CHIBA UNIVERSITY

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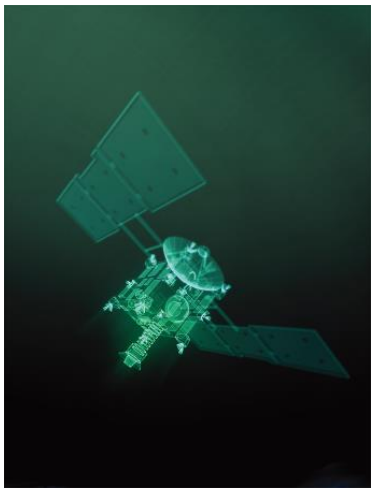
Special-purpose computer system enables video holography!

Chiba University "Next-generation 3D display and measurement" group (leader: Associate Prof. T. Shimobaba) developed an original computer system and showed the possibility of practical application of video holography. The research is published in April issue of ***Nature Electronics***, and the 3D reconstructed image by the research group is adopted as the cover image named "**Video holography lifts off**".

■Video holography is one of grand challenges for 70 years

Video holography remains as a next-generation technology for 70 years since holography was born. The computational complexity is the most important problem. Even today's computers showing a dramatic advance lack in performance. It is said that video holography into practical use requires another 20 years.

On the other hand, holography is suitable for parallel computation. The research group developed a computer dedicated to holography and showed that video holography is possible by parallelizing a large number of dedicated circuits even at the current calculation power.



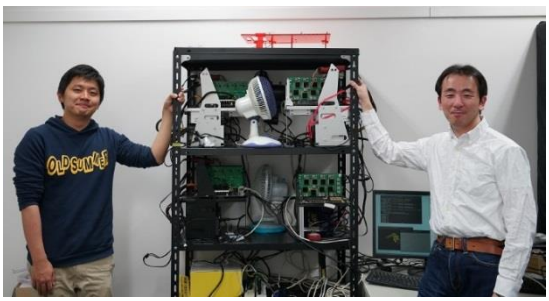
The reconstructed image on the cover of Nature Electronics April issue.

■Original hardware system "HORN"

The computer is HORN-8, the eighth prototype of the high-speed hardware project "HORN (HOlographic ReconstructioN)" that Prof. T. Ito started 25 years ago. Associate Prof. T. Sugie developed the world's largest scale FPGA (Rewritable Integrated Circuit) board. A graduate student Mr. T. Akamatsu mainly implemented the circuit. There, the research results that the project has advanced were added. In the research field of holography, Chiba University is one of the highest groups with high-speed computing technology, and its symbol is HORN.

■Prof. Ito's comments

I am pleased the research going on for quarter century has become fruit. The board level study has been completed and we proceed to the chip level study for the next 5 to 10 years. HORN chip is the goal of the project and we hope to realize practical application of holographic imaging system.



HORN-8 system (center), Akamatsu (left) and Sugie (right)

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