

Turing Commons

Scaling our Skills and Training Platform



Presentation

Overview

1

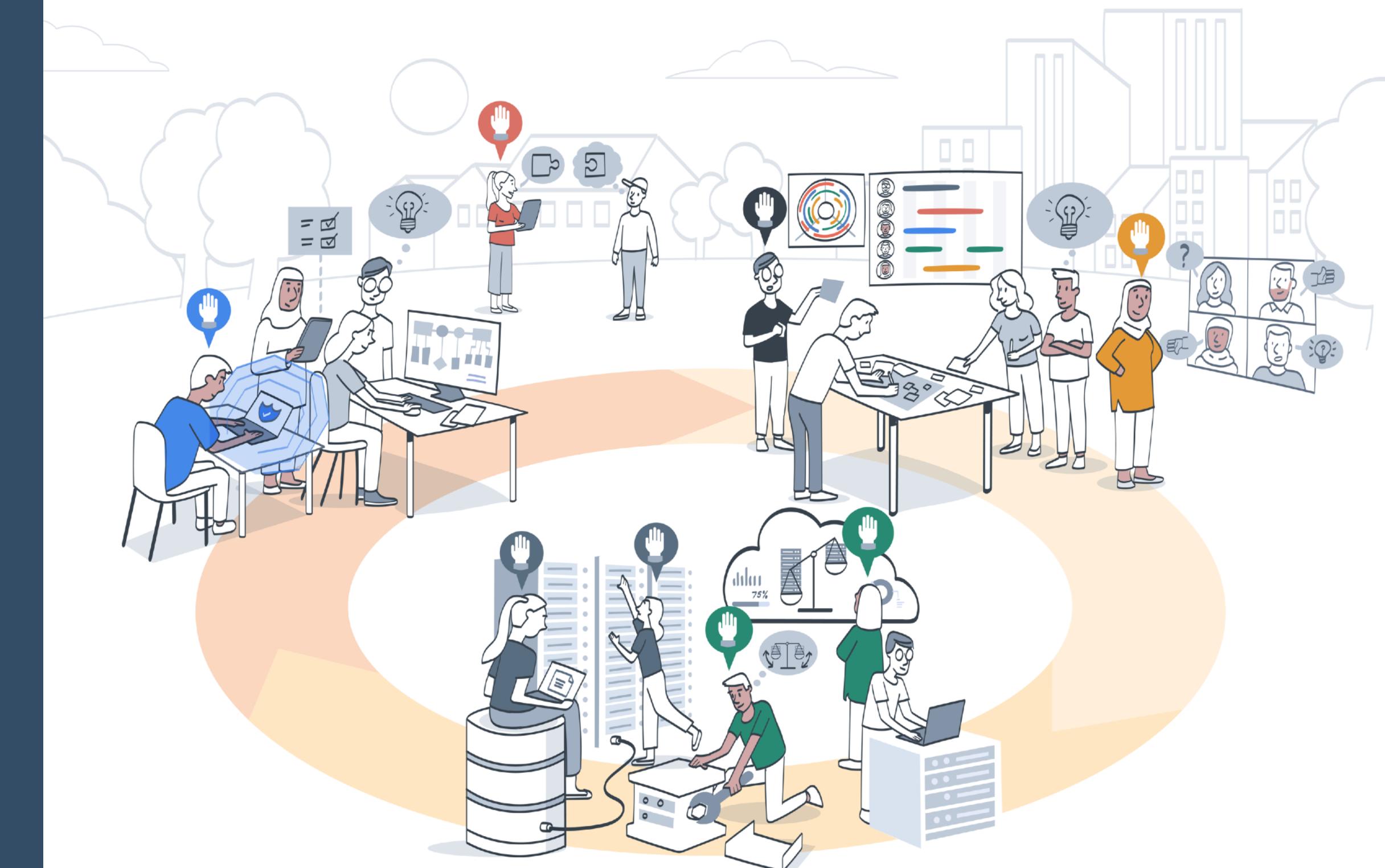
Current Courses

2

Centres for Doctoral Training

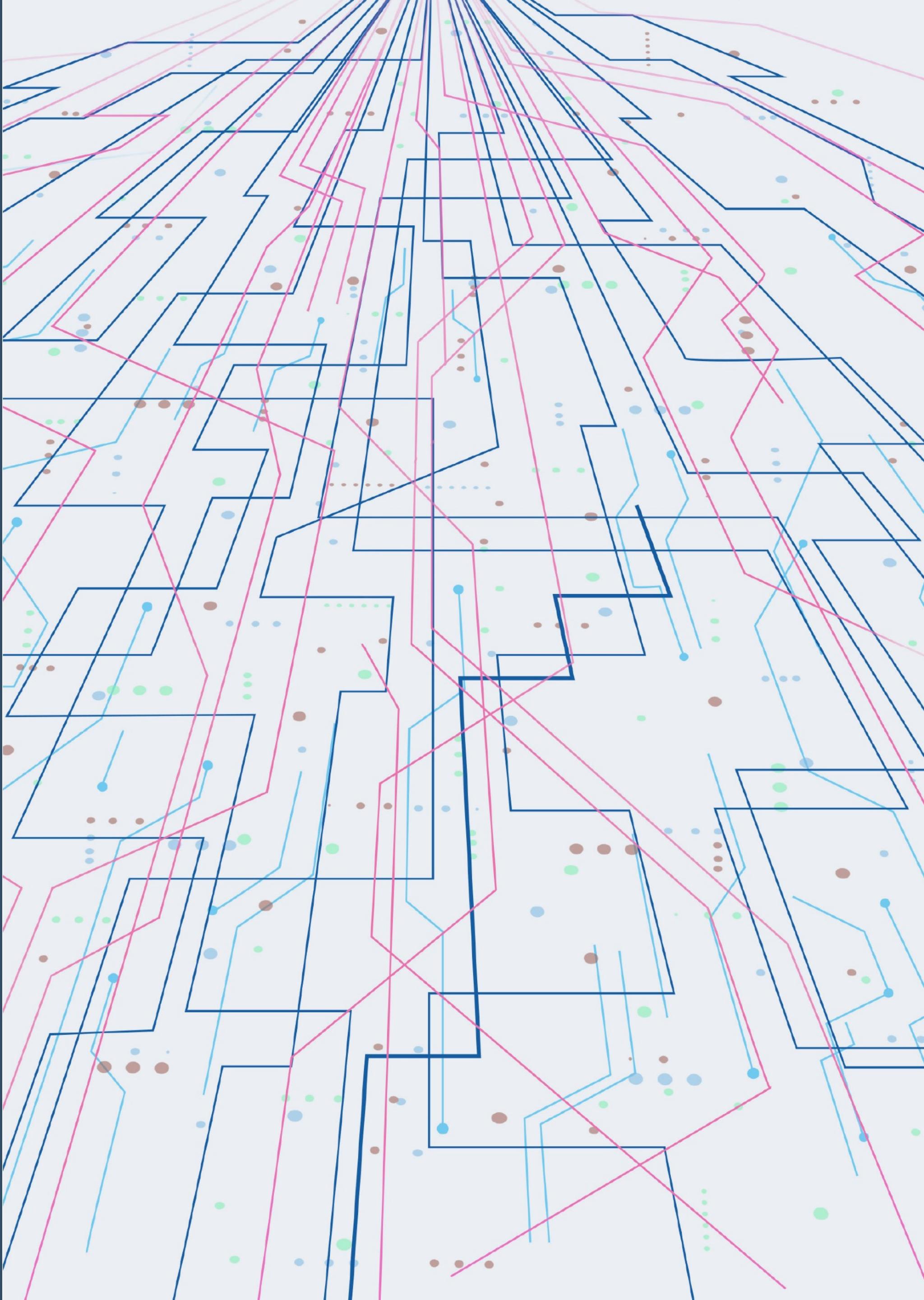
3

Platform Development



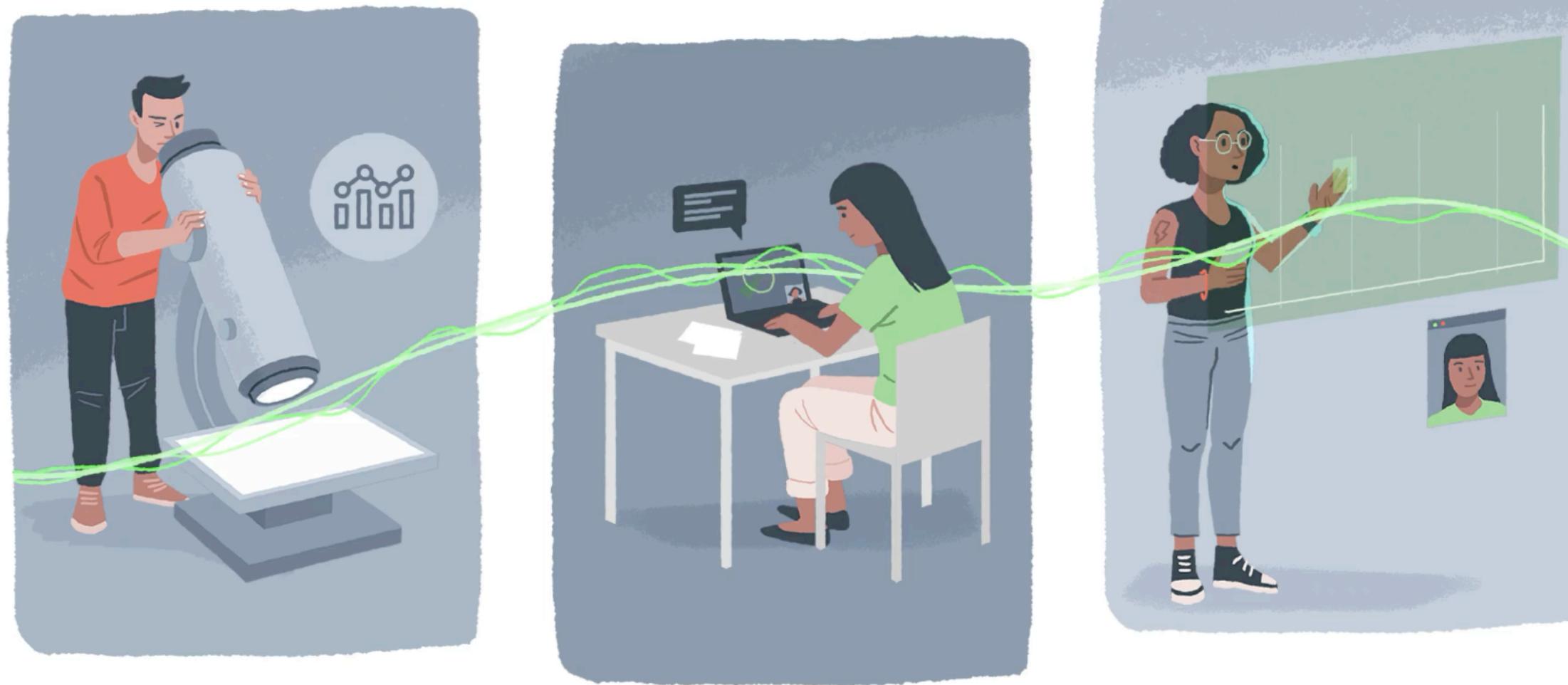
Section 1

Current Courses



Courses

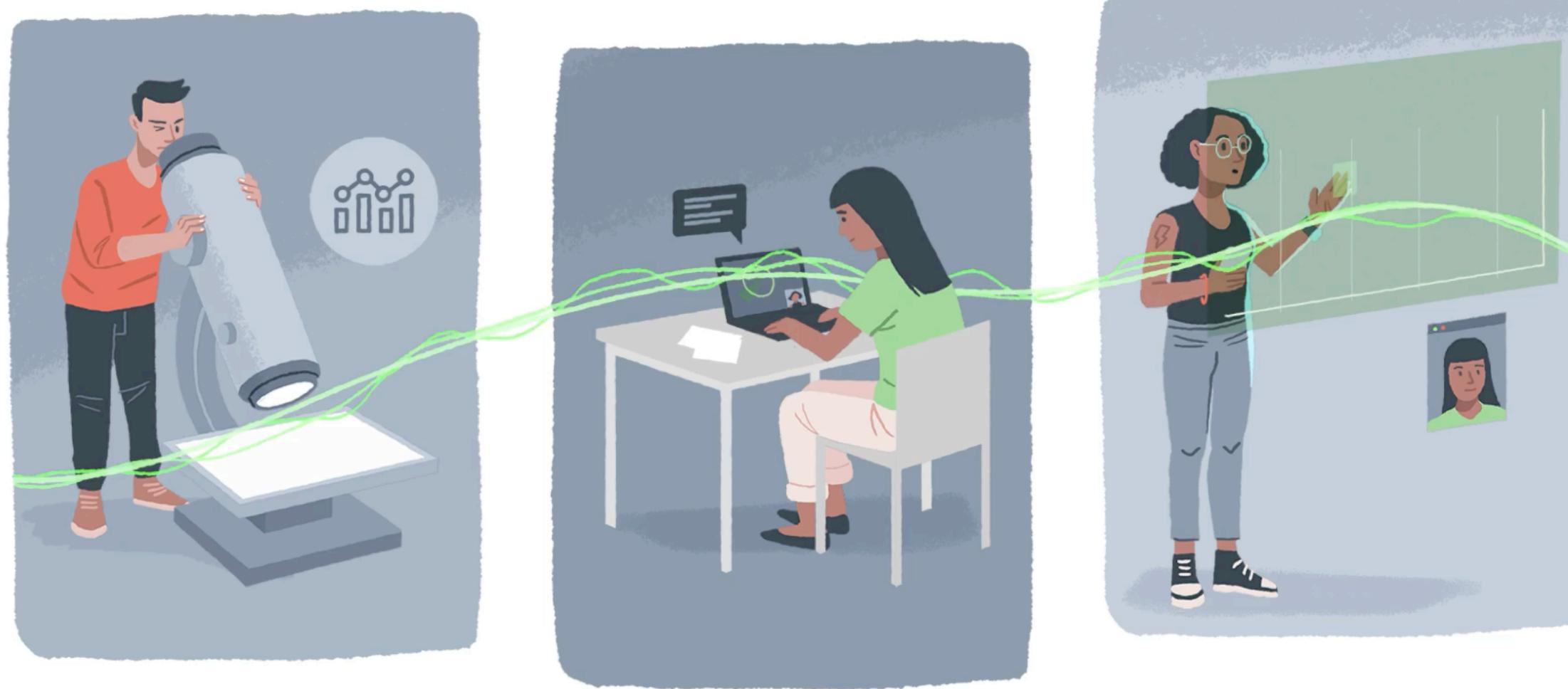
Researchers and Developers



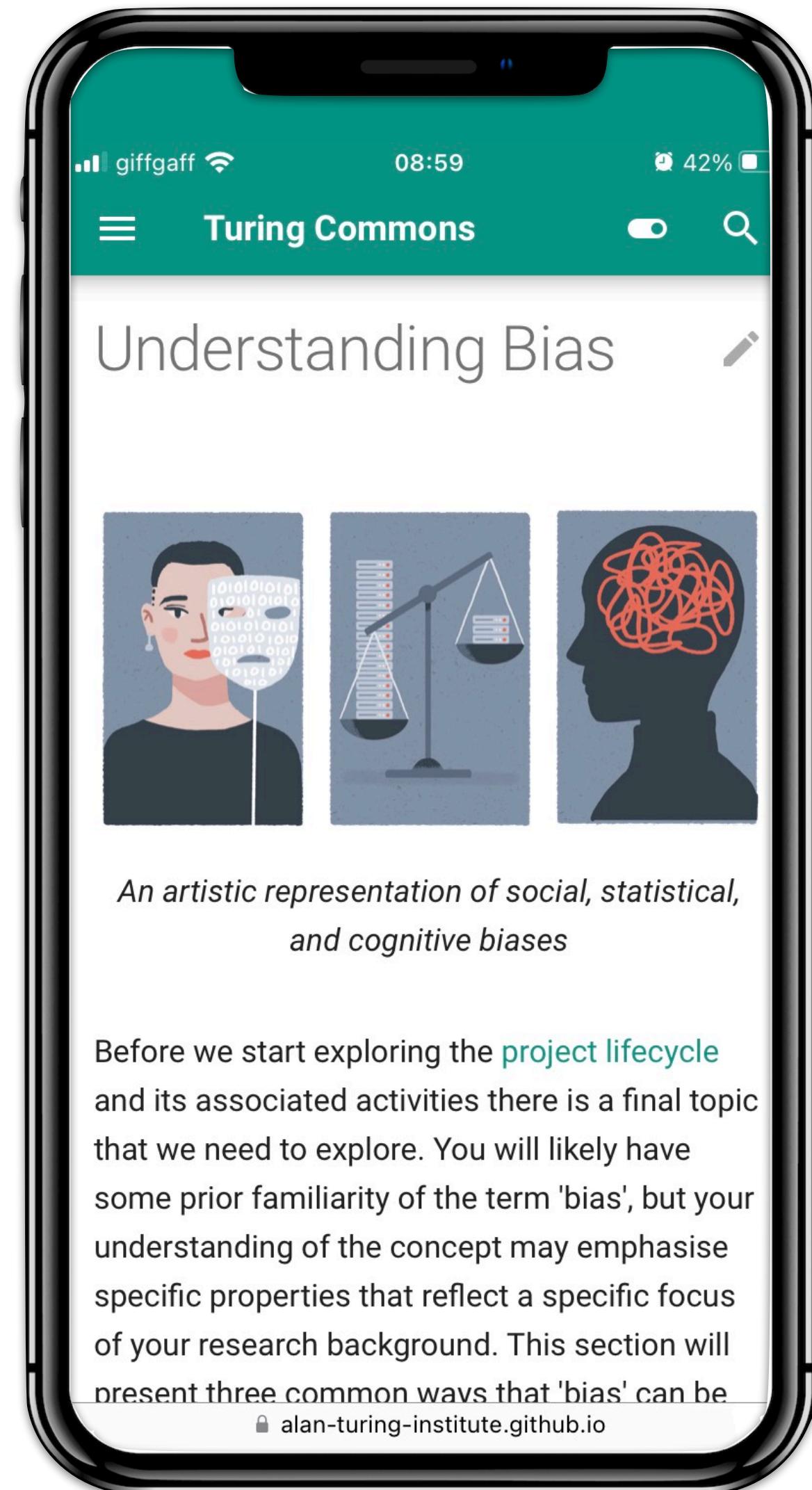
- ① Responsible Research and Innovation
- ② Public Engagement of Data Science and AI
- ③ AI Ethics and Governance

Courses

Researchers and Developers



- ① Responsible Research and Innovation
- ② Public Engagement of Data Science and AI
- ③ AI Ethics and Governance



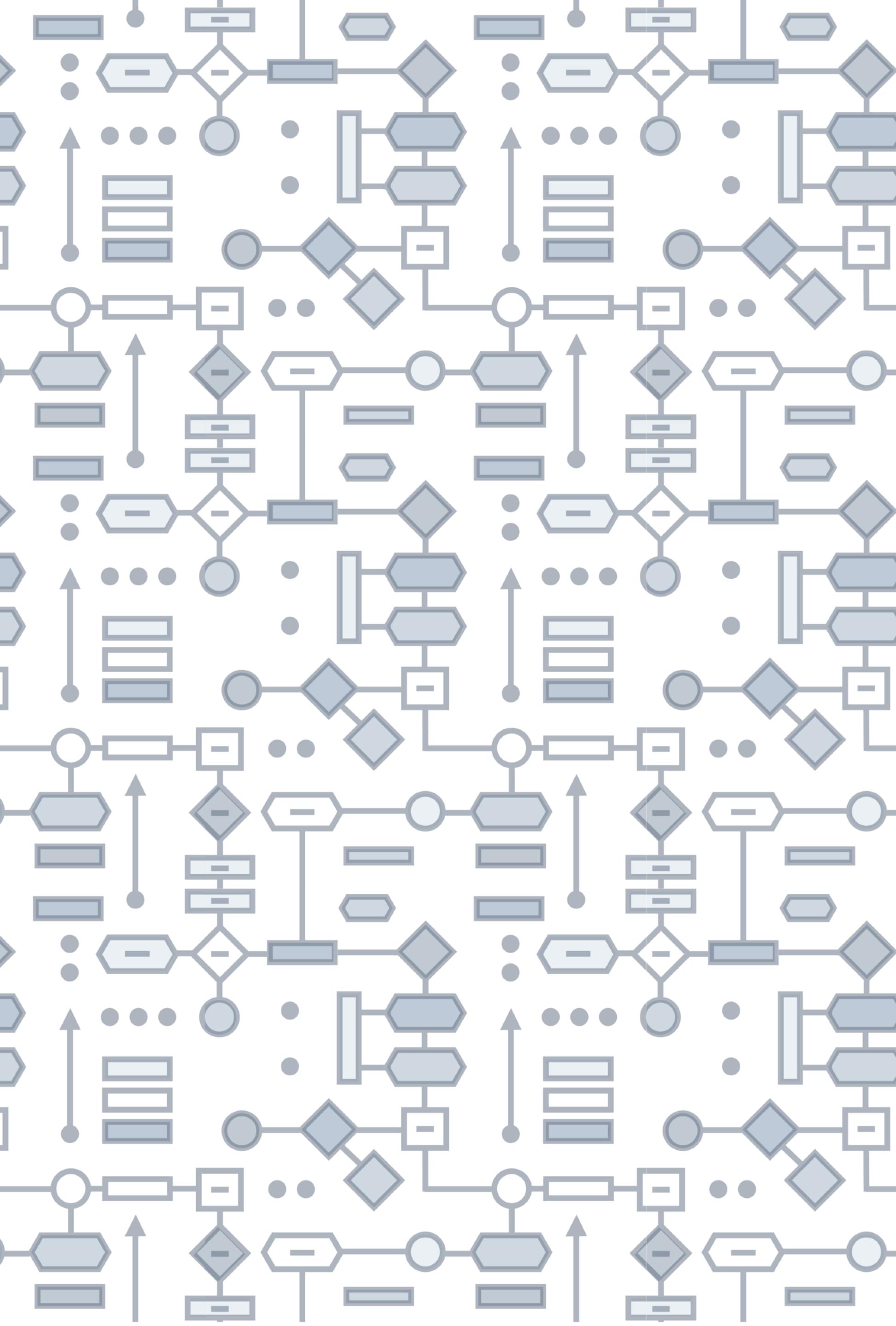
The browser window has a teal header bar with the 'Turing Commons' logo and navigation icons. The main content area is titled 'Data Analysis'. On the left, a sidebar lists several categories: Responsible Research and Innovation, Responsible Data Science and AI, and The Project Lifecycle. The 'Data Analysis' section contains a detailed description of the module's goals and a note about Python and Jupyter Notebooks. To the right, a 'Table of contents' sidebar lists various sub-topics under each main category, such as 'What is Exploratory Data Analysis?' and 'COVID-19 Hospital Data'.

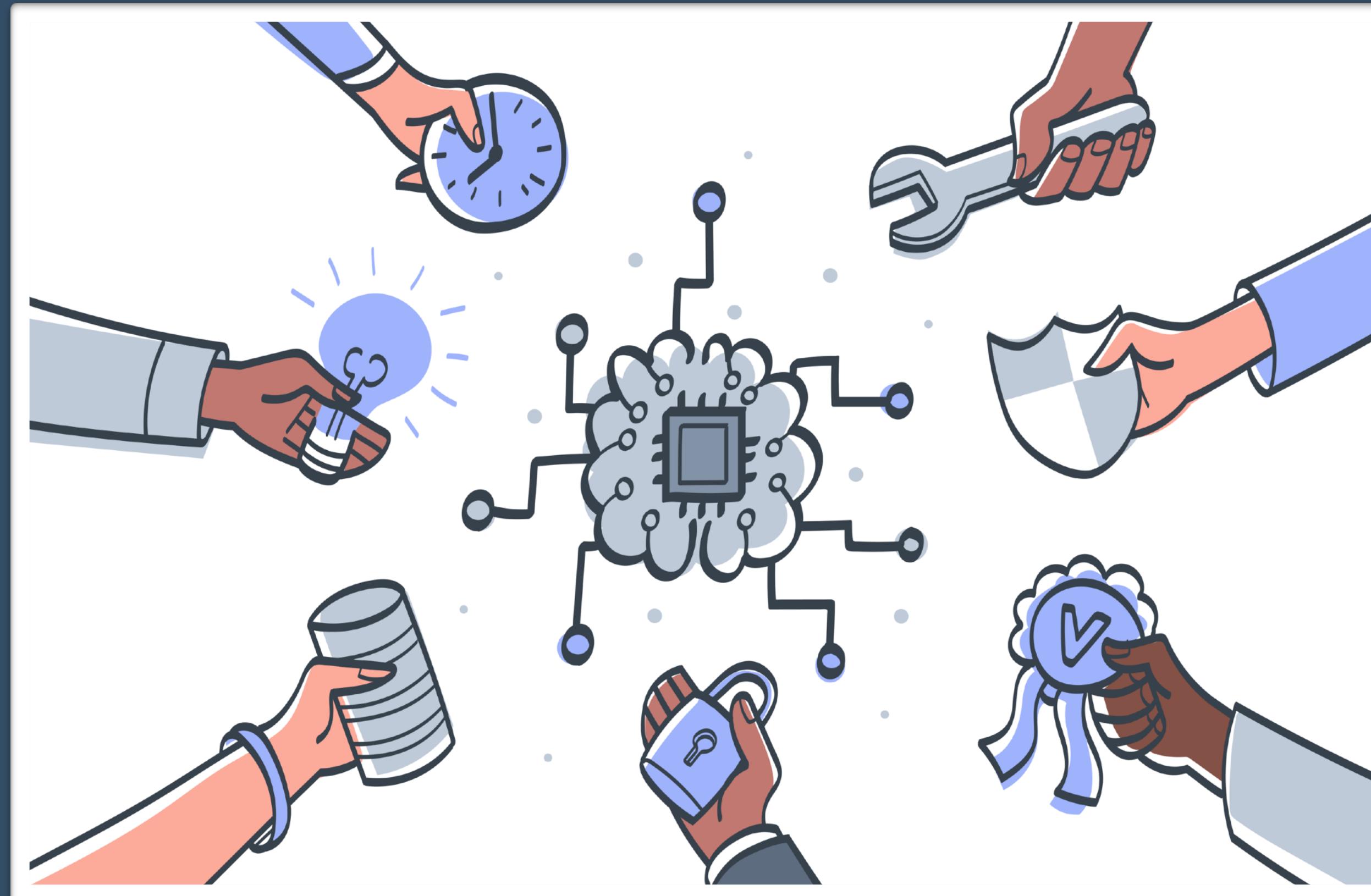
Feedback

“I feel the case study aspect added a lot of value—it allowed us to apply the principles we had learnt within the course and strengthen our understanding of these principles.”

Section 2

Centres for Doctoral Training



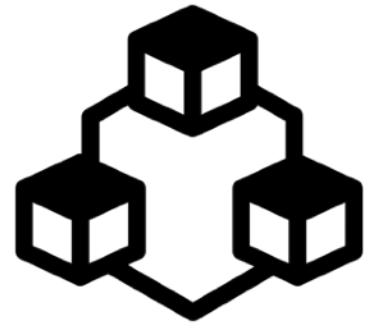


Structure **Skills Tracks**

- Adaptable and scalable versions of our courses to meet domain-specific needs:
 - Core modules
 - Activities
 - Case Studies

Skills Track

Core Modules



Activities



Case Studies





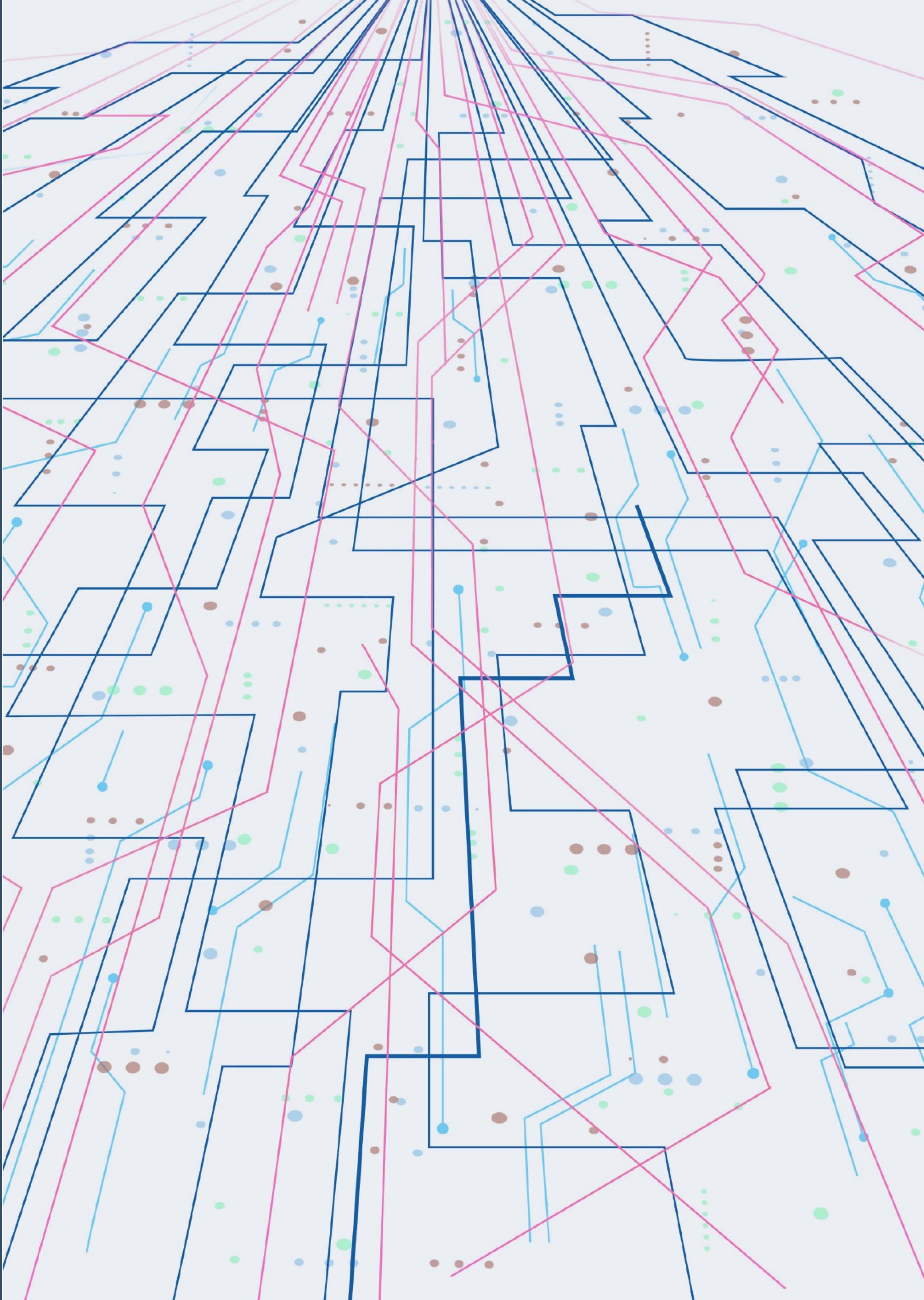
Core Modules

Responsible Research and Innovation

1. What is Responsible Research and Innovation?
2. The Project Lifecycle Model
3. Fair Machine Learning and AI
4. Explaining Automated Decision-Making
5. Responsible Communication and Open Science

Section 3

Platform Development



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  "domain": "healthcare",
  "userGroup": 2,
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    "Psychiatrist",
    "Patient",
    "Developer"
  ],
  "isLive": true
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Decision Support System

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Using natural language processing to help psychiatrists assess patients

The system uses a modern form of natural language processing that is reliant on neural networks to identify salient features of a patient's speech. This includes the words and phrases the patient states as well as extra-linguistic properties, such as intonation or pace.

The system operates in real-time to make recommendations to the psychiatrist. The recommendations can include suggestions about specific topics that were raised by the patient, which may require follow-up (e.g. reference to problematic relationships), as well as generic features that may be informative. Many recommendations require additional interpretation from the psychiatrist, and no automated decisions are made by the system.

The system's outputs can be shared with the patient where explanations are required. As such, the system has been designed to support patient-psychiatrist communication and participatory decision-making. For instance, phrases that were flagged as relevant are emphasised and specific recommendations are also accompanied by confidence ratings that can be explained by a trained psychiatrist.

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Overview

Psychiatrists working for a national healthcare system have been provided access to an AI system that can support decisions made during initial patient assessment and diagnosis.

The system uses a modern form of natural language processing that is reliant on neural networks to identify salient features of a patient's speech. This includes the words and phrases the patient states as well as extra-linguistic properties, such as intonation or pace.

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Key Consideration

The system has been designed for use as a *decision support system*.

Are there properties of the system that could negatively impact the ability for the psychiatrist to perform their clinical duties effectively?

Deliberative prompts

- If the system was designed from scratch, how should psychiatrists and patients be involved in its design, development, and deployment?
- Why does it matter that the system functions as a decision support tool and not an automated decision-making system?
- Should patients have full access to the outputs of the decision support system?

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Datasheet

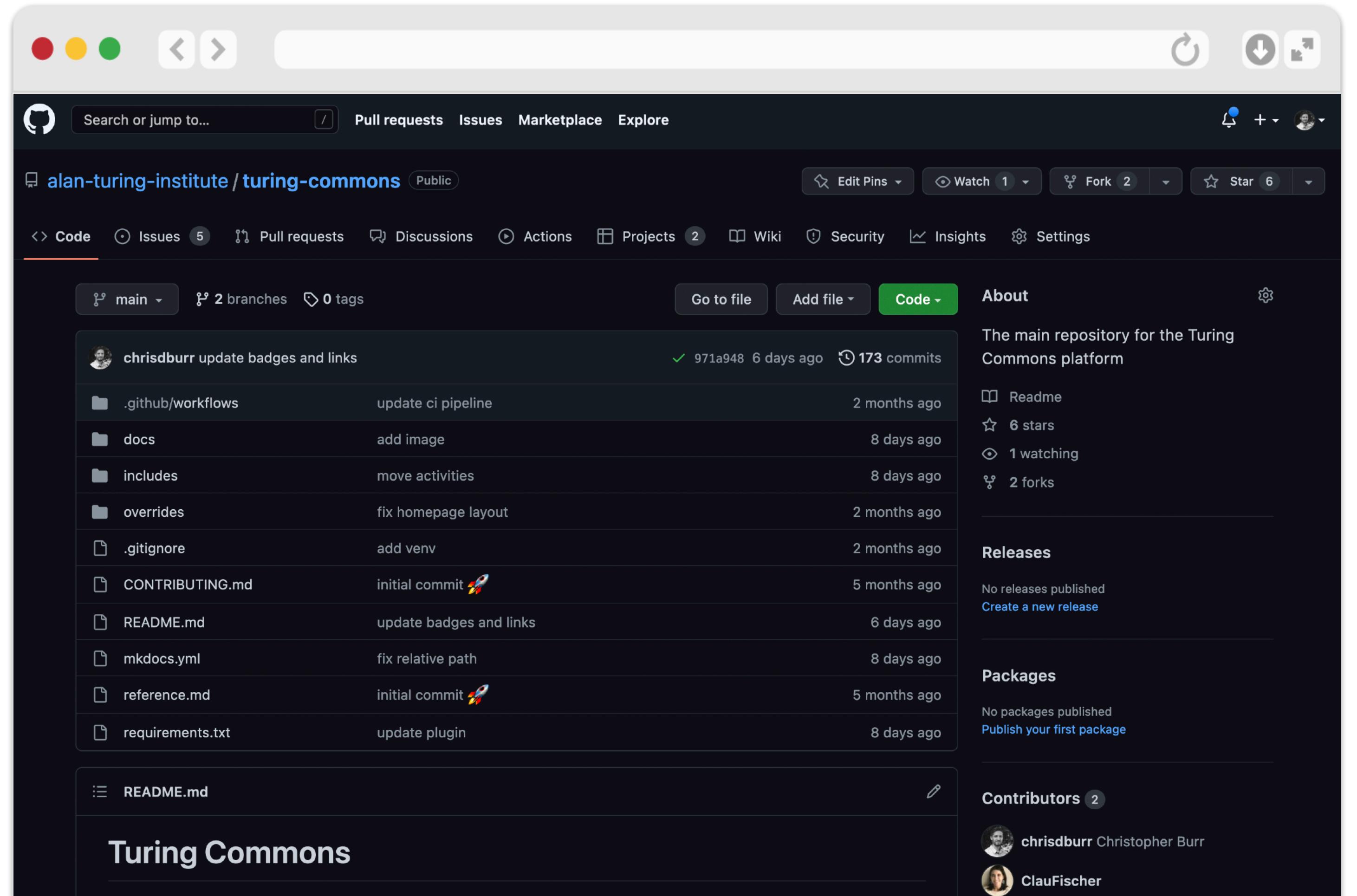
Category	Details
Available Data	<ul style="list-style-type: none"> Automated transcription of the conversations between patient and psychiatrist Extracted extra-linguistic features from audio recording of the conversation Relevance feedback from the psychiatrist about salience of specific recommendations Electronic health record of patient, including any initial assessment data (e.g. PHQ-9) or prescriptions.
Analysis Techniques	<ul style="list-style-type: none"> Natural language processing (NLP): <ul style="list-style-type: none"> System uses convolutional neural networks for speech recognition and to identify features from audio recording, which are then classified according to whether they are informative (i.e. exceeding some relevance threshold) Visualisation techniques support explainability by highlighting salient features

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Groups, Organisations and Affected Individuals

- Patients
- Psychiatrists

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Open Infrastructure

GitHub and Open API

- Active research project to support open infrastructure and open science
- Development of API to enable community contributions (e.g. design of new case studies)
- Creative Commons BY-4.0 License
- Support for ongoing best practices in open data science

Key Milestones

Next Steps

- Co-design workshops with pilot partners (Edinburgh, Cambridge, and Bristol)
- Development of online learning materials for self-directed learning
- Technical development of platform
- Research and support for open infrastructure and accessibility standards
- Integration with additional stakeholder groups]
 - Members of the Public
 - Local Councils
 - Public Sector Organisations (e.g. regulators)
- Scoping of international partners



Thank you!

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