

AIRC 001 / DISCOVER

Make an idea your own.

10 classes / 2 hours per class

AIRC 001 gives younger students a practical way to explore AI and develop ideas of their own. Through guided activities, research discussions, and MIT App Inventor, students connect concepts in language, vision, and machine learning to problems that interest them. They learn to ask a useful question, test an approach, and explain what they find. The course culminates in an app project and a short abstract, with tools and habits students can carry into their next creation.

WHAT YOU WILL DEVELOP

- 01 Turn an observation into a research question and consider how to test it responsibly.
- 02 Explain how data, models, and training connect to applications in language and vision.
- 03 Use MIT App Inventor and AI tools to develop an app around a personal interest.
- 04 Identify the question, approach, and findings in a research paper.
- 05 Present a project clearly, supported by an abstract and an explanation of what was learned.

WHAT YOU WILL TAKE AWAY

An app project, a short abstract, presentation experience, and a starting point for independent exploration.

WHERE IT CAN LEAD

[Congressional App Challenge](#) / [WAICY](#) / [MIT Global Appathon](#)

AIRC 001 / CURRICULUM

Begin with curiosity.

01 See what AI makes possible

Explore how AI differs from traditional programming and how the field developed. Connect data, models, and training to familiar applications, building a vocabulary for understanding what an AI system does and where its capabilities come from.

02 Put an idea into an app

Begin creating with MIT App Inventor: screens, inputs, and logic that respond to a user. Explore how machine learning finds patterns in data, then consider how an AI feature could serve a purpose in an app.

03 Ask a question worth testing

Start with an issue that matters to you and shape it into a question. Explore scientific inquiry, introductory statistical comparisons, and research ethics through activities that connect curiosity to a thoughtful way of investigating a problem.

04 Find the story in a research paper

Learn how a paper connects a question, method, and findings. Work with a practice research paper to identify that structure and communicate its central idea to both general audiences and research communities.

05 Understand how neural networks learn

Explore deep learning through the idea of connected layers that transform information. See how artificial neural networks learn patterns and make predictions, and connect this structure to the broader machine learning concepts introduced earlier in the course.

HOW WE LEARN

Lectures, guided mini-projects, and interactive activities connect AI concepts to students' own interests. No prior technical experience is required.

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Create something of your own.

06 Explore AI through language

Discover how natural language processing approaches the language people use every day. Explore tasks involving interpretation and generation, and connect them to questions about what a system must represent to respond usefully to words and sentences.

07 Explore AI through images

Investigate how computer vision identifies patterns in pictures and video. Build an intuitive understanding of visual recognition, then consider how the information a system extracts from an image could support a useful application or project.

08 Let agents work together

Build a simple story-generation system in which AI agents take on different roles. Explore how instructions and coordination affect the shared result, using basic prompt engineering to guide each agent's contribution to a common task.

09 Make your work understandable

Practice presenting a project in a simulated competition setting. Organize a display board and supporting materials, explain the problem and approach, and consider what a judge or other unfamiliar reader needs to understand the work.

10 Present an idea of your own

Bring the course together in an app project addressing a problem explored during the program. Finalize the MIT App Inventor application and a short abstract, then present the idea, approach, and learning behind the work.

BEFORE THE FIRST CLASS

Bring a Mac or Windows computer and a Google account for Google Colab. We use web-based MIT App Inventor; a phone or tablet for testing apps is optional.