

Watch digital TV and films without disruptions thanks to mathematical model

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Dutch researcher Alina Weffers-Albu has developed a method to calculate how a device can provide maximum functionality with a minimum quantity of processor and memory capacity. TVs, DVD players and mobile phones can malfunction when the inbuilt chips and software cease to cope with the increasingly large flow of data.

An optimal configuration of components is essential for providing good quality under all conditions. If the system becomes overloaded because the chip cannot process all data then this can, for example, give rise to the picture on the TV screen suddenly pausing or becoming deformed.

Building in larger chips is an expensive solution. Weffers-Albu developed a method to calculate the optimal configuration of software components and the optimal quantity of system resources (processor, memory) required in this type of equipment.

During the development of a mathematical model, Weffers-Albu imposed the requirements that the equipment should be cheaper and more reliable. Bearing this in mind, she described the effects decisions about priority and buffer size had on the performance of software components. She also calculated how the flow of information in a device had to be planned. Finally, in her calculations she included the option that a buffer memory can take care of the 'system overload'.

Thanks to her mathematical model, it is no longer necessary to carry out simulations during the design of the system configuration. The model

can plan the data flow and arranges that data can be temporarily stored in a buffer in the event of overload. It also calculates the settings associated with a minimum overhead.

Source: NWO

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