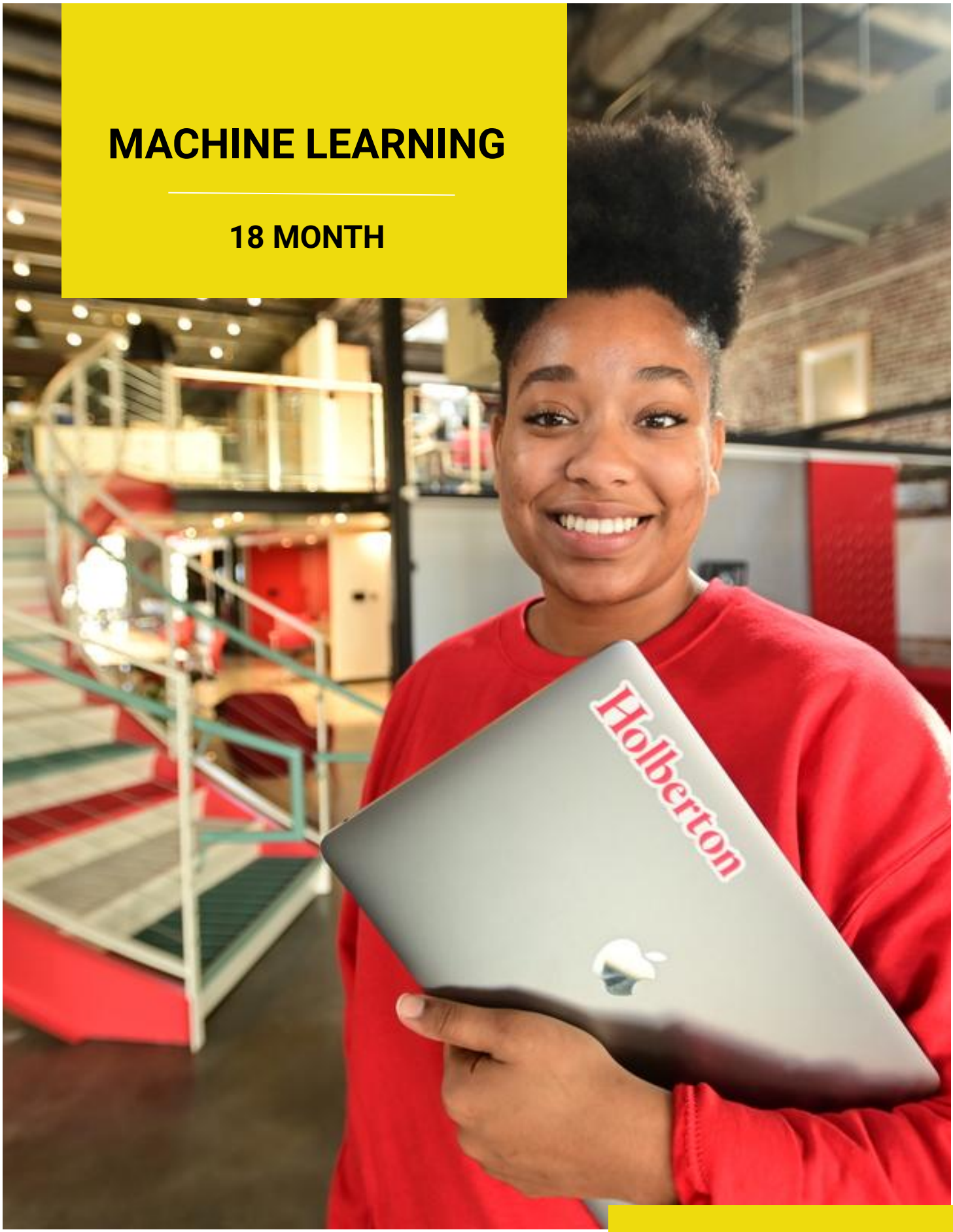
MACHINE LEARNING

18 MONTH



Holberton

What Your Students Will Learn

Foundation of Software and Engineering

This foundational knowledge of how computers and programming languages work will allow your students to optimize and debug anything later on in their professional career. Students will also begin working with algorithms and data structures which are essential foundations for great Software Engineers - the type that the best companies hire.

In the first sprint of foundations, Students will work in C and Unix programming, graphical programming, data structures, assembly language, and algorithms as well as reverse engineering and security protocols.

From there, they are introduced to higher-level languages, increasingly advanced algorithms, space and time complexity, database management, and front-end programming. Using the latest technologies, they will begin to create a complete web application project that will span the rest of the foundation sprints.

The final sprint of foundations emphasizes automation, scalability, and reliability, so that students are familiar with the infrastructure and best practices similar to those in tech powerhouses. Alongside a continuation in web development, they will also advance in algorithmic understanding, technical writing, debugging, and project management.

Examples of Projects

- Write printf function
- Web stack debugging
- Clone a marketplace
- Code a shell

Foundation of Computer Science & Software Engineering

1st Sprint

01

- Git and command line editors
- Introduction to Bash
- C - first statements
- C - pointers
- C - recursion
- C - static library
- C - memory allocation
- C - preprocessor
- C - variadic functions
- C - bit manipulation
- C - file I/O
- Singly linked lists
- Create your own printf
- Create your own basic Shell

2nd Sprint

02

- Python - first statements
- Python - import and modules
- Python - data structures
- Python - exceptions
- Python - classes
- Python - inheritance
- Python - file I/O
- Python - JSON serialization/deserialization
- HTML/CSS introduction
- SQL - basic queries
- SQL - join queries
- C - dynamic libraries
- C - makefiles
- Doubly linked lists
- Stack and Queues
- Hash tables
- Sorting algorithms
- Binary trees
- Bash - scripting
- Unix processes and signals
- Regex
- Network introduction

3rd Sprint

03

- Python - Object-relational mapping
- Python - Web framework
- Python - RESTful API
- Python - web scraping
- Javascript - first statements
- Javascript - objects
- Javascript - scopes and closures
- Javascript - web scraping
- Search algorithms
- SSH
- SSL certificate
- Web server
- Load balancer
- Firewall
- MySQL primary-replica
- Server monitoring
- Code deployment
- Postmortem
- Webstak debugging
- Portfolio project

Specialization

Specialization in Machine Learning

Lead the Next Tech Revolution

Machine Learning is the technology behind the most exciting innovations today. Self driving cars, voice-controlled personal assistance, AI to help doctors diagnose diseases: All of these were developed with the help of Machine Learning software engineers.

This curriculum is ideal for people who enjoy math, and have an eye for mixing intuition with problem solving.

During this specialization, students will be introduced and exposed to the core technologies and theories in the fields of computer vision, natural language processing, recommender systems, autonomous driving, and more.

Students will also learn how to apply these concepts using technologies such as Pandas, Numpy, Tensorflow, and Keras. Throughout their study, they will dive deep into supervised, unsupervised and reinforcement learning, as well as the related mathematical principles.

Examples of Projects

- Object Detection
- Facial Recognition
- Q&A Chatbot
- Stock Predictions

MACHINE LEARNING OVERVIEW

Machine Learning

Sprints 1 to 3

Foundations of Computer Science & Software Engineering

4th Sprint

04

Mathematics
- Linear Algebra
- Calculus
- Probability

Supervised Learning
- Classification
- Regularization
- Optimization
- Error Analysis
- Convolutional Neural Networks
- Deep Convolutional
- Architectures
- Transfer Learning
- Object Detection
- Face Verification
- Neural Style Transfer

5th Sprint

05

Mathematics
- Advanced Probability
- Advanced Linear Algebra

Supervised Learning
- Recurrent Neural Networks
- Deep Recurrent Architectures
- Natural Language Processing
- Time Series Analysis

Unsupervised Learning
- Dimensionality Reduction
- Clustering
- Hidden Markov Models
- Neural Style Transfer

6th Sprint

06

Reinforcement Learning
- Multi-armed bandit
- Epsilon Greedy
- Deep Reinforcement Learning

The Pipeline
- Bias Avoidance
- Pandas
- RESTful APIs
- MapReduce
- SQL and NoSQL Databases
- Google Cloud Platform
- Hadoop

Portfolio Project
Pitch and develop a Machine

GRADUATE

Contact us

Connect with our team

Our projects-based programs are designed with your success in mind.

Along with Machine Learning, we offer emerging technology Specialization programs:

- Augmented Reality & Virtual Reality,
- Full-stack Web Development,
- Low Level and Algorithms,
- DevOps,
- Front-end Web Development,
- Back-end Development,
- And many more, depending on your needs.

All programs can be customized based on your needs; you specify the length, the pace, and the pedagogical goals. Let's get started

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