

Smartphone sensors become antimatter camera

At CERN, scientists from the AEGIS collaboration led by a team of the Technical University of Munich (TUM) have repurposed smartphone camera sensors to create a detector capable of tracking antiproton annihilations in real time with unprecedented resolution. This new device, described in a paper just published, can pinpoint antiproton annihilations with a resolution of about 0.6 micrometres, a 35-fold improvement over previous real-time methods.

Scientists working at the “Antihydrogen Experiment: Gravity, Interferometry, Spectroscopy” (AEGIS) and other experiments at CERN’s Antimatter Factory, such ALPHA and GBAR, are on a mission to measure the free-fall of antihydrogen under Earth’s gravity with high precision, each using a different technique.

AEGIS’s approach involves producing a horizontal beam of antihydrogen and measuring its vertical displacement using a device called a moiré deflectometer that reveals tiny deviations in motion and a detector that records the antihydrogen annihilation points. “For AEGIS to work, we need a detector with incredibly high spatial resolution, and mobile camera sensors have pixels smaller than 1 micrometer,” says Francesco Guatieri from the research neutron source FRM II at TUM and Principal Investigator of the research.

Researchers from chemistry, biology, and medicine are increasingly turning to AI models to develop new hypotheses. However, it is often unclear on which basis the algorithms come to their conclusions and to what extent they can be generalised. A publication by the University of Bonn now warns of misunderstandings in handling artificial intelligence. At the same time, it highlights the conditions under which researchers can most likely have confidence in the models.

Adaptive machine learning algorithms are incredibly powerful. Nevertheless, they have a disadvantage: How machine learning models arrive at their predictions is often not apparent from the outside.

Suppose you feed artificial intelligence with photos of several thousand cars. If you now present it with a new image, it can usually identify reliably whether the picture also shows a car or not. But why is that? Has it really learned that a car has four wheels, a windshield, and an exhaust? Or is its decision based on criteria that are actually irrelevant - such as the antenna on the roof? If this were the case, it could also classify a radio as a car.

“AI models are black boxes,” highlights Prof. Dr. Jürgen Bajorath. “As a result, one should not blindly trust their results and draw conclusions from them.” The computational chemistry expert heads the AI in Life Sciences department



at the Lamarr Institute for Machine Learning and Artificial Intelligence. He is also in charge of the Life Science Informatics program at the Bonn-Aachen International Center for Information Technology (b-it) at the University of Bonn. In the current publication, he investigated the question of when one can most likely rely on the algorithms. And vice versa: When not.

The concept of “explainability” plays an

important role in this context. Metaphorically speaking, this refers to efforts within AI research to drill a peephole into the black box. The algorithm should reveal the criteria that it uses as a basis - the four wheels or the antenna. “Opening the black box currently is a central topic in AI research,” says Bajorath. “Some AI models are exclusively developed to make the results of others more comprehensible.”

Explainability, however, is only one aspect - the question of which conclusions might be drawn from the decision-making criteria chosen by a model is equally important. If the algorithm indicates that it has based its decision on the antenna, a human being knows immediately that this feature is poorly suited for identifying cars. Despite this, adaptive models are

generally used to identify correlations in large data sets that humans might not even notice. We are then like aliens who do not know what makes a car: An alien would be unable to say whether or not an antenna is a good criterion.

“There is another question that we always have to ask ourselves when using AI procedures in science,” stresses Bajorath, who is also a member of the Transdisciplinary Research Area (TRA) “Modelling”: “How interpretable are the results?” Chemical language models currently are a hot topic in chemistry and pharmaceutical research. It is possible, for instance, to feed them with many molecules that have a certain biological activity. Based on these input data, the model then learns and ideally

suggests a new molecule that also has this activity but a new structure. This is also referred to as generative modeling. However, the model can usually not explain why it comes to this solution. It is often necessary to subsequently apply explainable AI methods.

Nonetheless, Bajorath warns against over-interpreting these explanations, that is, anticipating that features the AI considers important indeed cause the desired activity. “Current AI models understand essentially nothing about chemistry,” he says. “They are purely statistical and correlative in nature and pay attention to any distinguishing features, regardless of whether these features might be chemically or biologically relevant or not.”



12,900 km ultra-secure quantum satellite link

Scientists from South Africa and China have successfully established the world’s longest intercontinental ultra-secure quantum satellite link, spanning 12,900 km. Using the Chinese quantum microsatellite Jinan-1, launched into low Earth orbit, this milestone marks the first-ever quantum satellite communication link established in the Southern Hemisphere.

In this demonstration, quantum keys were generated in real-time through Quantum Key Distribution (QKD), enabling the secure encryption of images transmitted between ground stations in China and South Africa via one-time pad encryption - considered unbreakable. The results from this pioneering experiment from a collaborative research initiative between scientists from Stellenbosch University (South Africa) and the University of Science and Technology of China were published recently.

Stellenbosch’s ideal environmental conditions - clear skies and low

humidity - allowed the local ground station to achieve an exceptional key generation rate of 1.07 million secure bits during a single satellite pass.

Quantum communication leverages fundamental principles of quantum mechanics, guaranteeing highly secure information transfer. Quantum Key Distribution, a critical component, employs single photons to encode and transmit secure keys. Because single photons cannot be intercepted, copied, or measured without altering their quantum states, this technology provides unparalleled security, even against powerful adversaries.

China has impressive accomplishments in quantum communication technology, guided by quantum physicist Prof Jian-Wei Pan. The country’s extensive quantum infrastructure includes a 2,000 km terrestrial fibre-based quantum network connecting 32 trusted nodes across major cities, from Beijing to Shanghai. Prof Juan Yin was

instrumental in developing China’s first quantum satellite, Micius, previously demonstrated ground-breaking satellite-based quantum links, including a notable 7,600 km intercontinental link between China and Austria in 2017. For this South Africa-China collaboration, Prof Juan Yin again led the Chinese research team.

The South African research team at Stellenbosch University’s Department of Physics was led by Dr Yaseera Ismail, the lead experimentalist responsible for successfully establishing the quantum satellite link. Prof Francesco Petruccione, Professor of Quantum Computing in the School of Data Science and Computational Thinking and Director of the National Institute for Theoretical and Computational Sciences (NITheCS) at Stellenbosch University, pioneered quantum communication in South Africa, notably developing one of the world’s first fibre-optic quantum communication networks in Durban.

Exception to laws of thermodynamics

A team of researchers led by a physics graduate student at the University of Massachusetts Amherst recently made the surprising discovery of what they call a “shape-recovering liquid,” which defies some long-held expectations derived from the laws of thermodynamics. The research, published recently, details a mixture of oil, water and magnetized particles that, when shaken, always quickly separates into what looks like the classically curvaceous lines of a Grecian urn.

“Imagine your favorite Italian salad dressing,” says Thomas Russell, Silvio O. Conte Distinguished Professor of Polymer Science and Engineering at UMass Amherst and one of the paper’s senior authors. “It’s made up of oil, water and spices, and before you pour it onto your salad, you shake it up so that all the ingredients mix.” It’s those spices, those small bits of something else, that allow

water and oil, which are normally mutually exclusive, to mix, a process called emulsification and which is described by the laws of thermodynamics.

Emulsification underlies a vast range of technologies and applications far beyond condiments, and one day, UMass Amherst graduate student Anthony Raykh was in the lab mixing up a batch of this scientific “salad dressing” to see what he could create -- only instead of spices, he was using magnetized particles of nickel, “because you can engineer all sorts of interesting materials with useful properties when a fluid contains magnetic particles,” says Raykh. He made his mixture, shook it up -- “and, in a complete surprise, the mixture formed this beautiful, pristine urn-shape.” No matter how many times or how hard he shook, the urn shape always returned.

Study unveils new strategy for wave control

Researchers at the Advanced Science Research Centre at the CUNY Graduate Center (CUNY ASRC) and at Florida International University recently reported their insights on the emerging field of complex frequencies excitations, a recently introduced scheme to control light, sound and other wave phenomena beyond conventional limits. Based on this approach, they outline opportunities that advance fundamental understanding of wave-matter interactions and usher wave-based technologies into a new era.

In conventional light wave and sound wave-based systems such as wireless cell phone technologies, microscopes, speakers and earphones, the control over wave phenomena is limited by constraints, which stem from the fundamental properties of the materials used in these technologies. Overcoming these constraints typically requires the use of exotic materials, adding energy to the system, and or making the devices more complex and cumbersome. Complex frequency excitations offer an alternative approach to enhance wave control using conventional materials. By tailoring the excitation form, rather than the materials themselves, to oscillate at complex-valued frequencies, it is possible to emulate the presence of gain and loss in the system, unlocking exotic effects such as perfect absorption, super-resolution imaging, surpass passivity limitations in wave-matter interactions, and access non-Hermitian responses, without having to rely on active complex components that require energy and are prone to instabilities. “This approach provides a fundamentally new strategy for wave control,” said the study’s principal investigator Andrea Alù, Distinguished Professor and Einstein Professor of Physics at The City University of New York Graduate Center and founding director of the CUNY ASRC Photonics Initiative. “We are no longer limited by the material platform to enhance the device performance. We can now shape how wave-based systems respond simply by designing the right kinds of excitations.”

**ADITYA BIRLA CAPITAL**
PROTECTING INVESTING FINANCING ADVISING

ADITYA BIRLA CAPITAL LTD.
Registered Office: Indian Rayon Compound, Veralva, Gujarat-362 266;
Corporate Office : 12th Floor, R Teck Park, Nirlon Complex, Near Hub Mall, Goregaon (East), Mumbai-400 063, Maharashtra

CORRIGENDUM / AMENDMENT
This Reference to our Advertisement Regarding **E-AUCTION SALE NOTICE** of Borrower **M/s. SAI GARMENTS**, Loan A/c. No. : **ABCOISTS000000676166** Published in this Newspaper on **Thursday, 03.04.2025 & Tuesday, 08.04.2025. KINDLY NOTE THAT** in pursuance of the order dated 24.03.2025 passed by Ld. NCLT, Ahmedabad, the Hon'ble NCLT, Ahmedabad was pleased to allow the Amalgamation of **Aditya Birla Finance Ltd.** with **Aditya Birla Capital Ltd.** Therefore, the Captioned Sale notice issued to you be considered to be issued by **Aditya Birla Capital Ltd.** Other Terms and Condition will remain the same.
Place: Tiruppur, Tamil Nadu. **Sd/-**
Date : 09.04.2025 **Authorised Officer, ADITYA BIRLA CAPITAL LTD.**

**HDFC BANK**


Registered Office: HDFC Bank House, Senapati Bapat Marg, Lower Parel (West), Mumbai - 400 013 and having one of its office as
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Retail Portfolio Management at HDFC Bank Ltd, 1st Floor, I-Think Techno Campus, Kanjurmargin (East), Mumbai - 400042.

SALE INTIMATION AND PUBLIC NOTICE FOR SALE OF SECURITIES PLEDGED TO HDFC BANK LTD.
The below mentioned Borrowers of HDFC Bank Ltd. (the "Bank") are hereby notified regarding the sale of securities pledged to the Bank, for availing credit facilities in the nature of Loan/Overdraft Against Securities.
Due to persistent default by the Borrowers in making repayment of the outstanding dues as per agreed loan terms, the below loan accounts are in delinquent status. The Bank has issued multiple notices to these Borrowers, including the final sale notice on the below-mentioned date whereby, Bank had invoked the pledge and provided 7 days' time to the Borrower to repay the entire outstanding dues in the below accounts, failing which, Bank would be at liberty to sell the pledged securities without issuing further notice in this regard. The Borrowers have neglected and failed to make due repayments, therefore, Bank in exercise of its rights under the loan agreement as a pledgee has decided to sell / dispose off the Securities on or after **16th April 2025** for recovering the dues owed by the Borrowers to the Bank. The Borrowers are, also, notified that, if at any time, the value of the pledged securities falls further due to volatility in the stock market to create further deficiency in the margin requirement then Bank shall at its discretion sell the pledged security within one (1) calendar day, without any further notice in this regard. The Borrower(s) shall remain liable to the Bank for repayment of any remaining outstanding amount, post adjustment of the proceeds from sale of pledged securities.

Sr. No.	Loan Account Number	Borrower's Name	Outstanding Amount as on 06 th April 2025	Date of Sale Notice
1	XXXX3581	N NANDA GOPAL	2,71,921.02	07-04-2025
2	XXXX0063	DATTATHREYAN GEETHANJALI	19,64,137.26	07-04-2025
3	XXXX2026	MANUEL THOMAS	52,217.23	07-04-2025
4	XXXX0839	S LATHA	29,497.38	07-04-2025
5	XXXX0439	V RANGANATHAN	135.93	07-04-2025
6	XXXX7892	G SUDHA SADHASIVAM	9,28,598.55	07-04-2025
7	XXXX6490	N SHIVRAJ VYAS	26,166.40	07-04-2025
8	XXXX1902	C LALITHA	4,47,219.00	07-04-2025
9	XXXX3175	GAYATHRI R	2,66,852.66	07-04-2025
10	XXXX7588	MANICKAVELUSWAMY V	41,405.72	07-04-2025
11	XXXX3556	ANANDA KRISHNAN P	2,26,729.62	07-04-2025
12	XXXX8260	MANIMEKALAI NAGENDIRAN	7,56,293.99	07-04-2025
13	XXXXX2100	R PUNITHA	99,902.64	07-04-2025
14	XXXX1874	ISRAEL VIVEK PRASAD A	13,964.71	07-04-2025
15	XXXX2702	JAYANTHI SWAMINADHAN	9,32,007.98	07-04-2025
16	XXXX0510	K RAYAPPAN	68,210.79	07-04-2025
17	XXXX9621	K GEETHA	1,52,523.40	07-04-2025
18	XXXX9760	VASUDEVAN A	7,58,243.68	07-04-2025
19	XXXX4200	KRITHIKA G	2,24,050.00	07-04-2025
20	XXXX7061	PANDU RANGA RAO KOTA	5,67,806.23	07-04-2025
21	XXXXX6147	RAMA JAGANNATHAN	19,537.60	07-04-2025
22	XXXX7635	HEL J SHAH	20,18,590.64	07-04-2025
23	XXXX9162	BANSIDHAR SARDIA	18,84,277.60	07-04-2025
24	XXXXX3174	SEKAR T	2,59,538.99	07-04-2025
25	XXXX6502	KARTHIKEYAN THANGAVEL	3,04,156.52	07-04-2025
26	XXXX8400	VINOD KARUNAKARAN	13,940.12	07-04-2025
27	XXXX4502	MALAVIKA JAYARAM	3,85,188.48	07-04-2025
28	XXXX7084	JAYANTHI SWAMINADHAN	3,84,029.00	07-04-2025
29	XXXXX3301	V SENDILNATH	9,44,519.83	07-04-2025
30	XXXX8772	ARIJEET CHAUDHRY	4,60,394.80	07-04-2025
31	XXXX0078	SUNDARAMCHETTIAR RANGANATHAM KANDASAMY	20,468.50	07-04-2025
32	XXXX6122	SUNDARAMCHETTIAR RANGANATHAN MURALI	34,862.01	07-04-2025
33	XXXX7415	POORANIDEVI C	1,88,701.90	07-04-2025
34	XXXX4502	SASIREKA JAYAPAL	7,82,467.28	07-04-2025
35	XXXX5995	KRISHNAPRASATH S/O RAJA CHIDAMBARAM	1,96,199.52	07-04-2025
36	XXXX9712	ARIVUSUDAR WIFE OF BALAKRISHNAN	4,88,395.00	07-04-2025
37	XXXX9764	L NACHAMMAI	9,99,195.82	07-04-2025
38	XXXX8618	MAYI DIVYA	2,86,401.82	07-04-2025
39	XXXX3870	PRADEEP V	3,62,201.82	07-04-2025
40	XXXX8672	K R BALASUBRAMANIAN	9,45,300.54	07-04-2025
41	XXXX5531	BHASKARASAMY	1,74,607.00	07-04-2025
42	XXXX7396	SARASWATHI N	10,08,851.20	07-04-2025
43	XXXX4544	S DURGASHANKAR	482.02	07-04-2025
44	XXXX2700	J RAJADURAI	4,16,956.88	07-04-2025
45	XXXX3952	S ARUNMOZHI	4,31,124.82	07-04-2025
46	XXXX8539	G L VIJAYARAGHAVAN	6,65,372.00	07-04-2025
47	XXXX9137	SRINIVASAN VENKATACHALAM	9,37,519.70	07-04-2025

Date : 09.04.2025 **Sd/-**
Place : TAMIL NADU **HDFC BANK LTD.**

**RELIANCE ASSET RECONSTRUCTION CO. LTD.**
Asset Reconstruction

POSSESSION NOTICE (SEE RULE 8 (1)) (FOR IMMOVABLE PROPERTY)

Whereas, Reliance Asset Reconstruction Company Ltd [RARC 080 (RHDFC HU) TRUST] has acquired the financial assets from Religare Housing Development Finance Corporation Limited vide Assignment Agreement dated 28.03.2022, the Authorised Officer of Religare Housing Development Finance Corporation Limited under the Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 and in exercise of powers conferred under section 13(2) read with Rule 3 of the Security Interest (Enforcement) Rules, 2002 issued demand notice dated 19-10-2021 calling upon Sivakumar D S/o Dharmaraj D No. 1/1025, Arasu Colony, Nilambur, Coimbatore, Tamilnadu-641062, Mob.no.: +91- 9600778716/ Also At- SI No. 207/2, New Colony, Irugar Po. Coimbatore, Tamilnadu-641103 Also At- Door No.1/486-H, New Door No.1/1025, New SI No 799/32 Harijana Natham, Neelambur Village, Sular, Coimbatore, Sular, Tamilnadu-641014 2. Dharmaraj Pazhanisami S/O Pazhanisami D No. 1/1025, Arasu Colony, Nilambur, Coimbatore, Tamilnadu-641062, Mob.no.: +91- 9600778716/ Also At- Door No.1/486-H, New Door No.1/1025, New SI No 799/32 Harijana Natham, Neelambur Village, Sular, Coimbatore, Sular, Tamilnadu-641014 3. Prasanth D S/o Dharmaraj D No. 1/1025, Arasu Colony, Nilambur, Coimbatore, Tamilnadu-641062, Mob.no.: +91- 9600778716/ Also At- No. 1/167/7a, Ranga Nagar, Muthalipalayam, Neelambur Po, Coimbatore, Tamilnadu-641062 Also At- Door No.1/486-H, New Door No.1/1025, New SI No 799/32 Harijana Natham, Neelambur Village, Sular, Coimbatore, Sular, Tamilnadu-641014 4. Vasantham D W/o Dharmaraj D No. 1/1025, Arasu Colony, Nilambur, Coimbatore, Tamilnadu-641062, Mob.no.: +91- 9600778716/ Also At- Door No.1/486-H, New Door No.1/1025, New SI No 799/32 Harijana Natham, Neelambur Village, Sular, Coimbatore, Sular, Tamilnadu-641014 ("The Borrower") (The Go-Borrower), to repay the outstanding amount mentioned in the notice aggregating to **Rs.7,50,738/- (Rupees Seven Lakh Fifty Thousand Seven Hundred and Thirty Eight Only)** within sixty (60) days from the date of the said notice.

AND borrower/guarantors/mortgagors having failed to repay the amount, notice is hereby given to the borrower/guarantors/mortgagors and the public in general that the undersigned has taken possession of the property described herein below in exercise of powers conferred on him under section 13(4) of the said Act, read with Rule 6 of the said Rules on this **03rd day of April of the year 2025.**

The borrower/guarantors/mortgagors in particular and the public in general is hereby cautioned not to deal with the property and any dealings with the property will be subject to the charge of the Reliance Asset Reconstruction Company Ltd. for an amount of to **Rs. 7,50,738/- (Rupees Seven Lakh Fifty Thousand Seven Hundred and Thirty Eight Only)** and interest, other charges thereon **18-10-2021.**

The power of attorney is invited to provisions of sub-section (8) of section 13 of the Act. If the borrower clears the dues of the "RARC" together with all costs, charges and expenses incurred, at any time before the date fixed for sale or transfer, the secured assets shall not be sold or transferred by "RARC" and no further step shall be taken by "RARC" for transfer or sale of the secured assets.

DESCRIPTION OF THE IMMOVABLE PROPERTY
All that Piece And Parcel Of Land And Building Bearing Door No.1/486-H, New Door No.1/1025, Situated in Neelambur Village, Sular Taluk, Coimbatore District, Comprised In S.No.799/7, New Sub Division S.No.799/32, Land Measuring An Extent Of 1515 Sq.ft. and, And Bounded By:- East:- Belongs To Krishnan House West:- Belongs To Saganthala House North:- Road South:- Elongs To Kitan House Measurements:- East To West On The North Side - 37 Feet East To West On The South Side - 36 Feet South To North On The East Side 41 Feet South To North On The West Side - 42 Feet. The Above Property Is Situated Within The Registration District Of Coimbatore And Within The Registration Sub District Of Sular, Tamilnadu-641014. **(Authorised Officer)**
Date: 03.04.2025 **Reliance Asset Reconstruction Company Ltd.**

**SMFG Grihashakti**
Happy Asset. Happy Values.

SMFG India Home Finance Company Ltd.
(Formerly Fullerton India Home Finance Co. Ltd.)
Corporate Off. : 503 & 504, 5th Floor, G-Block, Inspire BKC, BKC Main Road, Bandra Kurla Complex, Bandra (E), Mumbai-400 051.
Regd. Off. : Commerzone IT Park, Tower B, 1st Floor, No. 111, Mount Poonamallee Road, Porur, Chennai-600 116, T. N.

POSSESSION NOTICE FOR IMMOVABLE PROPERTY [(Appendix IV) Rule 8(1)]
WHEREAS the undersigned being the Authorized Officer of **SMFG India Home Finance Co. Ltd.** (Formerly Fullerton India Home Finance Co. Ltd.) a Housing Finance Company [duly registered with National Housing Bank (Fully Owned by RBI)] (hereinafter referred to as "SMHFC") under Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 (54 of 2002), and in exercise of the powers conferred under Section 13(12) of the said Act calling upon you being the borrowers (names mentioned below) to repay the amount mentioned in the said notice and interest thereon **within 60 days** from the date of receipt of the said notice. The borrowers mentioned herein below having failed to repay the amount, notice is hereby given to the borrowers mentioned herein below and to the public in general that the undersigned has **Taken POSSESSION** of the property described herein below in exercise of powers conferred on me under sub-section (4) of Section 13 of the Act read with Rule 8 of the Security Interest (Enforcement) Rules, 2002. The borrowers mentioned herein in above in particular and the public in general are hereby cautioned not to deal with said property and any dealings with the property will be subject to the charge of "SMHFC" for an amount as mentioned herein under and interest thereon.

S. No.	Name of the Borrower(s) / Guarantor(s) LAN	Description of Secured Assets (Immovable Property)	Demand Notice Date & Amount	Date of Possession
1.	Mohan Lakshmanan	All The Part & Parcel of The Property at Survey No. 94/3, 97/2, Total Extent 2004/4 Sq. Ft., Door No (As Per Property Tax) 94/3, Plot No. 39, Palangarai Village, Avinashi Taluk, Tiruppur Regd. District, Avinashi SRO. "Rajeev Gandhi Nagar" Boundaries	18.01.2025 ₹ 30.99.538/- (Rs. Thirty Lakh Ninety Nine Thousand Five Hundred Thirty Eight Only) with interest as on 09.01.2025	08.04.2025
2.	Rajeswari Mohan	For 2004 ¾ Sq. Ft. of Land With Building : > Boundaries :- • North Of : 20 Ft. Wide East West Layout Road; • South of : Site No. 28; • East of : 25 Ft. Wide South North Layout Road; • West of : Site No. 52; > Measurement Details :- • North : East West - 50 Ft.; • South : East West - 49 Ft • East : South North - 42 Ft.; • West : South North - 39 Ft. Total : 2004 ¾ Sq. Ft. • With All Easements Rights & Pathway, Above Said Property Is Now Situated In S. No. 94/3A, 94/3B1, 97/2A, 97/2B,		

Place : Tiruppur, Tamil Nadu **Sd/-**
Date : 08.04.2025 **Authorized Officer, SMFG INDIA HOME FINANCE CO. LTD.**
(Formerly Fullerton India Home Finance Co. Ltd.)