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Artificial Intelligence Dependability Assessment - Student Challenge (AI-DA-SC)

Siemens Mobility is pioneering transportation, moving people sustainably and seamlessly from the first mile to the last. With the help of artificial intelligence, we create new intelligent applications that make mobility safer, more comfortable, and more efficient. Moving beyond!

"Machine Learning" (ML) is of great importance in this context. The use of **ML techniques for safety decisions** is quite innovative and demanding – for example in autonomous driving we could either set new standards and certification rules or rely on better explainability and transparency algorithms. The underlying problems are quite complex, such as multi-sensor fusion, usually high-dimensional data and the sufficient trustworthiness. As a matter of fact, so far no ML based application has been certified to take safety decisions stand-alone.

This is where student genius comes in! Siemens Mobility invites 👉 **YOU** 👈 to train an Artificial Intelligence system for a **safety application** within an Open Innovation Challenge!

The aim of the Challenge

Siemens provides trustworthy safety mobility solutions and thus we need an AI solution that fulfills these challenging safety requirements.

To provide a safe and reliable environment for mobility, we ask students to create an **AI model for a simple classification problem with demanding safety requirements.** The problem is known from all textbooks, but the challenge is to fulfil the safety requirements with a high level of trust.

The task itself may somewhat oversimplify the problem, but the plain truth is that if we can't solve this simpler problem, how should we solve more complex problems? Or the other way around: if we solve the simple problem, we may be able to subsequently lift it to higher dimensions and complexity.

The task

Students are encouraged to develop an AI-model that classifies given datasets and shall provide a stringent and traceable justification for the misclassification probability of the model.

The **AI model:**

- shall be trained on a limited number of data in the 3 test-sets which are labeled either red or green (like a traffic light problem).
- shall be able to forecast unclassified/unlabeled data with a high trustworthiness.
- shall define the probability value of the system's decision for each data point and justify the underlying reasoning.

You will find here more details on the concrete challenge: https://ecosystem.siemens.com/ai-da-sc

What´s in for you?

The best safety justifications for the AI models will be awarded as winners.

A total of 10,000 EUR in prize money awaits the winning teams. Moreover, you´ll have the unique chance to present your proposals to an exclusive community of industrial managers and academic researchers at Siemens Mobility.

How can you participate?

- The competition is open for students and student teams from universities. Register now with your **university email address** in the Siemens Innovation Ecosystem: https://ecosystem.siemens.com/ai-da-sc
- The competition starts on **Monday, February 15th, 2021.** You can submit your AI-model and safety justification proposal **until May 2nd, 2021.**
- In a second phase, from May 17th until June 21st, 2021, the AI-models from the selected finalist student teams will be validated with extra datasets. The teams with the AI-model that provides the best predictions of the attributes of all datapoints and the most reliable and reproducible results will be selected as winners.

Siemens Mobility is looking forward to innovative and creative solutions that will bring acceptance of AI-systems in safety-relevant applications to the next level!

Contact

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