# Cogisen Gaze Tracking Outperforms Competition in Max Planck Institute Benchmark

### Successful MPIIGAZE benchmark opens up new use cases for machine learning

Rome, Italy, September 2nd 2019 – Cogisen, the developer of artificial intelligence (AI) technologies, has announced its AI algorithms for gaze tracking have beaten the industry benchmark when using the Max Planck Institute's MPIIGAZE dataset.  These results also confirm Cogisen's innovative technology requires 0.1% of the number of model parameters and 1% of the MAdd operations compared to current Deep Learning technology. This is the latest industry benchmark Cogisen has beaten, having previously surpassed results for quantum dots state classification (NIST Data catalogue).

Cogisen undertook this benchmark study to demonstrate that it can go beyond the limitations of today's state-of-the-art machine learning technologies to accurately recognise data, particularly temporal and multi-dimensional information.  These results suggest a wide variety of applications ranging from virtual reality to physical purchase automation and human-machine interaction.  When combined with the results in other benchmarks it suggests Cogisen could offer huge benefits to the video game and pharmaceutical industries to improve the accuracy and performance, while offering similar benefits to automotive and aerospace designers seeking to analyse data.  Cogisen is also using quantum dots datasets to conduct benchmark tests and demonstrate its ability to control a simple configuration of quantum dots, which is critical to addressing the twin challenges of noise and scalability in the semiconductor industry.

"We are delighted with the performance of the Cogisen AI algorithms when using the MPIIGAZE dataset, because it confirms our belief that we can dramatically improve the performance of gaze tracking applications," said Pratap Reddy, Chief Business Officer, Cogisen.  "When considered alongside our other successful benchmark studies it shows the significant potential of our AI platform compared to today's state-of-the-art Convolutional Neural Networks (CNN). We achieved these results with a number of parameters about one thousandth of typical Deep Learning approaches, convincing us that our approach is effective for real time applications."

The recent benchmarks that Cogisen has undertaken have delivered impressive results, including:

- 98.6% percent accuracy in quantum dots state classification, a 2.6% improvement over the NIST proposal based on CNN.
- The ability to discriminate three different vortices speeds (under critical speed, around critical speed, over critical speed) in a fluid – something that today's state-of-the-art machine learning is struggling to achieve
- The ability to classify movements in dynamic 3D meshes, another machine learning challenge which is proving hard for CNN-based approaches
- When using the MPIIGaze dataset Cogisen has broken through the 4° angular error barrier, which CNN based algorithms have not achieved

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Cogisen is building machine learning models within the frequency domain, which are based on cognitive modelling, rather than brute force statistics.  This approach seeks to understand the underlying mathematics used by the human cognitive mind to recognise objects, which is a far more efficient and scalable model to deal with temporal and multi-dimensional data.  To support the commercialisation of its technology, Cogisen has been working with leading universities and attending influential scientific conferences in the Computer Vision and Quantum Information fields to outline its thinking and make connections with academia around the latest trends in research.  The successful completion of these benchmarks and continued engagement with the academic community is integral to the company's strategy, as it expands the application of its AI algorithms across a wide variety of industry sectors, such as cybersecurity, automotive, telecommunications and aerospace.

**About Cogisen**

Cogisen is made up of a team of world-class experts developing AI cognitive modelling technology to extract meaning and context from video and other inputs.  The innovative and patented AI algorithms underpinning the Cogisen Cognitive AI Platform are opening up a wide variety of market opportunities.  The company is starting to demonstrate its use in fields such as predicting eye fixations, detecting specific actions in security camera applications, data analysis for engineering design and virtual reality.  The company's Cognitive Modelling Lab is also building applications for industries as diverse as cybersecurity, automotive, telecommunications, pharmaceuticals, automotive and aerospace.

For more information, please visit:  www.cogisen.com

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