

# Building a data-driven gaming dashboard to support autistic children

The Science and Technology Facilities Council (STFC) Hartree® Centre worked with game studio Autsera to develop an in-game dashboard that gives parents and teachers a clearer picture of their children's progress and helps identify areas where extra support is required.

## Challenge

Autsera helps autistic children communicate and interact socially by creating educational gaming apps that are centred on fun, engaging science-based gameplay. EmoGami is an app that asks children to match emotions with facial expressions through a series of over 800 puzzles, each spread across 10 levels of increasing difficulty. To help understand a child's performance as they progress through the app, Autsera were looking for a way to quantify and track a child's journey and present this information to parents, carers and teachers in an accessible, digestible format.

## Approach

The Hartree Centre's data science team carried out a statistical analysis of anonymised data from players of EmoGami. They used this to create a revised scoring matrix that captured variations in game performance over time, allowing results from different puzzles within the app to be compared. The team produced a dashboard to illustrate the new scoring metrics, using simple charts to show a child's progress overtime and highlight emotions they were able to successfully match to facial expressions. The dashboard also indicates areas that require improvement, and was made available online for Autsera to integrate into the EmoGami app.

## Benefits

This project provided Autsera with a new way to measure and track a child's progress using the EmoGami app and an accompanying dashboard designed to visualise an individual journey through the app's puzzles. Taken together, this will boost the effectiveness of the app by communicating a child's progress over time to their parents and teachers, enabling them to better target and structure additional support. For EmoGami, this could mean identifying specific emotions and facial expressions that a child could better familiarise themselves with.

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Thanks to the new scoring matrix we can show steady, less volatile and more representative data of a child's progress over time in EmoGami. The calculations make more sense, making the monitoring module more reliable and EmoGami more trustworthy.

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Inas Ismail  
Autsera



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We enjoyed working with the Hartree Centre to transform the dashboard. The outcome is clear, informative, and interactive. It allows parents, teachers and therapists to see where the child is progressing, the pace of progress, and where they struggle and need support. ”

**Omar Massoud**  
Autsera

## At a glance

- Our data scientists worked with Autsera, a game studio that supports autistic children with communication through educational apps
- Developed a new scoring matrix to capture variations in performance across puzzles in the app
- Created an in-game dashboard to give parents and teachers a clearer picture of their children's progress
- Provided a way to monitor, track and visualise a child's progress, identifying areas where additional support might be required

## Who we are

- 70+ computational scientists and technologists
- World-leading supercomputing and AI infrastructure
- Bespoke small teams built around your project
- Tailored business development support
- Access to our network of industry, academic and technology partners

## What we do

- Boost productivity and enhance innovation for industry
- Big data analytics and artificial intelligence (AI)
- High performance computing and quantum simulation
- Training and skills development
- Insights into future technologies



Credit: STFC Hartree Centre

## Our impact on UK industry and society

The Hartree Centre was created by UK Government to help businesses and public sector organisations accelerate the adoption of high performance computing (HPC), big data analytics and artificial intelligence (AI) technologies. We play a key role in realising UK Government's Industrial Strategy by stimulating applied digital research and innovation, creating value for the organisations we work with and generating economic and societal impact for the UK.

The Science and Technology Facilities Council (STFC) Hartree Centre is part of UK Research and Innovation.