By Qwasar

Web4Jobs by Qwasar Machine Learning Program
Full Time

Course Packet

Introduction

Web4Jobs by Qwasar Silicon Valley offers a competency-based certification program in the Machine Learning field. The Web4Jobs by Qwasar Machine Learning Engineer program will teach students the scope of skills necessary to become a machine learning engineer. This program focuses on the fundamentals of machine learning and data engineering, as well as strong fundamentals in data structures and algorithms. Learners will cover fundamental computer programming concepts including arrays, strings, algorithms, pointers, hash data structures, and software architecture, before moving on to focusing on front-end and back-end languages including JavaScript, IDE, Terminal, C IDE Assembly, Python, Pytorch, Jupyter, Panda, Tensor Flow, Keras, and Kaggle. Our projects include a focus on databases, architecture, large and complex data sets, and deploying to the cloud.

Learners are also expected to complete 30-40 technical interview role plays to prepare for real job interviews, and undergo resume and cover letter reviews similar to peer code reviews.
Students Will Learn...

- Python, Pytorch, Jupyter
- Keras, Panda, Tensor Flow, Kaggle
- Structured problem solving and debugging,
- Advanced algorithms
- Advanced data structures and databases
- C
- Cloud-hosting and app deployment
- Extensive use of industry-standard tools such as Git, IDEs, and terminal commands.

What to Expect

Remote training program
Students will gain experience building and developing software. By the time students complete the program they will earn an industry-standard certification in Full Stack Development from Web4Jobs by Qwasar.

No tests, only projects.
Each focus of this program will involve completing projects in teams as well individually to ensure students are learning and applying their knowledge.

Build apps and sites with groups and on your own
Complete end-to-end software projects that cover both front-end and back-end development. Build software applications and websites in common content management systems. Work in groups and complete individual portfolio projects.

Showcase projects to recruiters
Students will showcase approximately 5 to 20 projects representing thousands of lines of code for employers and interviews.

40-hour-per-week time commitment
Students will need to devote 40 hours a week minimum in order to fully learn the content necessary to pass the course and become a data scientist.

Interview training
As part of this program, students will complete technical interviews to prepare for job applications. Students will be guided on how to navigate challenging technical interviews including whiteboard coding.

Write ~100K lines of code across 20 projects
On average, students will write about 100,000 lines of code as they complete exercises, software projects, and coding challenges throughout the program. This high-quantity coding means students develop confidence in their code and applied software architecture design and implementation experience.

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Course meeting schedule

Level	Season	Project Name	Description
LEVEL 1 – NOOB (3 MONTHS)	Preseason	Bootcamp Python	Scripting, variables, functions, arrays, classes, strings, sorting, data structures, basic algorithms, and scraping data
	Preseason	My DS Babel	Translate data structures from SQL to CSV and CSV to SQL
	Preseason	My Select Query	Return an array of strings from a CSV file with two arguments
	Preseason	My NBA Game Analysis	Creating a function that receives an array of plays and returns a summary of plays that happened in a given NBA game, then print the function in a readable manner
	Season 1	Project 1: Bootcamp C	The coding environment, using the terminal functions, loop statements, types, variables, pointers and strings, arrays and pointers, memory allocation/structures, basic and more complex algorithms, a nested loop with if statements, advanced shell, pipe, multiple commands, 2D arrays and strings
	Season 1	Project 2: PrintF	Unlimited arguments, conversion between types and bases
LEVEL 2 - APPRENTICE 3 MONTHS	Season 2 AI/ML	My Mr Clean	Collect data, store data, format or standardize formatting of said data, basic statistics on the data (generating more data), basic data filtering or cleaning, basic data visualization
	Season 2 AI/ML	Bootcamp Data Science	Jupyter, Jupyter in a terminal, NumPy (library for data analysis), arrays and 2D arrays, sorting, arranging/ordering, Pandas (library for data manipulation and analysis), Matplotlib (library for plotting), model evaluation
	Season 2 AI/ML	My Open the Iris	The first end-to-end project: loading, summarizing, visualizing, evaluating algorithms, and making predictions, applied to the dataset of the flower Iris
	Season 2 AI/ML	My First Scraper	Use python libraries and Beautifulsoup to return a CSV with actionable data including requesting, extracting, transforming, and formatting data from an HTML repository
	Season 2 AI/ML	My Tu Verras	Foundational data analysis concepts, data visualization and evaluation, data cleaning, correlation coefficients, and prediction
	Season 2 AI/ML	My M and A	Multi-source data merge and integration, data storage, data transformation, CSV and SQL databases
	Season 2 Full Stack	My Convex Optimization	Performance measure, convex functions, gradient descents, simplex algorithm, finding/building a solution that's the most optimal/optimized
	Season 2 Full Stack	My Linear Regression	Least square regression, linear regression, gradient descent for linear regression, convergence rate
	Season 2 Full Stack	My MobApp Studio	Produce data visualizations and a report on the mobile app market, categories, and any related or useful data related to building a new mobile app
	Season 2 AI/ML	My Netflix	Recreate the Netflix TV/film recommendation system

LEVEL 3 - CONFIRMED	Season 3 AI/ML	Visa for Lisa	Build a model that will classify how much loan a user can take out. Loan offers are based on the user's marital status, education, number of dependents, and employment(s). You can build a linear model for this project.
	Season 3 AI/ML	Classically Punk	Build an application in Python that automatically classifies different musical genres from an audio snippet.
	Season 3 AI/ML	My_Paypal	Companies that involve a lot of transactions with the use of cards need to find anomalies in the system. Build a fraud detection model on credit cards. Use the transaction and their labels as fraud or non-fraud to detect if new transactions made by the customer are fraud or not.
	Season 3 AI/ML	Atari Games	Learners must solve Atari games using deep learning. Learners use neural networks to solve problems using reinforcement learning and the Deep Q-Network (which represents the optimal action-value function as a neural network, instead of a table). Atari games have a large variety of screens, among other things, rendering it unsolvable using a Q-table. Learners must create an algorithm that "plays" Atari video games better than humans (and using all 49 Atari games to train the model is recommended). GPUs are becoming indispensable for learning problems that involve large neural networks. We will be using GPUs for training networks on the larger-scale tasks.