

Your Course: Python for Data Analysis and Visualization

Unlock the secrets of machine learning in the heart of Berlin! This immersive course not only equips you with Python mastery and AI toolkits but also offers a rich blend of hands-on exercises, peer feedback, and networking opportunities in Europe's tech capital.

General Information:	
Date	15 - 19 April 2024 (Monday till Friday)
Teaching units	11 x 90 min
Location	Berlin/Germany
Price	695 €
Minimum-Maximum Number of Participants	8-14
Accommodation	not included / self organised (with EIAPD support)
Your trainer	Dr. Alexander Britz



Course Description

Discover the future of technology. Master the fundamentals of **Machine Learning with Python**, all set within the culturally rich environment of Berlin. Over the span of this course you will familiarize yourself with the core Python libraries for machine learning, including Scikit-Learn and PyTorch. Next to these, you will learn good coding practice, e.g. using version control with Git & Github and working in virtual environments. The course is highly interactive and features a balanced mix of input lectures and hands-on exercises. You will further learn how to exploit AI-based tools to autonomously troubleshoot and advance your coding skills. The course culminates in starting your own machine learning project, either with your personal data or using a free and online available data set. Besides learning the technical skills, you will network with Python and Machine Learning enthusiasts from all over Europe and immerse yourself in Berlin's transformative history and creative present.

Objectives of the mobility	<ul style="list-style-type: none"> • Understand the capabilities of Python for machine learning • Establish good coding practice, e.g. with version control and using virtual environments • Master the well established Python libraries PyTorch and Scikit-Learn
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	<ul style="list-style-type: none"> • Acquire a feeling of effectiveness in solving problems and advancing your skills on your own • Apply the newly acquired skills and start your own machine learning project
Activities	<p>The course will be highly interactive and is split 50/50 into lectures and exercises.</p> <ul style="list-style-type: none"> • Exercises: You will work in (small) groups on coding tasks and explore them in depth. • Peer exchange: You will meet, discuss and exchange with other young, aspiring Python programmers. • Lecture and presentation by instructor: Lecture scripts will be handed out to all participants. <p>Additionally you will have the opportunity to ...</p> <ul style="list-style-type: none"> • Experience Berlin and delve into its rich history and immerse yourself into its vibrant contemporary cultureNetwork and exchange with colleagues from other European universities. EIAPD will facilitate a session to identify possibilities for further cooperation among participants.
Learning outcome and impact	<p>After the course you will be able to ...</p> <ul style="list-style-type: none"> • understand of the real-world uses of Python in machine learning and artificial intelligence • maintain version control with Git&Github and use virtual environments • build your own first machine learning models • exploit AI-based tools and traditional internet research to advance your programming skills
Target Group and Prerequisites	<ul style="list-style-type: none"> • Anyone keen on learning machine learning with Python • You should have prior experience with Python, e.g., using the commonly used libraries NumPy, Matplotlib or Pandas • You will bring your own laptop to work with

Your Destination: Berlin

Further information
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No further explanations needed.

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Monday 15 April	Tuesday 16 April	Wednesday 17 April	Thursday 18 April	Friday 19 April
09.00-12.15	09.00-12.15		09.00-12.15	09.00-12.15
<ul style="list-style-type: none"> - Welcome & Intro of Trainer and Participants - Introduction to machine learning with Python - Virtual Environments - Supervised Learning with Scikit-Learn: Classification (lecture) 	<ul style="list-style-type: none"> - Version control with Git & Github (lecture & exercise) - Supervised Learning with Scikit-Learn: Classification (lecture & exercise) 	Excursion	<ul style="list-style-type: none"> - Building a neural network step-by-step (lecture & exercise) - Using neural networks and PyTorch for classification (lecture & exercise) 	<ul style="list-style-type: none"> - Input: Preparing your own data sets - Practice lab: start your own projects - Peer review and Trainer feedback to support and advance your own projects
12.15-13.30	12.15-13.30		12.15-13.30	12.15-13.30
Lunch	Lunch		Lunch	Lunch & Departure
13.30-15.00	13.30-15.00		13.30-15.00	
<ul style="list-style-type: none"> - Supervised Learning with Scikit-Learn: Classification (exercise) 	<ul style="list-style-type: none"> - Introduction to Artificial Neural Networks 	<i>Individual Learning</i>	<ul style="list-style-type: none"> - Continue exercise - Input: Running on GPU, saving and loading models, convolutional neural networks 	

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