Exploring AI Engineering

The fast-paced growth of technological marvels such as self-driving cars, is full of exciting and innovative career opportunities. Artificial intelligence (AI) engineering is a fast-evolving industry with excellent growth potential over several decades.

Artificial intelligence engineers are responsible for developing, programming and designing the complex networks to function like a human brain. This role requires combined expertise in software development, programming, data science and data engineering. AI engineers work closely with programmers and data scientists to create, develop and test machine learning models and then utilize application program interface (API) calls or embedded code to build and implement AI applications.

REFLECT

Hear these AI engineers describe this exciting career

from Raytheon Technologies, a NAF Industry Partner

STRETCH

Start your journey with wide-ranging exploration

Here are some resources to inspire your Passion Project!

Watch:
- The Future of AI with Robert Downey Jr, aka Tony Stark
- Join Robert Downey Jr on Mars in Space Architects
- Meet Sophia, the world's first AI robot a legal citizen of Saudi Arabia

Take a Tour:
- Creating Virtual Humans: The Future of AI
- AI/HUB Virtual Tour – Durham College
- A Tour of the Microsoft AI and IoT Insider Labs

A day in the life of an AI Engineer
- Life as an AI machine learning engineer at JP Morgan
- Meet the Amazon team that created Alexa and Echo

Earn a Badge (or more) from IBM
- AI Foundations: A Collaboration of ISTE and IBM
- Build your own Chatbox
- Introduction to Data Science

Activities
- Are Robots Taking Over Our Jobs?
- Build virtual reality (VR) goggles from cardboard from Google.

Participate in one of the MIT Media Lab projects. We suggest these:
- Personal Image Classifier using MIT App Inventor
- Build and train your own Doodlebot
- Facemesh Filter Camera – design your own facial filters

INNOVATE

Remember the five steps for completing a passion project. Use the materials provided in the *For Learners* tab to guide you

Step 1: Select an AI engineering field of concentration you are interested in learning more about. It is time to go deeper into your research

Step 2: Conduct research in an area that most resonates with you. Use an app like Padlet to collect ideas, stories, videos or even use as a sharing space with peers, mentors, and teachers. Use the planning guide to help you manage your time and resources.

Step 3: Identify a real-world challenge or problem you can address with your knowledge. It is important at this stage to work with professional in this field to mentor you. Brainstorming is an essential component and sharing your ideas with experts will go a long way in bringing your ideas to life. We suggest you engage your teacher to help identify potential experts, such as a member of the academy advisory board.

Step 4: Create! How you present your passion project is dependent on who your intended audience will be. Want to get middle school girls interested in engineering? Want to propose a new water management system to the local government agency? The possibilities are endless, which is where your mentor will be beneficial.

It is important to remember that this step is iterative. You will create several prototypes as you follow the engineering design process.

SHOWCASE

Step 5: Complete final product and share with the world! Whether a web page, an article in the local newspaper or a global blog, your goal is to make the world a better place because you've shared your knowledge!

↓ START HERE ↓

2. REFLECT on:
   - a problem in the world that you want to solve
   - a passion project that aligns with your purpose
   - social, political, economic, or industry-related issues that you can impact with your voice (the possibilities are endless)

3. STRETCH yourself by:
   - exploring and investigating various mediums to learn more about your topic
   - expanding your understanding of diverse perspectives on a problem
   - becoming an agent of change

4. INNOVATE by:
   - generating ideas through big-picture thinking
   - implementing design thinking (empathizing, defining, ideating, prototyping, testing)
   - collaborating with peers, mentors, or other stakeholders

5. SHOWCASE by:
   - sharing your solutions and innovations to an external audience using one of or more of the delivery methods on the choice board*

CHOICE 1: Create a podcast

A podcast is a recorded discussion you share with an audience. Create a series of recordings, then make them available on the Internet or podcast apps for listeners to explore.

- Starting Your Podcast: A Guide for Students
- How to Start a Podcast

Check out NPR's Student Podcast Challenge and sign up for the newsletter. Who knows? You may be the next podcast winner!

CHOICE 2: Create a PechaKucha

A PechaKucha is a 20x20 visual storytelling presentation format that showcases your 20 chosen images, each for 20 seconds. In other words, you have 400 seconds to tell your story, with visuals guiding the way. It means "chit chat" in Japanese.

Visit the PechaKucha site to create your visual story and to publish your innovations to a global audience.

CHOICE 3: Create a social media series

Elevate your voice and innovations through digital content on a social media platform of your choosing.

You can raise awareness around your problem and solution through a steady series of text, graphics, and data. Create #hashtags that relate to your theme to generate more buzz.

Here are 6 Simple Tips to Amplify Your Social Media Activism Campaigns.

CHOICE 4: Create an AR book

Augmented Reality (AR) books present your ideas in an innovative way, allowing your audience (or readers) to immerse themselves in a "physical world." You can include GPS overlays, illustrated diagrams, sound, and video to bring your learning to life.

Check out these resources:
- Augmented Reality Book: The Little Prince
- Adobe Aero or Overly
- AR Apps for Books

CHOICE 5: Create a TedX Talk

A Ted Talk is an 18-minute talk or video that exposes your audience to an issue that they may not otherwise know much about. This is also an effective way to showcase your solutions.

You can apply to speak at an event or even host a TedX event in your school or city!

Check out Chimamanda Ngozi Adichie's Ted Talk: The Danger of a Single Story.

CHOICE 6: Create a blog or website

Engage a global audience by publishing your solutions to a blog or website.

You can develop unique content that expresses your perspective and showcases your innovation. Be a change agent by responding to comments and feedback on your digital platform.

Consider using Blogger, Word Press, Google Sites, or Weebly.

Check out 5 Tips to Grow Your WordPress Blog.

This is a small list of options; if you have a format in which you would like to showcase your innovations to an outside audience (through an app, a data chat, a documentary, or by organizing an advocacy event), talk it over with your educator or mentor, then GO FOR IT!