



UDACITY  
FOR ENTERPRISE

THE SCHOOL OF BUSINESS

# AI Product Manager



NANODEGREE SYLLABUS

# Overview

This Nanodegree Program is created in collaboration with:



This ultimate goal of the AI Product Manager Nanodegree program is to help learners acquire the unique skills that define the success of a machine learning product. Learners will identify business cases that can benefit from AI technologies, and implement best practices for designing datasets and product prototypes. A graduate of this program will be able to:

- Decide to use an unsupervised, supervised, or deep learning model when approaching a specific problem.
- Design a data annotation job to create a novel dataset.
- Build predictive models using automated machine learning tools.
- Compare the performances of learned models using suitable metrics.
- Prototype, test, and iterate on an AI product.

This program is comprised of 4 courses and 3 projects. Each project you build will be an opportunity to demonstrate what you've learned in the lessons. Your completed projects will become part of a portfolio that will showcase your newly acquired skills in product management, design principles, and training and evaluating machine learning models.

## Program Information



### TIME

2 months  
Study 10 hours/week



### LEVEL

Foundational



### PREREQUISITES

Basic computer skills and experience navigating online.



### HARDWARE/SOFTWARE REQUIRED

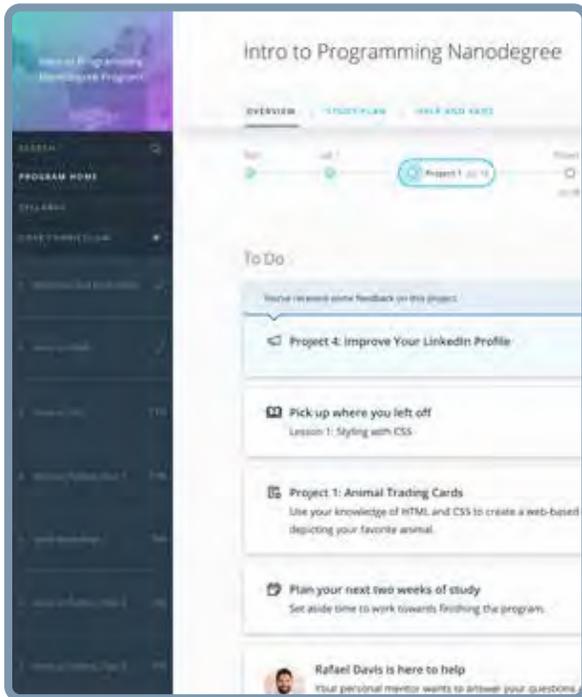
Access to the internet and a 64-bit computer.



### LEARN MORE ABOUT THIS NANODEGREE

Contact us at [enterpriseNDs@udacity.com](mailto:enterpriseNDs@udacity.com).

# Our Classroom Experience



## REAL-WORLD PROJECTS

Learners build new skills through industry-relevant projects and receive personalized feedback from our network of 900+ project reviewers. Our simple user interface makes it easy to submit projects as often as needed and receive unlimited feedback.

## KNOWLEDGE

Answers to most questions can be found with Knowledge, our proprietary wiki. Learners can search questions asked by others and discover in real-time how to solve challenges.

## LEARNER HUB

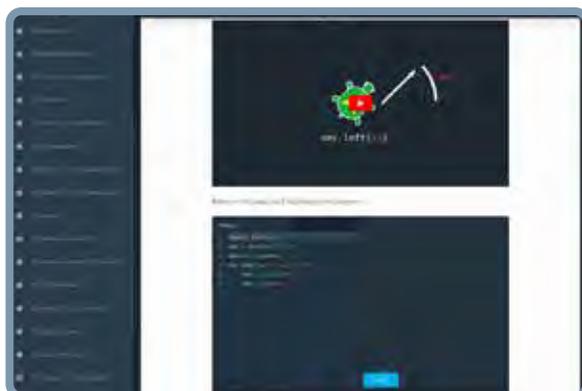
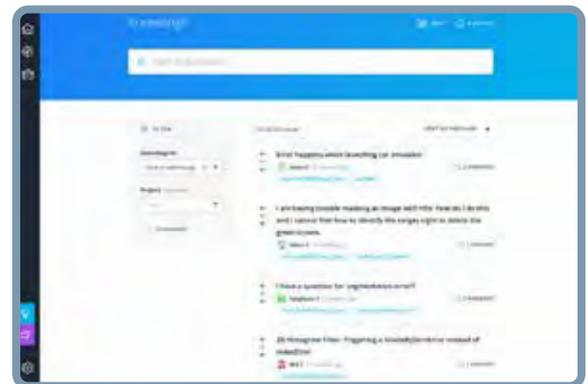
Learners leverage the power of community through a simple, yet powerful chat interface built within the classroom. Learner Hub connects learners with their technical mentor and fellow learners.

## WORKSPACES

Learners can check the output and quality of their code by testing it on interactive workspaces that are integrated into the classroom.

## QUIZZES

Understanding concepts learned during lessons is made simple with auto-graded quizzes. Learners can easily go back and brush up on concepts at anytime during the course.



## CUSTOM STUDY PLANS

Mentors create a custom study plan tailored to learners' needs. This plan keeps track of progress toward learner goals.

## PROGRESS TRACKER

Personalized milestone reminders help learners stay on track and focused as they work to complete their Nanodegree program.

# Learn with the Best



**Alyssa Simpson-Rochwerger**

VP OF PRODUCT AT FIGURE EIGHT

Alyssa is a customer-driven product leader with proven experience in scaling products from conception to large-scale ROI. As Director of Product Management at IBM Watson, she oversaw the development of a large portfolio of AI products.



**Kiran Vajapey**

SENIOR HCI DEVELOPER AT FIGURE EIGHT

Kiran Vajapey is an HCI Developer working on creating new products and interfaces to advance AI in industry. Kiran has a Master's in CS from Cornell and has previous experience in HR Tech, Fintech, and product architecture.



**Meeta Dash**

DIRECTOR OF PRODUCTS AT FIGURE EIGHT

Meeta Dash is Director of Products at Figure Eight, which builds AI products to help enterprises solve real world use cases. An NIT India BTech and UC Davis MBA graduate, she's built AI and Voice/Video products at Cisco, Tokbox and CA.



**Kirsten Gokay**

ASSOCIATE PRODUCT MANAGER AT FIGURE EIGHT

Kirsten received her Bachelor's degree in Linguistics from UC Davis. With a background in Customer Success, she's passionate about solving complex problems with easy-to-use products.



## Course 1: Introduction to AI in Business

AI enables innovation by automating tasks that were previously repetitive, and time-consuming. Today, it seems like every business either depends fundamentally on the capabilities of AI, or seeks to rapidly upskill its workforce to compete in the new, AI world. Learn the foundations of AI and machine learning, starting with the unsupervised and supervised models that are used in industry today. Understand how to develop a clear, narrow business case for an AI application. Learn how and when to use AI in a product based on business metrics and data availability.

### LESSON TITLE

### LEARNING OUTCOMES

#### INTRODUCTION TO AI AND MACHINE LEARNING

- Learn the basics of AI and machine learning, and how businesses derive value from AI.
- Understand the meaning of key terminologies, such as learning, unsupervised learning, and neural networks.

#### USING AI AND ML IN BUSINESS

- Learn to narrow down a business use case and decide when to use AI in a product.
- Learn strategies for measuring the success of a product.
- See how to build an AI product team that can manage data and test product efficacy, over time.



# Nanodegree Program Overview

## Course 2: Create a Dataset

Training data is the currency of AI—no model will perform successfully with poor quality input data. Learn how to develop a relevant, complete, unique and high-quality dataset. Learn how to use Figure Eight’s data annotation platform to develop a labeled dataset for supervised learning. Understand how to anticipate data failures and plan for longevity.

### Project

### Create a Medical Image Annotation Job

Learn how to create a novel dataset, by designing a data annotation job. In this medical image annotation project, your goal, as a product owner is to build a product that helps doctors quickly identify cases of pneumonia in children. You’ll want to build a classification system that can help flag serious cases of pneumonia and act as a diagnostic aid for doctors. Your main task will be to create a data labeling job using Appen’s platform: <https://appen.com/solutions/platformoverview/>.

#### LESSON TITLE

#### LEARNING OUTCOMES

#### DATA FIT & ANNOTATION

- Learn to analyze the size of your data and how well data fits a particular product use case.
- Learn how to use Figure Eight’s crowdsourced data annotation platform to generate a high-quality ground-truth dataset with human annotation.
- Design annotation instructions for best-in-class results.

#### PROJECT: MEDICAL IMAGE ANNOTATION

- Define a product goal for a medical diagnostic tool.
- Design an annotation job for a medical image dataset.
- Consider metrics for success, how you might improve the annotation design, and design test questions for annotators.



## Course 3: Build a Model

AI products rely upon machine learning models at their core. Understand key fundamentals of AI models including how neural networks produce decisions and how “training” works. Understand how training data affect the performance of a model, and how to evaluate models’ results. Learn how transfer learning and neural architecture search make AI available to a wide variety of users.

### Project

### Build a Model with Google AutoML

In this project, get experience building models using automated ML, from data to results (no coding required). Build your own model using Google AutoML for a medical imaging use case. Then, implement the model with four different variants of the data in order to appreciate how the data affect the performance of the model.

#### LESSON TITLE

#### LEARNING OUTCOMES

#### TRAINING AND EVALUATING A MODEL

- Learn how a neural network learns from training data.
- Use test data to evaluate a trained model according to metrics like accuracy, precision, and recall.
- Learn how to use pre-trained models to transfer learning from one resource to another.

#### PROJECT: BUILD A MODEL

- Build and train a model using Google’s AutoML.
- Evaluate several models and decide on the best model for a given product use case.



# Nanodegree Program Overview

## Course 4: Measuring Impact and Updating Models

All models are only as valuable as their impact on your business. Learn how to measure post-deployment impact, and how to make data-informed improvements with A/B testing and versioning. Ensure that your model continuously improves via active learning. Understand how to avoid major failures due to unwanted bias, and how to ensure data security and compliance in different geographies. When you finally have product-market fit, learn to plan for the future and scale your product.

### Project

### Capstone Proposal

In the capstone project, you will develop a business proposal for an AI product for a use case of your choosing. You'll develop a business case for the product, define success metrics, scope the dataset, plan the model development, and build a post-deployment monitoring plan. Reviewers will evaluate your proposal for rigor and completeness.

#### LESSON TITLE

#### LEARNING OUTCOMES

#### MEASURING BUSINESS IMPACT & MITIGATING BIAS

- Learn how to measure the business outcomes of a launched product.
- Discuss A/B testing and versioning.
- Learn strategies for mitigating unwanted bias in a machine learning model and product.
- See how to scale a product, according to user audience and demand.

#### CASE STUDY: VIDEO ANNOTATION

- See an end-to-end AI product development cycle.
- Learn strategies for ideating solutions to problems, and
- Spend your time focused on prototyping a product, and learn strategies for continuously learning and updating a machine learning model.

#### PROJECT: CAPSTONE PROPOSAL

- Develop a business proposal for an AI product.

# Our Nanodegree Programs Include:



## Pre-Assessments

Our in-depth workforce assessments identify your team's current level of knowledge in key areas. Results are used to generate custom learning paths designed to equip your workforce with the most applicable skill sets.



## Dashboard & Progress Reports

Our interactive dashboard (enterprise management console) allows administrators to manage employee onboarding, track course progress, perform bulk enrollments and more.



## Industry Validation & Reviews

Learners' progress and subject knowledge is tested and validated by industry experts and leaders from our advisory board. These in-depth reviews ensure your teams have achieved competency.



## Real World Hands-on Projects

Through a series of rigorous, real-world projects, your employees learn and apply new techniques, analyze results, and produce actionable insights. Project portfolios demonstrate learners' growing proficiency and subject mastery.

# Our Review Process

## Real-life Reviewers for Real-life Projects

Real-world projects are at the core of our Nanodegree programs because hands-on learning is the best way to master a new skill. Receiving relevant feedback from an industry expert is a critical part of that learning process, and infinitely more useful than that from peers or automated grading systems. Udacity has a network of over 900 experienced project reviewers who provide personalized and timely feedback to help all learners succeed.



Vaibhav

UDACITY LEARNER

*"I never felt overwhelmed while pursuing the Nanodegree program due to the valuable support of the reviewers, and now I am more confident in converting my ideas to reality."*

now at

CODING VISIONS INFOTECH

## All learners benefit from:



Line-by-line feedback for coding projects



Industry tips and best practices



Advice on additional resources to research



Unlimited submissions and feedback loops

## How it Works

Real-world projects are integrated within the classroom experience, making for a seamless review process flow.

- Go through the lessons and work on the projects that follow
- Get help from your technical mentor, if needed
- Submit your project work
- Receive personalized feedback from the reviewer
- If the submission is not satisfactory, resubmit your project
- Continue submitting and receiving feedback from the reviewer until you successfully complete your project

## About our Project Reviewers

Our expert project reviewers are evaluated against the highest standards and graded based on learners' progress. Here's how they measure up to ensure your success.

900+

### Expert Project Reviewers

Are hand-picked to provide detailed feedback on your project submissions.

1.8M

### Projects Reviewed

Our reviewers have extensive experience in guiding learners through their course projects.

3

### Hours Average Turnaround

You can resubmit your project on the same day for additional feedback.

4.85 /5

### Average Reviewer Rating

Our learners love the quality of the feedback they receive from our experienced reviewers.



# UDACITY

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For more information visit: [www.udacity.com/enterprise](http://www.udacity.com/enterprise)