AI for Good Specialization

Contents

Overview

DeepLearning.AI

AI for Good Specialization

Learn AI's role in addressing complex challenges. Build skills combining human and machine intelligence for positive real-world impact using AI

Instructor: Robert Monarch

Enrolled | Already enrolled

Specialization - 3 course series
Get in-depth knowledge of a subject

4.8 ★ (115 reviews)

Beginner level
Recommended experience ⓘ

1 months at 5 hours a week

Flexible schedule
Learn at your own pace

View all courses

What you'll learn

Master a step-by-step framework for the development of AI projects.

Explore real-world case studies related to public health, climate change, and disaster management.

Analyze data and build AI models for projects focused on air quality, wind energy, biodiversity monitoring, and disaster management.

Skills you'll gain

Public Health	*Climate Change*	*Disaster Management*
• AI for Good project framework • Supervised Learning • Jupyter notebooks • Air Quality Monitoring • Exploratory Data Analysis	• AI for Good project framework • Supervised Learning • Computer Vision • Biodiversity Monitoring • Wind Power Generation Modeling	• AI for Good project framework • Computer Vision • Natural Language Processing • Topic Model • Damage Assessment

The **AI for Good Specialization** showcases how AI can be part of the solution when it comes to addressing some of the world's biggest challenges in areas like public health, climate change, and disaster management. In these courses, you'll learn from instructor Robert Monarch, who has over 20 years of experience building AI products in industry and working at the intersection of AI and public health and disaster management. Robert is also the author of Human-in-the-Loop Machine Learning, a book focused on human-centered AI applications.

Throughout the courses, you'll hear from experts working on AI for Good initiatives aimed at addressing social and environmental issues. By combining human and machine intelligence, real-world datasets, best practices around data privacy, and ethical considerations, you'll develop the knowledge and fundamental skills to tackle your own AI for good projects.

These courses were built in partnership with researchers at the Microsoft AI for Good Lab who offered their subject matter expertise throughout the development of the program. We are also grateful to Sasha Luccioni, Climate Lead and Researcher at HuggingFace for her help in forming the high-level program structure, outlining what kinds of topics and case studies would work best for these courses, and recruiting many of the experts that either appear in guest speaker videos or have contributed behind the scenes.

Applied Learning Project

- Use neural networks and other AI techniques to **estimate air quality** throughout the city of Bogotá, Colombia.

- Develop an AI model to **make wind power generation more predictable** by providing forecasts 24 hours into the future.
- Apply computer vision techniques to **detect and classify animals** for the purpose of **biodiversity monitoring**.
- Build an image classification pipeline to **perform damage assessment using satellite images** taken after Hurricane Harvey in the U.S. in 2017.
- Use natural language processing techniques to **analyze trends in a corpus of text messages** sent in the aftermath of the 2010 earthquake in Haiti.

1/ AI and Public Health

In this course, you will be introduced to the basics of artificial intelligence and machine learning and how they are applied in real-world scenarios in the AI for Good space. You will also be introduced to a framework for problem solving where AI is part of the solution. The course concludes with a case study featuring three Jupyter notebook labs where you'll create an air quality monitoring application for the city of Bogotá, Colombia.

Skills you'll gain

- Air Quality Monitoring
- AI for Good project framework
- Jupyter notebooks
- Supervised Learning
- Exploratory Data Analysis

2/ AI and Climate Change

In this course, you'll start with a review of the mechanisms behind anthropogenic climate change and its impact on global temperatures and weather patterns. You will work through two case studies, one using time series analysis for wind power forecasting and another using computer vision for biodiversity monitoring. Both case studies are examples of where AI techniques can be part of the solution when it comes to the mitigation of and adaptation to climate change.

Skills you'll gain

- AI for Good project framework
- Biodiversity Monitoring
- Supervised Learning
- Computer Vision
- Wind Power Generation Modeling

3/ AI and Disaster Management

In this course, you will be introduced to the four phases of the disaster management cycle; mitigation, preparation, response, and recovery. You'll work through two case studies in this course. In the first, you will use computer vision to analyze satellite imagery from Hurricane Harvey in 2017 to identify damage in affected areas. In the second, you will use natural language processing techniques to explore trends in aid requests in the aftermath of the 2010 earthquake in Haiti.

Skills you'll gain

- Natural Language Processing

- Topic Model
- AI for Good project framework
- Damage Assessment
- Computer Vision

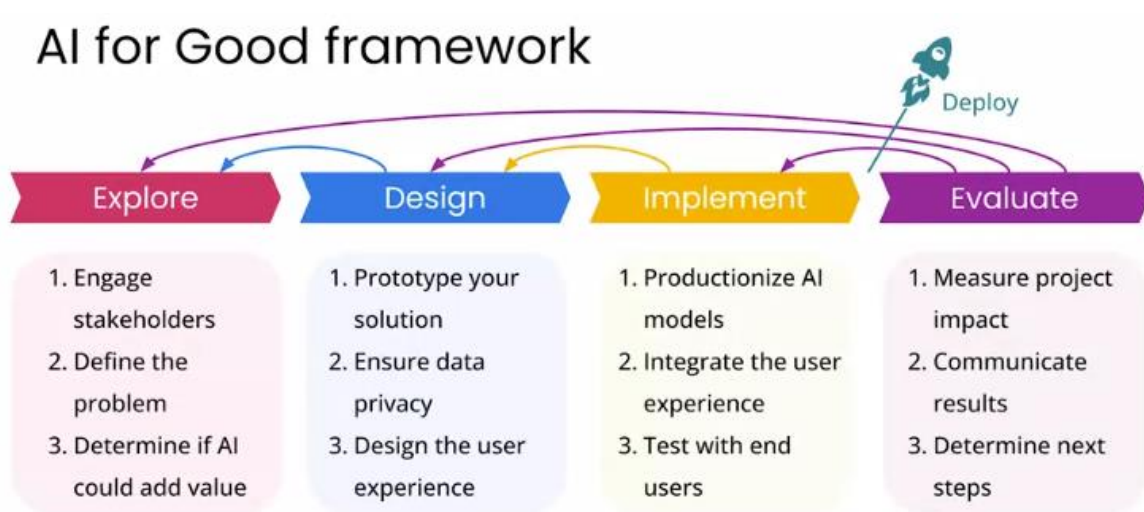https://www.coursera.org/learn/ai-and-public-health?specialization=ai-for-good

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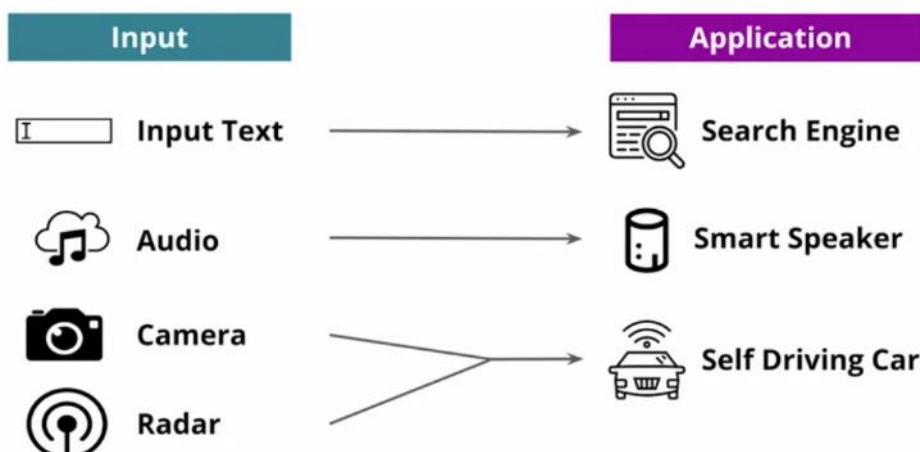
1. Introduction to AI for good
2. AI for Good Project Framework
3. Air Quality in Bogotá Colombia

Week 1: Introduction to AI for good

AI for Good framework

What is "AI for Good"?

UN Sustainable Development Goals

1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS	SUSTAINABLE DEVELOPMENT GOALS

Introduction to Artificial Intelligence and Machine Learning

Week 2: AI for Good Project Framework

Week 3: Air Quality in Bogotá Colombia

C2. AI and Climate Change

C3. AI and Disaster Management