UDACITY

NANODEGREE PROGRAM SYLLABUS

AI Product Manager

Overview

This ultimate goal of the AI Product Manager Nanodegree program is to help students learn the unique skills that define the success of a machine learning product. Students will learn how to 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.

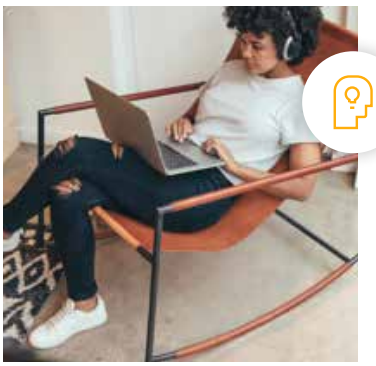
This program is comprised of 4 courses and 3 projects. Each project you build will be an opportunity to demonstrate what you've learned in the lessons. Your completed projects will become part of a career portfolio that will demonstrate to potential employers that you have skills in product management,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

IN COLLABORATION WITH

figure eight an appen company

Estimated Time: 2 Months at 10hrs/week

Prerequisites: No Experience Required



Flexible Learning: Self-paced, so you can learn on the schedule that works best for you.

Need Help?
udacity.com/advisor
Discuss this program with an enrollment advisor.

Projects Overview

One of our main goals at Udacity is to help you create a job-ready portfolio of completed projects. Building a project is one of the best ways to test the skills you've acquired and to demonstrate your newfound abilities to future employers or colleagues. Throughout this Nanodegree program, you'll have the opportunity to prove your skills by building the following projects:

- **Create a Medical Image Annotation Job**
  Design a labeled dataset that distinguishes between x-ray images that indicate health or pneumonia in lungs; this can be used by ML engineers later on down the line to build a diagnostic product.

- **Build a Model with Google AutoML**
  Build a variety of different medical image classification models using Google Cloud AutoML. You'll have the opportunity to observe how properties of the data impact the models' results.

- **Create an AI Product Business Proposal**
  Put together all that you've learned to submit a final proposal for an AI product that considers users, design practices, and the type of machine learning model you might use in the product.

In the sections below, you'll find detailed descriptions of each project, along with the course material that presents the skills required to complete the project.

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.

	LEARNING OUTCOMES	
LESSON ONE	**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
LESSON TWO	**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

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.

Course 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 Figure Eight's platform, **https://www.figure-eight.com/platform/**.

	LEARNING OUTCOMES	
LESSON ONE	**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
LESSON TWO	**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.

Course 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.

	LEARNING OUTCOMES	
LESSON ONE	**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.
LESSON TWO	**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.

Course 4: Measuring Impact and Updating Models

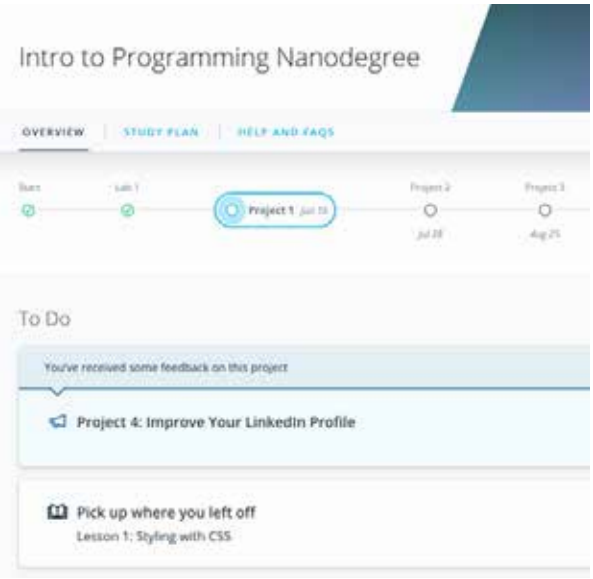
AI models are only as valuable as their impact on your business. Learn how to measure post-deployment impact, and how to make data-informed improvements with A/B testing and versioning. Ensure that your model continuously improves via active learning. Understand how to avoid major failures due to unwanted 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.

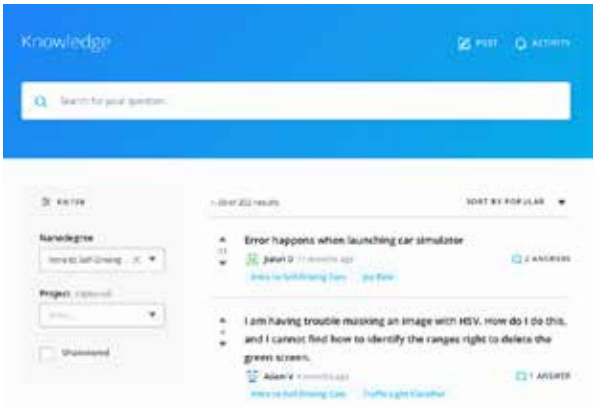
Course Project
Capstone Proposal

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.

	LEARNING OUTCOMES	
LESSON ONE	**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.
LESSON TWO	**Case Study: Video Annotation**	• See an end-to-end AI product development cycle. • Learn strategies for ideating solutions to problems, and improving a prototype, incrementally. • Spend your time focused on prototyping a product, and learn strategies for continuously learning and updating a machine learning model.
LESSON THREE	**Project: Capstone Proposal**	• Develop a business proposal for an AI product.

Our Classroom Experience





REAL-WORLD PROJECTS

Build your skills through industry-relevant projects. Get personalized feedback from our network of 900+ project reviewers. Our simple interface makes it easy to submit your projects as often as you need and receive unlimited feedback on your work.

KNOWLEDGE

Find answers to your questions with Knowledge, our proprietary wiki. Search questions asked by other students, connect with technical mentors, and discover in real-time how to solve the challenges that you encounter.

STUDENT HUB

Leverage the power of community through a simple, yet powerful chat interface built within the classroom. Use Student Hub to connect with fellow students in your program as you support and learn from each other.

WORKSPACES

See your code in action. Check the output and quality of your code by running them on workspaces that are a part of our classroom.

QUIZZES

Check your understanding of concepts learned in the program by answering simple and auto-graded quizzes. Easily go back to the lessons to brush up on concepts anytime you get an answer wrong.

CUSTOM STUDY PLANS

Preschedule your study times and save them to your personal calendar to create a custom study plan. Program regular reminders to keep track of your progress toward your goals and completion of your program.

PROGRESS TRACKER

Stay on track to complete your Nanodegree program with useful milestone reminders.

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 is a 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.

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.

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, she's built AI and Voice/Video products at Cisco, Tokbox and CA.

All Our Nanodegree Programs Include:

EXPERIENCED PROJECT REVIEWERS

REVIEWER SERVICES

- Personalized feedback & line by line code reviews
- 1600+ Reviewers with a 4.85/5 average rating
- 3 hour average project review turnaround time
- Unlimited submissions and feedback loops
- Practical tips and industry best practices
- Additional suggested resources to improve

TECHNICAL MENTOR SUPPORT

MENTORSHIP SERVICES

- Questions answered quickly by our team of technical mentors
- 1000+ Mentors with a 4.7/5 average rating
- Support for all your technical questions

PERSONAL CAREER SERVICES

CAREER SUPPORT

- Resume support
- Github portfolio review
- LinkedIn profile optimization

Frequently Asked Questions

PROGRAM OVERVIEW

WHY SHOULD I ENROLL?

AI is changing the world around us at an astounding pace. For many, Artificial Intelligence remains a mystery, and how to leverage this technology is not always clear. This program is designed for students who want to take advantage of AI, but don't want or need to learn the full technical implementation of neural networks and machine learning models. You'll learn how to leverage AI in the business world, from scoping datasets, testing machine learning models, and crafting a proposal for a new product powered by AI. Along the way you'll build fluency in AI concepts.

WHAT JOBS WILL THIS PROGRAM PREPARE ME FOR?

This program is designed to upskill practicing product managers to build AI-powered products and bring value to their business using AI.

HOW DO I KNOW IF THIS PROGRAM IS RIGHT FOR ME?

This program is intended for anyone who wants to gain fluency and understanding of AI use cases. If you want to learn how to leverage AI, including how to build a dataset and how to evaluate different machine learning models without needing to code, this program is for you.

ENROLLMENT AND ADMISSION

DO I NEED TO APPLY? WHAT ARE THE ADMISSION CRITERIA?

There is no application. This Nanodegree program accepts everyone, regardless of experience and specific background.

WHAT ARE THE PREREQUISITES FOR ENROLLMENT?

There are no technical prerequisites. This course is intended for professionals who have some familiarity with product management and basic data analysis.

IF I DO NOT MEET THE REQUIREMENTS TO ENROLL, WHAT SHOULD I DO?

If you need to review basic data analytics skills, we recommend the **Intro to Descriptive Statistics course.**

Frequently Asked Questions Continued

TUITION AND TERM OF PROGRAM

HOW IS THIS NANODEGREE PROGRAM STRUCTURED?

The AI Product Manager Nanodegree program is comprised of content and curriculum to support 3 (three) projects. We estimate that students can complete the program in two (2) months, working 10 hours per week.

Each project will be reviewed by the Udacity reviewer network. Feedback will be provided and if you do not pass the project, you will be asked to resubmit the project until it passes.

HOW LONG IS THIS NANODEGREE PROGRAM?

Access to this Nanodegree program runs for the length of time specified in the payment card on the Nanodegree program overview page. If you do not graduate within that time period, you will continue learning with month to month payments. See the **Terms of Use** for other policies around the terms of access to our Nanodegree programs.

SOFTWARE AND HARDWARE

WHAT SOFTWARE AND VERSIONS WILL I NEED IN THIS PROGRAM?

There are no specific hardware or software requirements for this program, other than access to the internet and a 64-bit computer.