to grow rapidly** in the next months and years.

Target

The course is **perfect for people with solid coding and system administration knowledge** willing to re-skill their careers as Data Engineer. An ideal target is therefore represented by System Administrators, Cloud Engineers, DevOps, Backend or Full-stack Software Developers. At the same time this is the unique **opportunity for Data Scientists to touch and explore the entire data life-cycle**, adding to their belt:

- / Ability to manage large (for real) data volumes
- / A full data pipelines understanding
- / Ability to move algorithms and models into production environments

Syllabus

- / Understanding common technical requirements and problems in Big Data projects
- / Getting knowledge of data structures and schema best practices and standards
- / Extracting and gathering large amounts of structured and unstructured data from a variety of data sources
- / Writing complex data queries (to be managed through SQL/NoSQL databases), aggregation, transformation and filtering scripts
- / Designing and implementing scalable API Services based on a micro-services architecture in frameworks such as Lambda architecture
- / Implementing state-of-the-art ETL flows and data pipelines in serverless frameworks (i.e. Cloud)
- / Acquiring techniques and methodology for implementing predictive algorithms (ML) in production environments

Pricing

EARLY PRICE		FULL PRICE	
Student	Regular	Student	Regular
€679.00	€749.00	€779.00	€849.00

Application, Logistics and Packages

Application process

February 17	Registration Opening
May 31	Early Bird Expiring
One week before each module starts	Registration Closing

The application process starts with a **self-evaluation** of the prerequisites needed to access and fully enjoy the course. If you apply for “Machine and Deep Learning intensive” and “Deep Dive into Data Engineering” modules, you **will be asked to complete an additional test** to verify your software development skills.

Applicants selected before the official end of registration will be asked to pay a **deposit (40% of the total due fee)**.

The selection process will continue till the official registration closure in order to create progressively classes of a **minimum of 8** and **maximum 20 students**.

Logistics

Lesson hour is from **Monday to Friday from 9:30 am to 4:30 pm**. Additional time will be reserved for special lectures, exercises and “homework”.

Venue: **TOP-IX headquarters in Torino** (Via Maria Vittoria, 38).

Training language: **English (if there is at least one foreign student) or Italian (if all the students are Italian)**. One or more lectures might be in English due to the speakers’ nationality.

Accommodation, food and travel: these expenses are not included in the course fee.

Promotional packages

	On the total price according to your profile
Buy 2 modules	Save 10%
Buy 3 modules	Save 15%
Buy 4 modules	Save 20%

FINAL PROJECT DATA HACKDROME

// 2021 (to be defined)

For Attendees

It is an **extensive (4 days) hackathon** aimed at developing a data project starting from high-quality datasets and cutting-edge challenges provided by our Data Sponsors.

For student in BIG DIVE 2020 this is a unique opportunity to put in practice the knowledge learned during the modules. At the same time the event is open also to past BIG DIVE Alumni and data experts from all around the world **willing to prove themselves in a state-of-the-art competition based on real problems from data world.**

Attendees participate in groups and have access to top-class mentors.

Best projects are awarded with money prizes and opportunities from the sponsors. The entrance fee is kept to the minimum to secure a proper number of participants.

For Data Sponsors

Companies, institutions or startups have **the chance to sponsor the event and to offer a dataset + a real-world challenge.**

Sponsors have back a project implementation and **full access to all the code and the models** developed by the Divers during the session.

Sponsorship package **includes the participation of one person** in the entire course (the four training modules).

Finally, Data Hackdrome is a fast track to access high-level people profiles as far as **talent-scouting and recruiting** is concerned.

Data Sponsorship

Large Corporates	We ask:
	€7,000 + vat (*)
	A BIG-enough and well-prepared dataset (including explanatory documentation).
	The right to publish project results (after validation by the sponsor on texts and numbers) giving proper credits.
	To share the participation in BIG DIVE as sponsor on their own communication channels.
	We provide:
	Sponsor logo will be featured on the course website and all other promotional materials.
	Up to 3 tickets for the final demo event.
	Access to the project output (results, code and documentation) produced by DIVERS and the right to share it internally or publicly by mentioning the BIG DIVE initiative and authors.
	Free access to the full course (4 modules) for one person (given that course MUST-HAVE requirements are satisfied). Class attendance is required.
Startup / SME / PA / Non Profit	We ask:
	€ 3.500 + vat (*)
	A BIG-enough and well-prepared dataset (including explanatory documentation).
	The right to publish project results (after validation by the sponsor) giving proper credits.
	To share the participation in BIG DIVE as sponsor on their own communication channels.
	We provide:
	Sponsor logo will be featured on the course website and all other promotional materials.
	Up to 2 for the final demo event.
	Access to the project output (results, code and documentation) produced by DIVERS and the right to share it internally or publicly by mentioning the BIG DIVE initiative and authors.
	Free access to the full course (4 modules) for one person (given that course MUST-HAVE requirements are satisfied). Class attendance is required.

BIG DIVE Organizers and Main Contacts

BIG DIVE is a project by **TOP-IX Consortium**.

Axant.it, **ISI Foundation** and **TODO** are key local partners of the project.

BIG DIVE course will be held at TOP-IX Consortium Headquarters located in Via Maria Vittoria, 38 - 10123 Turin, Italy.

For further information about BIG DIVE, please contact us at info.bigdive@top-ix.org.

You can also reach out us by phone at [+39 011 8390191](tel:+390118390191). As this is the TOP-IX office number, please specify that your call is related to BIG DIVE.

Useful links:

Web: <https://www.bigdive.eu>

Facebook: <https://www.facebook.com/bigdive.eu>

Twitter: https://twitter.com/bigdive_eu

Instagram: <https://www.instagram.com/bigdive.eu>