Sonar Inspired by Dolphins: New Kind of Underwater Device Can Detect Objects Through Bubble Clouds

Scientists at the University of Southampton have developed a new kind of underwater sonar device that can detect objects through bubble clouds that would effectively blind standard sonar.

Just as ultrasound is used in medical imaging, conventional sonar 'sees' with sound. It uses differences between emitted sound pulses and their echoes to detect and identify targets. These include submerged structures such as reefs and wrecks, and objects, including submarines and fish schools.

However, standard sonar does not cope well with bubble clouds resulting from breaking waves or other causes, which scatter sound and clutter the sonar image.

Professor Timothy Leighton of the University of Southampton's Institute of Sound and Vibration Research (ISVR), who led the research, explained:

"Cold War sonar was developed mainly for use in deep water where bubbles are not much of a problem, but many of today's applications involve shallow waters. Better detection and classification of targets in bubbly waters are key goals of shallow-water sonar."

Leighton and his colleagues have developed a new sonar concept called twin inverted pulse sonar (TWIPS). TWIPS exploits the way that bubbles pulsate in sound fields, which affects the
characteristics of sonar echoes.

"To catch prey, some dolphins make bubble nets in which the best man-made sonar would not work. It occurred to me that either dolphins were blinding their sonar when making such nets, or else they have a better sonar system. There were no recordings of the type of sonar that dolphins use in bubble nets, so instead of producing a bio-inspired sonar by copying dolphin signals, I sat down and worked out what pulse I would use if I were a dolphin," said Leighton.

As its name suggests, TWIPS uses trains of twinned pairs of sound pulses. The first pulse of each pair has a waveform that is an inverted replica of that of its twin. The first pulse is emitted a fraction of a second before its inverted twin.

Leighton's team first showed theoretically that TWIPS might be able to enhance scatter from the target while simultaneously suppressing clutter from bubbles. In principle, it could therefore be used to distinguish echoes from bubble clouds and objects that would otherwise remain hidden.

In their latest study, the researchers set out to see whether TWIPS would work in practice. Using a large testing tank, they showed experimentally that TWIPS outperformed standard sonar at detecting a small steel disc under bubbly conditions resembling those found under oceanic breaking waves.

Encouraged by their findings, they next conducted trials at sea aboard the University of Southampton's coastal research vessel the RV Bill Conway. They compared the ability of TWIPS and standard sonar to discern the seabed in Southampton Water, which handles seven per cent of the UK's entire seaborne trade. The seabed in this area varies in depth between 10 and 20 metres.

"TWIPS outperformed standard sonar in the wake of large vessels such as passenger ferries," said co-author Dr Justin Dix of the University of Southampton's School of Ocean and Earth Science (SOES) based at the National Oceanography Centre, Southampton.

Possible future marine applications for TWIPS include harbour protection and the detection of bubbles in marine sediments and manufacturing. Technologies based on the same basic principles could be used in medical ultrasound imaging, which was already using pairs of inverted pulses to enhance (rather than suppress) contrast agents injected into the body. The TWIPS principle would work with other sensors such as in Magnetic resonance imaging (MRI), and Leighton has proposed TWIPR (Twin Inverted Pulse Radar) for the detection of improvised explosive devices or covert circuitry.

But what about the original inspiration for the research -- do dolphins and other echolocating animals use TWIPS?

"Key ingredients of a TWIPS system appear in separate species but they have never been found all together in a single species," said Leighton. "There is currently no evidence that dolphins use TWIPS processing, although no-one has yet taken recordings of the signals from animals hunting with bubble nets in the wild. How they successfully detect prey in bubbly water remains a mystery that we are working to solve. I have to pay credit to the team -- students Daniel Finer and Cim-Hwa Chua of ISVR, and Paul White (ISVR) and Justin Dix of SOES. Our applications for funding this work were repeatedly turned down, and it took real grit and determination to keep going for the five years it took us to get this far."


Crystal

http://www.soldiersangels.org/

Re: Stuff & Nonsense

» Reply #1906 on: Nov 18th, 2010, 1:02pm »

Geek Tyrant

Disney developing new sci fi film Hovercar 3D
by Venkman
18 November 2010
It looks like Disney has found their next big futuristic sci-fi thriller in a new live-action movie they are developing called Hovercar 3D. The film is being described as "Harry Potter, but with racing", it is also being compared to the upcoming Tron: Legacy film.

The story is about a hovercar racer tasked with escorting an informant to safety as the two come under fire from corrupt government operatives.

The LA Times reports that the movie is "based on an online serial that was turned into a popular young-adult book series from the Australian novelist Matthew Reilly, the property was actually set up at Disney six years ago with the creators responsible for Smallville, who remain involved. But Hovercar has now been restarted and put back on track, with all the attendant puns that implies."

It also looks like the studio has already found a director to bring the movie to life. According to The Times they are currently looking at commercial director Fredrik Bond to develop the film. Bond was recently attached to another sci-fi film called Year 12. You can see Bond's great commercial work by clicking right here. Up-and-coming writer Baise Herringway will write the script for the film.

This film definitely sounds like a lot of fun, and could end up being a pretty successful film franchise if done right. I really enjoyed The Wachowskis' Speed Racer, and this sounds like it could be a lot like that. And this new project makes me wonder... if Speed Racer would have been released in 3D would it have been more successful? It will be cool to see how this film turns out.

Here's a detailed description of the story:

A SPORT LIKE NO OTHER

In the world of the near future, the most popular sport in the world is hover car racing. Superfast and dangerous, its heroes are the racers: part fighter pilot, part race-car driver, all superstar.

A BRUTAL QUALIFYING SCHOOL

But to get to the Pro Circuit, you must first pass through the International Race School, a brutal cauldron of wild races on even wilder courses, where only the best of the best will survive.

JASON AND THE ARGONAUT

This is the story of Jason Chaser, a talented young racer selected to attend the Race School. He's younger than the other students. He's smaller. His trusty car, the Argonaut, is older. But Jason Chaser is no ordinary racer. And as he races against the best drivers in the world he will learn that at Race School winning is everything, that not everyone in this world fights fair, and that you never ever have any friends on the track.

Strap on your seatbelts and hold on tight because the pace of reading just went supersonic! From Matthew Reilly, author of Ice Station and Carecrow, comes his most original novel yet no less than the fastest story ever told.

http://www.soldiersangels.org/

Re: Stuff & Nonsense
« Reply #1907 on: Nov 18th, 2010, 2:19pm »

on Nov 18th, 2010, 08:52am, WingsofCrystal wrote:
New York Times
November 18, 2010
parcel on Plane to Germany Raises Alarm
By MICHAEL BLACKMAN and ERIC SCHMIDT

With Germans already on alert about what the authorities called a "concrete" terrorist threat to their country, German police Thursday headed to the African nation of Namibia after police there found a suitcase with a fuse, clock and wires in the capital's airport and inspected the luggage of a plane bound for Munich.

...

Now I wonder if the security measures will rise even more than they currently already are, 😲 😲

on Nov 18th, 2010, 09:00am, WingsofCrystal wrote:

Crystal

What a tiger 😁

Re: Stuff & Nonsense
« Reply #1908 on: Nov 18th, 2010, 2:23pm »

An attempt to silence him?

Swedish court orders WikiLeaks founder Assange detained

STOCKHOLM (Reuters) - A Swedish court on Thursday ordered the detention of Julian Assange, the founder of whistle blowing website WikiLeaks, on suspicion of rape and other sexual crimes, allegations he denies.

...

http://news.yahoo.com/s/nry20101118/wl_nry/us_wikileaks

And now to the brighter side of life 😊:

ufocasebook.conforums.com/index.cgi?action=displayboard&member1=--
Hey Phil,
That cat is something!
And thank you for the lovely photo. 😊
Crystal

http://www.soldiersangels.org/

The skiers and snowboarders are in heaven.
MT. BAKER PRE-SEASON REPORT
UPDATE: THURSDAY NOV. 18, 2010

MT. BAKER OPENS SATURDAY NOV. 20th!
Click here for Opening Day details!
http://www.mtbaker.us/snow-report/opening-day-2010-11

16 inches of new snow.
The ski area got blasted by the storm last night, with low freezing levels and 16 inches of new
snow! That brings our base at Heather Meadows to 35 inches, and we’re also accumulating a good
base at White Salmon. It’s currently 26 degrees and snowing lightly on the mountain, and forecasts
are calling for continued cold temperatures and light snow showers through the weekend.

http://www.mtbaker.us/

Crystal

http://www.soldiersangels.org/

phillman
Senior Member

Logged

Re: Stuff & Nonsense
« Reply #1911 on: Nov 18th, 2010, 5:18pm »
Are you able to still see the mountain when it snows outside?

WingsofCrystal
Gold Member

Logged

Re: Stuff & Nonsense
« Reply #1912 on: Nov 18th, 2010, 7:59pm »
on Nov 18th, 2010, 5:18pm, phillman wrote:
Are you able to still see the mountain when it snows outside?

Hey Phil,
It depends on whether it’s storming on Mt. Baker. Most of the time we can see Baker. The photo
above was taken on a clear day. Today we couldn’t see it.
Crystal

http://www.soldiersangels.org/

Swamprat

Logged

Re: Stuff & Nonsense
Gene Simmons and KISS.......as you've never seen (or heard) them!

Semper fi

http://www.youtube.com/watch_popup?v=5MldIO23MKM

"Let's see what's over there."

Re: Stuff & Nonsense

on Nov 18th, 2010, 8:46pm, Swampat wrote:

Gene Simmons and KISS.......as you've never seen (or heard) them!

Semper fi

http://www.youtube.com/watch_popup?v=5MldIO23MKM

Good morning Swampat.
I've never seen that video. Good for Gene Simmons and KISS.

Crystal

http://www.soldiersangels.org/

Re: Stuff & Nonsense

on Nov 19th, 2010, 9:02am

New York Times

November 18, 2010
Obama Forces Showdown With G.O.P. on Arms Pact
By PETER BAKER

WASHINGTON # Just two weeks after an election that left him struggling to find his way forward, President Obama has decided to confront Senate Republicans in a make-or-break battle over arms control that could be an early test of his mettle heading into the final two years of his term.

He is pushing for a vote on a signature issue despite long odds, daring Republicans to block an arms-control treaty at the risk of disrupting relations with Russia and the international coalition that opposes Iran's nuclear program. If he succeeds, Mr. Obama will demonstrate strength following the midterm election debacle. If he fails, he will reinforce the perception at home and abroad that he is a weakened president.

"Really high stakes," said Geoffrey Kemp, a former national security aide to President Ronald Reagan and a scholar at the Nixon Center, a research group in Washington.

After months of quiet negotiations blew up this week, Mr. Obama on Thursday escalated ratification of the agreement, the so-called New Start treaty, into a public showdown, enlisting former Republican officials and assigning Vice President Joseph R. Biden Jr. to work on it Friday and night.

An allied group, the American Values Network, kicked off a television and e-mail campaign.

It is a national security imperative that the United States ratify the New Start treaty this year, said Mr. Obama, flanked by Henry A. Kissinger, James A. Baker III and Brent Scowcroft, all of whom served Republican presidents, who ran with no higher national security priority for the lame-duck session of Congress.

But Mr. Obama has no clear path to approval of the treaty without Senator Jon Kyl of Arizona, the lead Republican negotiator, who declared this week that there was no time to reach agreement this year on a nuclear modernization program that he wanted as the price for ratification.

The White House has only one Republican supporter, Senator Richard G. Lugar of Indiana. A survey of 14 other Senate Republicans who were considered possible supporters found none who were willing to publicly back the treaty. Ten of them said they were undecided or were waiting for the same assurances as Mr. Kyl and four did not respond, suggesting that approval may depend on changing Mr. Kyl's mind.

Among those who agreed with Mr. Kyl that the issue should wait until next year was Senator Bob Corker of Tennessee, one of three Republicans to vote for the treaty in committee in September. In an interview, he said that the treaty and modernization program needed to be fully digested,

ufocasebook.conforums.com/index.cgi?action=displayboard=memberb...
fully explained and that there was no reason to rush during the lame-duck session. I'm very skeptical that it's the right thing to do and very skeptical that it can be done this December, he said.

Moreover, 10 newly elected Republican senators who will take office in January signed a letter objecting to a lame-duck vote, but of respect for our states' voters, we believe it would be improper for the Senate to consider the New Start treaty or any other treaty in a lame-duck session, said the letter, which was released by Senator-elect Roy Blunt of Missouri.

Mr. Kyl showed no signs of backing down after meeting with Senator John Kerry of Massachusetts, the Democratic chairman of the Foreign Relations Committee. But Mr. Kerry expressed hope afterward that a deal was still possible, and the White House released new details of its commitment to Mr. Kyl to spend $84 billion over the next 10 years to modernize the nation's nuclear weapons program.

Because treaties require a two-thirds majority, the White House needs 67 votes, Senator-elect Mark Kirk, a Republican from Illinois, will be sworn in Nov. 29 to replace a Democrat, so the White House will need to keep all 58 remaining members of the Democratic caucus and win over nine Republicans. If it waits until next year, it will need at least 14 Republican votes because of the party's gains.

Gary Samore, the top White House arms-control official, said Thursday he feared that putting off the treaty until next year would mean it would be delayed indefinitely. As a result, the United States and Russia would not resume nuclear inspections that lapsed last year, which he said would fuel distrust and lead to a greater likelihood you could get into an arms race.

He also said a failure to ratify the treaty would undercut Russian support for the campaign to pressure Iran to abandon its nuclear program. If you don't, we really need the Russians with us, he told a forum at the Nixon Center. And he suggested that Mr. Kyl might not get his modernization money because Democrats and conservative Republicans in the next Congress would not go along. I support for that could evaporate if the treaty is not approved, he said.

Critics of the treaty have said the administration is overstating the consequences of delay and have questioned its seriousness about nuclear modernization because it provided Mr. Kyl with its latest spending proposal only last Friday. Mr. Corker and others noted that there were still no guarantees that Congress would fully finance the program. He said insisting on a vote before the next Congress creates an air of distrust.

At this point, the Democratic strategy is to keep pressing for a deal with Mr. Kyl and to respond to every Republican question in an effort to minimize any pretext for opposition. Democrats would then take the treaty to the floor in December for up to seven days of debate and force Republicans to choose sides, They are banking that Mr. Kyl has been surprised that Mr. Obama is choosing to turn the issue into a public fight.

At the same time, by making it a test of his presidency, Mr. Obama risks making Republicans more reluctant to hand him a victory. Senator Mitch McConnell of Kentucky, the Republican leader, has said his top priority is to deny Mr. Obama a second term.

Mr. Samore described the impact in dire terms. If we fail to act, he said, I think it will damage the U.S. reputation as a country that's willing to lead.

http://www.nytimes.com/2010/11/19/world/europe/19start.html?_r=1&hp=adxincl=1&adxinc=1290175210-fILReal1DB235CwSnmMw

Crystal

http://www.soldiersangels.org/

Re: Stuff & Nonsense

LA Times

Ronni Chasen slaying: Police believe publicist was shot from another vehicle, perhaps an SUV November 16, 2010 | 11:16 pm

Detectives investigating the slaying of Hollywood publicist Ronni Chasen have surmised from evidence that she was probably shot from another vehicle, perhaps an SUV, the mayor of Beverly Hills said Thursday night.

Mayor Jimmy Delshad told The Times that, although many questions remain unanswered, police believe Chasen's assailant fired into her passenger-side window from another vehicle and not from the street or a sidewalk.

"Indications are [the shots] could have come from another car, higher up, maybe an SUV," Delshad said.

Chasen was shot to death early Tuesday while driving her Mercedes-Benz near the intersection of Whittier Drive and Sunset Boulevard in Beverly Hills. She was on her way home from a movie premiere after-party.
She is believed to have left the event about midnight, traveling west on Sunset. Friends believe she had planned to head south to her condominium on Wilshire Boulevard near the grounds of the Los Angeles Country Club.

Lt. Tony Lee of the Beverly Hills Police Department said Thursday that officials have not concluded whether Chasen was shot at the intersection or closer to where her car crashed into a light pole near Whittier and Greenway Drive.

Delshad said police found some pieces of glass—possibly from Chasen's car window—near the intersection of Whittier and Sunset, but they found no bullet casings. He added that Beverly Hills police were working on the case 24 hours a day.

He said police have been interviewing witnesses, analyzing computer and phone logs and examining video from surveillance cameras along the route.

"We're working very hard on it," he said.

Several residents dialed 911 at the time of the attack. The first call, from a person who lives near Sunset and Benedict Canyon Drive, reported a gunshot.

Moments later, more 911 calls came in reporting shots heard several blocks to the west, near Whittier and Wilshire. Another resident called 911 to report hearing the car crash into the light pole.

Residents who heard the crash found Chasen slumped over the steering wheel, bleeding. The passenger-side window of her car was shattered. One person who lives next to where Chasen's car came to a stop said she heard several shots, followed moments later by what she believed was the sound of a car crashing.

Police said they have no motive for the attack and no suspects.


Crystal

« Last Edit: Nov 19th, 2010, 09:07am by WingsofCrystal »

http://www.soldiersangels.org/

Re: Stuff & Nonsense

« Reply #1917 on: Nov 19th, 2010, 09:14am »

Telegraph

Google finally to delete user data

Computer passwords, emails and other data that was unlawfully collected by Google’s Streetview cars from open wifi networks will be deleted, the Information Commissioner has confirmed.

By Matt Warman, Consumer Technology Editor

12:56PM GMT 19 Nov 2010

The move comes after Google signed a commitment to improve the way it handles data to ensure that such breaches do not occur again. Christopher Graham, the Information Commissioner, said data that should never have been collected in the first place can, at last, be deleted.

Google has maintained that its cars *inadvertently* collected data from open wifi networks while they were photographing houses for the website’s Streetview service. The company made the breach public itself, but was prevented from deleting all the data immediately by differing reactions from information commissioners around the world. It says that it has never derived any commercial benefit from its use of experimental software.
Alan Eustace, a Senior Vice President of Google, has now signed an undertaking on behalf of the company committing it to "putting in place improved training measures on security awareness and data protection issues for all employees. A "data protection design document" for every new project will also be written and maintained before each launch.

http://www.telegraph.co.uk/technology/google/8146575/Google-finally-to-delete-user-data.html

Crystal

http://www.soldiersangels.org/

Re: Stuff & Nonsense

< Reply #1918 on: Nov 19th, 2010, 09:26am >

Telegraph

Potato launched into space
A group of primary schoolchildren have launched a potato into space in a "shuttle" made from a two-litre plastic drink bottle.

By Andy Bloxham
7:30AM GMT 19 Nov 2010

A potato dressed as a Santa is seen against the curvature of the earth after it was launched into space by schoolchildren from Devon
Photo: SWNS

Pupils at Landscove C of E Primary School dressed the potato as Father Christmas with a white beard and red bobble hat before positioning him in the shuttle.

The "spacechip" named Spudnik2 was then tied to a helium weather balloon with a camera attached and launched from the local village car park in Devon.

They watched as it soared 17 miles up before the balloon burst and the shuttle floated back down to earth on a parachute and landed 140 miles away in Hampshire.

http://www.telegraph.co.uk/science/space/8143861/Potato-launched-into-space.html

Crystal

http://www.soldiersangels.org/

Re: Stuff & Nonsense

< Reply #1919 on: Nov 19th, 2010, 09:30am >

The Hill

GOP members more influential than Dems on Twitter, study finds
By Sara Jerome - 11/18/10 03:10 PM ET

Democrats get to keep their House majority for a few more weeks, but the GOP already has control of Twitter.

A study released this week shows that Republicans in Congress are more influential than Democrats on Twitter by overwhelming margins.

Seventy of the top 100 most influential congressional Twitter users are Republicans, the study said.
Still, the Democrats can claim one victory: Capitol Hill’s most “influential” tweeter.

House Speaker Nancy Pelosi (Calif.) ranked first, five slots ahead of Speaker-designate John Boehner (Ohio). Second was Rep. Paul Ryan (R-Wis.), and third was Rep. Michele Bachmann (R-Minn.).

HP Labs, the research center for Hewlett-Packard, applied an algorithm to rank the 100 most influential Twitter users in Congress.

The primary criterion was how much members interact with their followers, rather than how many people follow them. Sen. John McCain (R-Ariz.), for example, is the most-followed member, with more than 1.7 million followers. But he ranks seventh on the list.

Bernardo Huberman, a researcher who contributed to the study, said the algorithm elevated people whose messages tend to be heard over all the noise on social sites.

“Sometimes it can be quite surprising, paradoxical, that the people who are quite popular in the sense of having a lot of followers have little influence,” he said.


Crystal

http://www.soldiersangels.org/

---

Become a member of the UFO Casebook Forum today and join our more than 15,000 members.