

# Remark Holdings

## Remark AI Finishes in Top 5 in Recent NIST Computer Vision Test

July 28, 2021

### Outperforms Billion-Dollar Unicorns

LAS VEGAS, July 28, 2021 /PRNewswire/ -- Remark Holdings, Inc. (NASDAQ: MARK), a diversified global technology company with leading artificial intelligence ("AI") solutions and digital media properties, today announced that the latest software from its Remark AI business achieved a top-five ranking in a recent computer-vision test (the Face Recognition Vendor Test, or "FRVT") conducted by the U.S. National Institute of Standards and Technology ("NIST"). Specifically, 198 systems were tested in the FRVT for their ability to verify that a person is wearing a face mask.

Remark AI's software system is a top solution, outperforming the systems of many billion-dollar unicorns

"The results of the FRVT, along with top finishes in several other tests and competitions over the last few years, establish beyond doubt that Remark AI's software system is a top solution, outperforming the systems of many billion-dollar unicorns," stated Kai-Shing Tao, Chairman and Chief Executive Officer of Remark Holdings. "Remark AI's solutions are designed to ensure that the algorithms powering its AI system are superior in the market. Besides state-of-the-art facial-recognition algorithms, Remark AI provides a one-stop solution, the Safety Space Platform (SSP), for use in various industries

including the office, hospitality, education, retail, healthcare, transportation, manufacturing, construction, agriculture, and smart-city spaces. Remark AI not only provides the highest level of accuracy, but also maintains the highest level of data privacy and protection on the market."

Algorithm	VISABORDER Photos FNMR @ FMR ≤ 0.00001 (NOT MASKED)	VISABORDER Photos FNMR @ FMR ≤ 0.00001 (MASKED PROBE) lightblue, wide, medium coverage	Submission Date
versetime-005	0.0020 <sup>(2)</sup>	0.0149 <sup>(1)</sup>	2021-05-24
xforwardai-002	0.0037 <sup>(2)</sup>	0.0159 <sup>(2)</sup>	2021-02-10
devoelint-003	0.0039 <sup>(2)</sup>	0.0202 <sup>(2)</sup>	2021-03-03
ntechlab-010	0.0026 <sup>(2)</sup>	0.0205 <sup>(4)</sup>	2021-04-30
remarkai-001	0.0039 <sup>(2)</sup>	0.0229 <sup>(2)</sup>	2021-06-22
cloudwalk-ent-003	0.0034 <sup>(2)</sup>	0.0237 <sup>(4)</sup>	2020-12-22
devoelint-002	0.0039 <sup>(2)</sup>	0.0237 <sup>(7)</sup>	2019-11-15
cloudwalk-fr-004	0.0048 <sup>(2)</sup>	0.0240 <sup>(8)</sup>	2021-02-10
insightface-000	0.0034 <sup>(2)</sup>	0.0240 <sup>(9)</sup>	2021-03-17
socials-007	0.0045 <sup>(2)</sup>	0.0261 <sup>(10)</sup>	2020-12-28
versetime-004	0.0039 <sup>(2)</sup>	0.0272 <sup>(1)</sup>	2020-11-20
seravision-004	0.0088 <sup>(1)</sup>	0.0281 <sup>(12)</sup>	2019-12-11
seravision-005	0.0071 <sup>(2)</sup>	0.0289 <sup>(13)</sup>	2021-02-01
xforwardai-001	0.0041 <sup>(2)</sup>	0.0289 <sup>(14)</sup>	2020-09-25
sktelcom-000	0.0033 <sup>(2)</sup>	0.0299 <sup>(1)</sup>	2021-07-09

Traditionally, computer-vision systems that handle facial recognition tasks, among other functionalities, mostly dealt with unmasked faces, which allowed facial features such as the eyes, nose, and mouth to be used in the evaluation process. However, the COVID-19 pandemic caused a very significant increase in the number of people wearing facemasks, such that computer-vision systems have to adapt to evaluating masked faces and improve recognition of mask wearing to meet security and health-safety rules and regulations.

The FRVT evaluated 198 computer-vision systems on criteria such as accuracy, speed, storage and memory. Remark AI's system performed exceedingly well on all metrics across the board, whether evaluating faces with or without mask. Remark AI developed its algorithm to, among other functionalities, identify faces in video footage, which is considered one of the most technically challenging tasks. As a result of this advantage, Remark AI's system also ranked in the top 15 in the wild face in unconstrained scenarios in the FRVT, performing strongly at extreme views and extreme angles in complex surveillance scenarios that included various lighting conditions, amounts of distortion, and blurred images.

Algorithm	Submission Date	VISA Photos FMR s 0.000001	MUGSHOT Photos FMR s 0.00001	MUGSHOT Photos FMR s 0.00001 DT++12 YRS	VISABORDER Photos FMR s 0.000001	BORDER Photos FMR s 0.000001	WLD Photos FMR s 0.00001	CHILD EXP Photos FMR s 0.01
errucat-001	2020-07-06	0.0046 <sup>(2)</sup>	0.0033 <sup>(2)</sup>	0.0047 <sup>(2)</sup>	0.0506 <sup>(2)</sup>	0.0202 <sup>(2)</sup>	0.0293 <sup>(2)</sup>	-
remotime-003	2021-05-24	0.0029 <sup>(1)</sup>	0.0022 <sup>(2)</sup>	0.0021 <sup>(2)</sup>	0.0023 <sup>(2)</sup>	0.0044 <sup>(2)</sup>	0.0299 <sup>(2)</sup>	-
paravision-005	2021-02-01	0.0025 <sup>(1)</sup>	0.0026 <sup>(4)</sup>	0.0026 <sup>(4)</sup>	0.0075 <sup>(2)</sup>	0.9933 <sup>(2)</sup>	0.0299 <sup>(2)</sup>	-
retivision-000	2020-10-28	0.0048 <sup>(2)</sup>	0.0038 <sup>(4)</sup>	0.0049 <sup>(2)</sup>	0.0051 <sup>(2)</sup>	0.0094 <sup>(2)</sup>	0.0299 <sup>(2)</sup>	-
vidoc-000	2021-06-02	0.0046 <sup>(2)</sup>	0.0040 <sup>(4)</sup>	0.0053 <sup>(4)</sup>	0.0054 <sup>(2)</sup>	0.0096 <sup>(2)</sup>	0.0300 <sup>(2)</sup>	-
insightface-000	2021-03-17	0.0027 <sup>(2)</sup>	0.0029 <sup>(1)</sup>	0.0030 <sup>(2)</sup>	0.0038 <sup>(2)</sup>	0.0077 <sup>(2)</sup>	0.0300 <sup>(2)</sup>	-
saahai-000	2020-06-25	0.0059 <sup>(4)</sup>	0.0036 <sup>(2)</sup>	0.0048 <sup>(2)</sup>	0.0057 <sup>(2)</sup>	0.0125 <sup>(2)</sup>	0.0300 <sup>(2)</sup>	-
shiv-004	2021-05-13	0.0025 <sup>(2)</sup>	0.0027 <sup>(1)</sup>	0.0028 <sup>(2)</sup>	0.0046 <sup>(2)</sup>	0.0086 <sup>(1)</sup>	0.0300 <sup>(2)</sup>	-
dahua-005	2020-08-13	0.0046 <sup>(2)</sup>	0.0039 <sup>(4)</sup>	0.0049 <sup>(2)</sup>	0.0046 <sup>(2)</sup>	0.0076 <sup>(2)</sup>	0.0300 <sup>(2)</sup>	-
deepnet-003	2021-03-03	0.0038 <sup>(2)</sup>	0.0030 <sup>(2)</sup>	0.0032 <sup>(1)</sup>	0.0043 <sup>(2)</sup>	0.0082 <sup>(1)</sup>	0.0300 <sup>(2)</sup>	-
deepnet-002	2019-11-15	0.0027 <sup>(1)</sup>	0.0032 <sup>(2)</sup>	0.0033 <sup>(1)</sup>	0.0043 <sup>(1)</sup>	0.0084 <sup>(1)</sup>	0.0301 <sup>(1)</sup>	0.3422 <sup>(2)</sup>
scikit-003	2021-03-11	0.0057 <sup>(2)</sup>	0.0033 <sup>(2)</sup>	0.0047 <sup>(2)</sup>	0.0045 <sup>(1)</sup>	0.0095 <sup>(2)</sup>	0.0301 <sup>(2)</sup>	-
dahua-006	2020-12-30	0.0039 <sup>(2)</sup>	0.0031 <sup>(2)</sup>	0.0039 <sup>(2)</sup>	0.0039 <sup>(2)</sup>	0.0067 <sup>(2)</sup>	0.0301 <sup>(2)</sup>	-
remarkai-003	2021-06-22	0.0063 <sup>(2)</sup>	0.0033 <sup>(2)</sup>	0.0049 <sup>(2)</sup>	0.0054 <sup>(2)</sup>	0.0100 <sup>(2)</sup>	0.0302 <sup>(2)</sup>	-
cle-001	2020-08-05	0.0061 <sup>(2)</sup>	0.0030 <sup>(2)</sup>	0.0041 <sup>(2)</sup>	0.0048 <sup>(2)</sup>	0.0578 <sup>(1)</sup>	0.0302 <sup>(1)</sup>	-
cyberlink-006	2021-01-08	0.0054 <sup>(2)</sup>	0.0043 <sup>(4)</sup>	0.0049 <sup>(2)</sup>	0.0052 <sup>(2)</sup>	0.0099 <sup>(2)</sup>	0.0302 <sup>(1)</sup>	-

Remark AI's system, powered by its award-winning algorithm (i.e., models and SDKs), combines multi-sensor IoT & AI modules, allowing for tasks such as pedestrian monitoring, action recognition, detection of abnormal events, 3D positioning, temperature measurement, and many other functions. Remark AI has taken the crucial first step towards bridging the digital-to-physical divide with a system for understanding how people experience and interact with the physical world.

Additional information regarding Remark AI and its other innovative solutions can be found on its website (<https://remarksafety.com>).

# Remark Holdings

### About Remark Holdings, Inc.

Remark Holdings, Inc. (NASDAQ: [MARK](#)) delivers an integrated suite of AI solutions that enable businesses and organizations to solve problems, reduce risk and deliver positive outcomes. The company's easy-to-install AI products are being rolled out in a wide range of applications within the retail, financial, public safety and workplace arenas. The company also owns and operates an e-commerce digital media property focused on a luxury beach lifestyle. The company is headquartered in Las Vegas, Nevada, with additional locations in Los Angeles, California; the London, England area and in Beijing, Shanghai, Chengdu and Hangzhou, China. For more information, please visit the company's website ([www.remarkholdings.com](http://www.remarkholdings.com)).

### About NIST

The National Institute of Standards and Technology (NIST) was founded in 1901 and is now part of the U.S. Department of Commerce. The NIST is one of the nation's oldest physical science laboratories. Congress established the agency to remove a major challenge to U.S. industrial competitiveness at the time—a second-rate measurement infrastructure that lagged behind the capabilities of the United Kingdom, Germany, and other economic rivals.

Today, NIST measurements support the smallest of technologies to the largest and most complex of human-made creations—from nanoscale devices so tiny that tens of thousands can fit on the end of a single human hair up to earthquake-resistant skyscrapers and global communication networks. For more information, please visit the institution's website (<https://www.nist.gov>).

### Forward-Looking Statements

This press release may contain forward-looking statements, including information relating to future events, future financial performance, strategies, expectations, competitive environment and regulation. Words such as "may," "should," "could," "would," "predicts," "potential," "continue," "expects," "anticipates," "future," "intends," "plans," "believes," "estimates," and similar expressions, as well as statements in future tense, identify forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors, including those discussed in Part I, Item 1A. Risk Factors in Remark Holdings' Annual Report on Form 10-K and Remark Holdings' other filings with the SEC. Any forward-looking statements reflect Remark Holdings' current views with respect to future events, are based on assumptions and are subject to risks and uncertainties. Given such uncertainties, you should not place undue reliance on any forward-looking statements, which represent Remark Holdings' estimates and assumptions only as of the date hereof. Except as required by law, Remark Holdings undertakes no obligation to update or revise publicly any forward-looking statements after the date hereof, whether as a result of new information, future events or otherwise.

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