

## **Creative minds, smart chips - students design their own microchips with AI voice control**

- **BMBF and VDE award prizes to winners of the INVENT a CHIP 2024 student competition**
- **Great demand: around 2,000 pupils from all over Germany took part**
- **Promoting young STEM talent in the field of artificial intelligence - young talents develop future technologies**

(Berlin/Frankfurt a. M., 27.11.2024) The winners of the nationwide [INVENT a CHIP](#) (IaC) competition impressively demonstrate that the next generation is already in the starting blocks to develop the technologies of tomorrow. Ten students who designed the best microchips with their own voice control and artificial intelligence (AI) were honored in Berlin yesterday evening. The aim of the competition organized by the Federal Ministry of Education and Research (BMBF) and the Association for Electrical, Electronic & Information Technologies (VDE) is to promote young talents who enjoy science, mathematics and technology. The great interest in future technologies was reflected in the high number of participants: around 2,000 pupils from 169 schools throughout Germany took part in this year's microchip competition. Nikolai Burov (16) from Friedrich-Wilhelm-Gymnasium in Cologne took first place with a prize of 2,000 euros.

### **Technical talent for the future**

VDE President Alf Henryk Wulf is delighted with the increased number of participants and, above all, the commitment of the young people: "Microchips play a key role in almost all areas, from medicine to mobility - and their importance will continue to grow. We are therefore delighted to see how our young talents are already helping to shape the technological future. The fact that the INVENT a CHIP winners are being celebrated this year as part of the VDE Capital City Forum and ceremony to mark the 70th anniversary of the VDE Information Technology Society makes this moment all the more special and underlines the importance of promoting young talent in this field."

## **Innovative and challenging: AI speech recognition**

In this year's competition, the students were asked to implement and improve AI speech recognition using neural networks in hardware on a development board (FPGA). A great challenge, as Prof. Holger Blume from the Institute of Microelectronic Systems (IMS) at Leibniz Universität Hannover says. The scientific director of the competition explains: "The functionality of FPGAs with programmable hardware was completely new to the young people, something I normally teach here at the university. The aim was to use the FPGA to build a speech recognition system that distinguishes between defined keywords and recognizes them correctly." INVENT a CHIP winner Nikolai Burov also implemented very complex audio signal pre-processing, as a result of which his chip design not only had the highest rate of correctly recognized keywords in the competition, but also the shortest execution time.

## **The fascination of microchips: Young people enthusiastic about competition**

The top 10 who stood on the big stage yesterday agreed that INVENT a CHIP is a springboard to a promising technological future. "INVENT a CHIP enables young people to creatively tackle a complex technical task and offers an interesting insight into the professional world of chip development," emphasized first-place winner Nikolai Burov, who would like to work in the STEM field later on.

The second place prize of 1,500 euros went to Milan Jelić (17) from Gymnasium in den Pfarrwiesen in Sindelfingen. Despite the competitive nature of the competition, the pupil actively supported the other participants. "The most interesting thing was finding out how to design chips and thinking about how to calculate several parts of the neural network at the same time in order to shorten the computing time," he says. Third place went to Niklas Pauly (17) from Evangelisches Gymnasium zum Grauen Kloster in Berlin. "Tracing the development of individual logic elements through to a functioning chip really fascinated me," says the pupil.

## **Promoting tomorrow's experts today**

The demand for qualified specialists in the STEM sector is high and growing. "The competition aims to familiarize pupils with the technology of the future, get them excited about the world of technology and also motivate them to start studying in this field," says VDE President Wulf.

This year's prizewinners made their first contacts with the university back in May at the IaC Camp, a four-day workshop at the IMS of Leibniz Universität Hannover. There, the young chip designers took advantage of the many opportunities to work with professionals to expand their knowledge and network.

Places four to ten of INVENT a CHIP are each endowed with 500 euros in prize money, all prize winners receive contacts to industry and universities, are nominated for the German National Academic Foundation and can complete an internship at Bosch in Reutlingen lasting several days.

Numerous sponsors support INVENT a CHIP to get young people interested in microchips and their applications, including: Bosch, Cologne Chip, Globalfoundries, Infineon, Mentor Graphics, Siemens, DKE.

#### **The winners of INVENT a CHIP 2024 at a glance:**

- Nikolai Burov (16) from Friedrich-Wilhelm-Gymnasium in Cologne, 1st place (2,000 euros)
- Milan Jelić (17) from Gymnasium in den Pfarrwiesen in Sindelfingen, 2nd place (1,500 euros)
- Niklas Pauly (17) from Evangelisches Gymnasium zum Grauen Kloster in Berlin, 3rd place (1,000 euros)
- Jonas Müller (21) from Vincent-Lübeck-Gymnasium in Stade, 4th place (500 euros)
- Leon Trogrlić (18) from the Grafenbergsschule in Schorndorf, 5th place (500 euros)
- Philip Pöhls (17) from Gymnasium Leopoldinum in Passau, 6th place (500 euros)
- Vladimir Ilyushko (16) from Städtisches Gymnasium Kreuzgasse in Cologne, 7th place (500 euros)
- Matthias Greger (18) from Asam-Gymnasium in Munich, 8th place (500 euros)
- Niklas Fuchs (17) from Luisenlund Grammar School in Gūby, 9th place (500 euros)
- Kurt Stiller (16) from Herder-Gymnasium in Berlin, 10th place (500 euros)

#### **About the VDE**

The VDE, one of the largest technology organizations in Europe, has stood for innovation and technological progress for more than 130 years. The VDE is the only organization in the world to unite science, standardization, testing, certification and application consulting under one roof. For more than 100 years, the VDE symbol has been synonymous with the highest safety standards and consumer protection.

We are committed to promoting research and young talent and to lifelong learning with on-the-job training opportunities. In the VDE network, more than 2,000 employees at over 60 locations worldwide, more than 100,000 volunteer experts and around 1,500 companies are shaping a future worth living in the VDE network: connected, digital, electric. We are shaping the e-digital future.

The VDE (VDE Association for Electrical, Electronic & Information Technologies) is based in Frankfurt am Main. More information at [www.vde.com](http://www.vde.com)

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