

# The Center of Excellence in Social Technologies (NEES)

is affiliated with the Federal University of Alagoas (Ufal) and brings together a team of 145 professors and researchers from Brazilian and international universities.

Among its more than 50 partners are internationally renowned institutions such as Harvard University in the United States and the University of Oxford in England.

Promoting educational equity for social transformation is the driving purpose behind the NEES team.



**NEES**

NÚCLEO DE EXCELÊNCIA EM TECNOLOGIAS SOCIAIS

## THE SCENARIO IN BRAZIL

**43,7  
million**

is the number of students in basic education in Brazil, with 80% in public schools.

**70%**

of public schools do not have enough technological devices for pedagogical use.

**52%**

of public schools do not have Wi-Fi.

**31%**

of schools do not have adequate quality and speed of access for pedagogical use.

(Source: MEC)

Faced with challenging social scenarios, NEES seeks **to develop actions and projects to help reduce educational inequities for underprivileged people and regions in Brazil and also in the Global South.**

The NEES team created the concept of **AIED Unplugged**, developing solutions that do not require physical adaptations in schools, do not depend on stable internet access, nor significant digital skills by the tool users.

This allows students and teachers from remote and less privileged areas to **benefit from NEES-developed technologies, regardless of infrastructure and connectivity limitations.**

# NEES INITIATIVES IN ARTIFICIAL INTELLIGENCE IN EDUCATION



## Literacy and Numeracy Based on Paper

### APA

The Personalized Learning Monitoring (APA) is a mobile application that uses Artificial Intelligence to improve the writing skills of elementary students, particularly those from low-income communities, employs AI in Education (AIED) technologies to assess handwritten texts and provide personalized feedback, supporting learning recovery. The adoption of APA in 8,238 schools had a significant impact, benefiting 164,545 students and 8,000 teachers with a scalable and offline solution for essay assessment.

## School Dropout and Abandonment

### SPTe

The School Trajectory Protection System (SPTe) is a mobile application that helps prevent school dropout by identifying students at risk. Using offline technology, it guides interventions based on risk factors. The tool collects data through the digitization of paper questionnaires, which are stored on the device and uploaded to a server. The information is analyzed using Natural Language Processing (NLP) and psychometric techniques. An intelligent system provides feedback to school managers.

## Management and Data Science in Decision Making

### PNLD

NEES develops technologies for the Brazilian National Textbook Program (PNLD) of the Ministry of Education of Brazil (MEC), which distributes books free of charge throughout Brazil. This challenging task requires efficient planning and quality given the country's continental size. The research team works on developing computational solutions for various phases of the PNLD, including the use of artificial intelligence to support operational and management activities, enhancing the distribution of materials to thousands of students from North to South of the country.

## Efficiency Improvement

### MathAlde

MathAlde is a platform that assists math teachers, optimizing their work through Artificial Intelligence. By recording and storing students' answered exercises, the AI diagnoses the individual performance of each student. Teachers receive personalized reports, allowing them to tailor their teaching strategies according to the class results. The Learning Analytics component identifies students' specific skills and analyzes the methods they use in executing activities, providing a detailed analysis of their errors.

**NEES uses social innovation and applied technology to create transformative knowledge,** developing technological tools that positively impact the educational ecosystem.

**+ 30 million**  
STUDENTS SERVED

**+ 1000**  
PAPERS PUBLISHED

**+ 50**  
SOFTWARE OR  
PATENTS FILED



**+ 1200**  
TEAM MEMBERS

**+ 130**  
AWARDS RECEIVED

**+ 100**  
PHDS  
RESEARCHERS

**+ 1 million**  
TEACHERS BENEFITED

## FIELDS OF ACTION




**Evidence  
Generation**

**Design and  
implementation  
of public  
policies**

**Local  
capacity  
building**



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