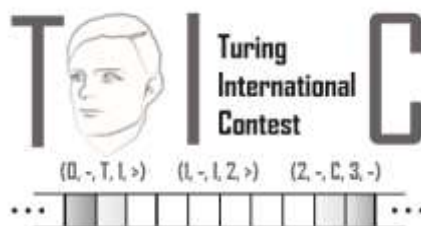


INVITATION TO THE OPEN TRAINING INTRODUCTION OF



Training Introduction: online – June 25, 2021, 9.30 – 11.30 CEST

Contest: online – September 15-17, 2021

<https://www.turingcontest.com/>

Organized by:

- GIUA Institute High School, Department of Computer Science - Cagliari
- University of Pisa - Department of Computer Science
- FAST-Federation of Scientific and Technical Associations, Milan

It is our pleasure to invite you to participate in the **open training introduction** of the **Turing International Contest (TIC)** for high-school students.

The event will take place on **Friday, June 25th, from 9.30 to 11.30 CEST** (GMT+2).

No technical knowledge of programming or the Turing machine is required: **during the event we will explain the basic concepts needed to use a Turing machine simulator, the training material, and the contest.**

More information (and material) are available at <https://www.turingcontest.com/training/>

This event requires **no registration** and will be freely accessible at the following link:

<https://andreasvincis-zrw.my.webex.com/andreasvincis-zrw.my/j.php?MTID=m678cf4a1ac505cd4e551fd0c7c76d2b4>

If you are a teacher, we kindly ask you to **forward this document to students** in your school.

Following the event, it will still be possible to register for a few days (email tic@fast.mi.it with the subject “TIC participation request”) possibly no later than **June 28th, 2021**).

Registered participants will have access to **a discord server** to chat with and ask questions to the tutors, more **live events**, and more **training material** that will be released regularly until the competition.

More information on the Turing machine, the contest and its prizes can be found below.

Best regards,
Antonio Cisternino, Alessio Conte (*University of Pisa*)
Antonello Zizi (*GIUA Institute High School, Cagliari*)
Rosaria Gandolfi, Alberto Pieri (*FAST, Milan*)

The Contest is an action promoted and co-financed by the Italian Ministry of University, Education and Research.

For your convenience, here below are more details on the competition.

This information can also be found at:

www.turingcontest.com

The Turing machine is one of the most beautiful and important intellectual discoveries of the 20th Century, proposed by Alan Turing in 1936: it is an extremely simple abstract model of computation that is powerful enough to embody any computer program. Without the Turing Machine, modern computers and computer science would not exist, as we know it.

Alan Turing is rightfully renowned as one of the founders of modern computer science and father of artificial intelligence. His contributions are not limited to mathematics and computer science, he also played a key role during the Second World War with decisive contributes to deciphering the Nazi ciphered messages using the famous Enigma machine.

In Italy, the national competition *Gara nazionale di programmazione della Macchina di Turing* takes place every year since 1996, engaging hundreds of high school students involved in computational thinking using Turing Machines.

TIC (Turing machine programming International Contest) is the first international competition of computational thinking using a Turing Machine Simulator, with the aim of involving and training students from all over the world in computational thinking. Due to the Covid-19 pandemic, the organizers have decided to propose a fully virtual edition in 2021, hoping to be able to continue with live competitions in the following years.

The usage of the Turing machine can be explained in a 15 minutes lesson, and no specific mathematical or computer skills are required, making the Turing Machine it the best possible start for a training in computational thinking: this is the art of understanding how humans can translate “intuitive” problems into the domain of computers, and create instructions by which a machine can efficiently solve them.

While a Turing Machine is very easily understood, some training is needed to develop advanced skills. Despite their simplicity, Turing machines possess the same computing expressivity of any modern computer when it comes to compute mathematical functions. Logical thinking and the ability to define algorithms using the simple simulator syntax are required to address the competition problems.

The competition tasks are of algorithmic nature but no knowledge of computer programming languages is required.

To prepare students for the competition, the organizers will provide educational materials to introduce students to the foundations of computer science via the Turing Machine paradigm. These videos will encompass some of the history which led to the design of modern computers, and give an idea to the students about how some hard problems in the real world can be translated into problems that can be solved with a computer.

Furthermore, they will provide technical material to teach students how to program a Turing Machine and specifically the Turing Machine simulator, which will be used during the competition. This latter material will include all the technical knowledge needed by the students to compete.

The material will be provided in two forms:

- Videos and video-lessons, uploaded to the competition website and YouTube channel. (to be released starting in late May, 2021 and always available for those starting their training a little bit later)
- Exercises that the students will be able to use to test their understanding of the video material, and train their skills before the competition. (To be released starting in late May, 2021, and always available to participants)

All material will be accessible via the website <https://www.turingcontest.com/>. Some material will be available only to registered participants at first, but will be publicly released after the competition.

It will also be possible for students to interact online with tutors via a Discord server, in order to ask questions and solve their doubts regarding the exercises (registered participants will be directly invited to the server). Questions can be asked at any time using the server chat, and there will be live events for direct interaction.

The competition will take place as follows. In general, each team is composed of two contestants, supervised by one teacher from their high school. During the competition, the three members of the team must be located in the same physical room; the students must have access to a computer with internet access and a browser, while the teacher must ensure the students do not rely on external help.

The students will be given a list of problems to be solved using the Turing Machine Simulator. Each solved problem awards a certain number of points that adds up to make the score of the team.

All high school students born after 15 Sept. 2002 and before 15 Sept. 2007 are allowed to participate as contestants.

The day before the competition (see schedule hereinafter), a simulation of the competition will be held, in order to give participants the chance to warm up.

Prizes

The winners of the "Turing Machine Programming International Contest" will be awarded a monetary prize of different cash amounts:

- 4.000 Euro to the first prize
- 2.000 Euro to the second prize
- 1.000 Euro to the third prize.

Schedule

Teams can apply by sending an email to tic@fast.mi.it with the subject "TIC participation request" possibly no later than **June 28th, 2021**. Please note that participation requests will be accepted on

a **first come first** basis until reaching the maximum number of teams (application forms with participant data will be asked consequently).

- June 2021: start of the training online
- September 13 and 14: National competition (for Italian teams only)
- September 15, 2021 - 9 to 12 am (UTC+2)*: warm up and simulation of the competition
- September 16, 2021 - 9 to 12 am (UTC+2)*: official competition
- September 17, 2021 - 9 to 12 am (UTC+2)*: award ceremony and scientific conference

() Central European Summer Time*

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www.turingcontest.com