# One People, One Planet

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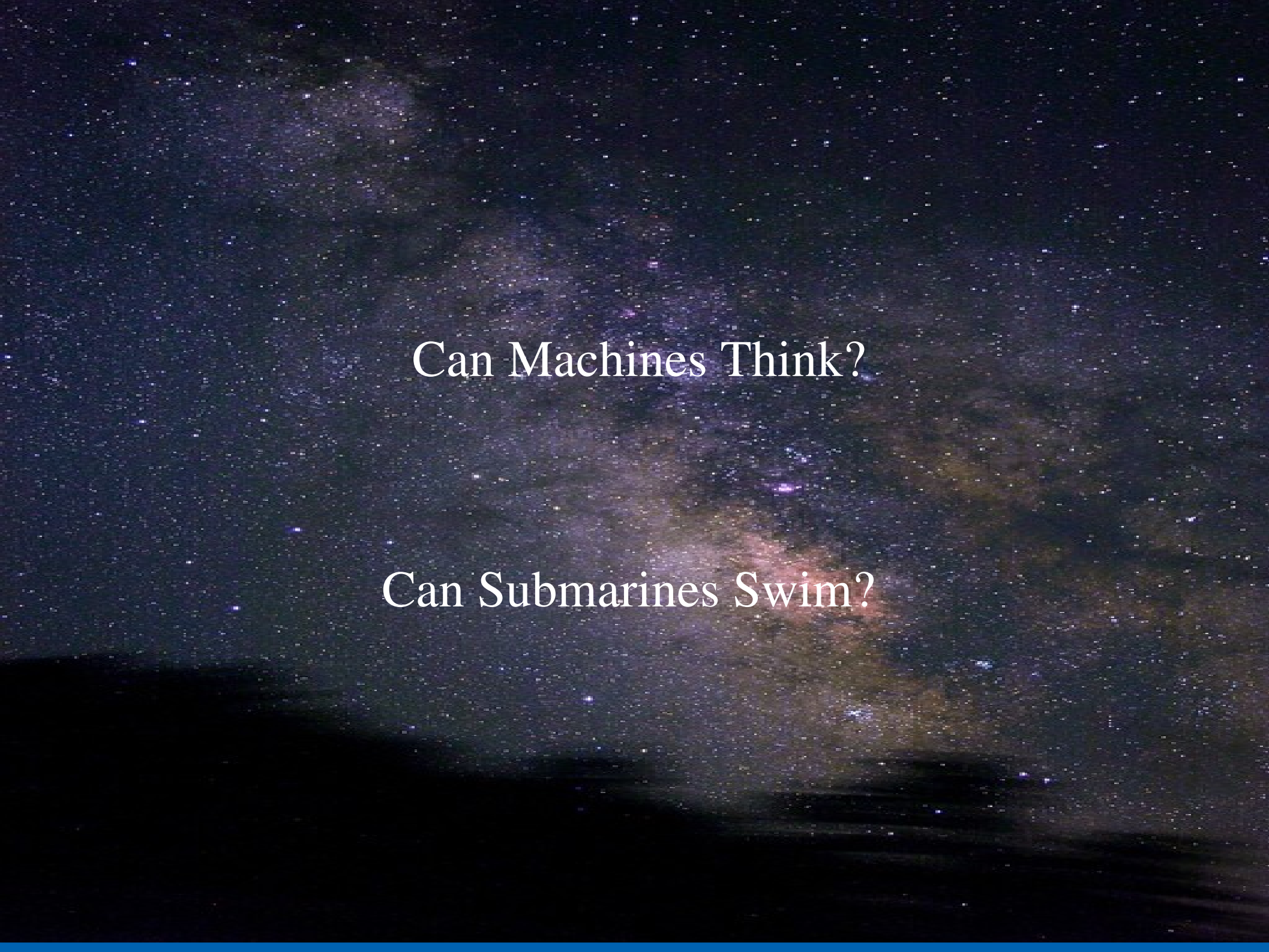
Can Machines Think?
Can Submarines Swim?

# What's Important?

Are we asking the right questions?

Where should we focus our energies?

How do we make the best use of Resources?

# Culturalization

The process by which peoples are exposed or subjected to culture

# Culturalization

- Galaxy Education
-
-
- Most think it is just a subject to look up online


Collaboration
X PRIZE: Revolution through Competition
FREDNET-STARS:
Revolution through Open Collaboration


Revolution
Through
Open Collaboration

# Commercialization

Culturalization

Proven Success

Justifies Ongoing Development

Culturalization

Revolution through Open Collaboration

Commercialization


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# One People, One Planet

Fred J. Bourgeois, III
Team FREDNET

I. Culturalization
II. Collaboration
III. Commercialization

**Introduction**

I'm often reminded of a story I heard about Alan Turing, as told by Edsger Dijkstra. It seems that Turing spent a lot of time focusing on finding criteria to settle the question of whether or not Machines can Think: Dijsktra's response was to suggest this was about as relevant as the question of whether or not Submarines can Swim. This makes me wonder how our current Space pursuits will be remembered by our colleagues in 20 years. What tasks are we focused on that are completely useless to the future of our industry? Where should we instead focus our energies? How can we make the best use of our resources to achieve the truly important goals? These are the things I want to encourage you to think about today.

I think we can condense those questions down into a few broad categories, a bit of an action list for the future of our species, our planet, and our place in the coming galactic economy. The first, most basic of these is Culturalization.

Culturalization

Culturalization refers to the process by which peoples (anthropological use) are exposed or subjected to the influence of culture. The level of culturalization with respect to a particular topic (for example, Galactic Exploration) in a society can be measured given well-defined criteria. I made an informal assessment of how well our own society has been culturalized w.r.t. galactic education, simply by asking some pertinent questions of my non-scientist acquaintances to assess just how much the "average person" knows about the Galaxy. The results were disappointing. Only one of a dozen well-educated individuals was cognizant of the difference between the Galaxy and the Solar System -- but could not tell me which was which. When asked for a rough guess of how many stars might be found in our Milky Way Galaxy, the answers included "1", "14", "about 1 million", "10 million", and "more than a trillion". Most people qualified their answer with "I can just look that up online if I ever need to know". No one came close to the 200-400 billion number that is most widely accepted (in case any of

you were wondering).

Although we haven't entirely succeeded on the education portion of Culturalizing our society, we have instilled an interest in Space. Why our society holds this interest is esoteric though, and probably best left to study by anthropologists.

[ We've also created some interest in how much money we spend on Space Exploration. Unfortunately, if you ask the average well-educated American how much our government budgets toward Space Exploration, you will hear numbers so far exceeding reality that they seem nearer M31 than Earth. Our society tends to believe that our government spends a significant portion of its budget on impractical Space Exploration, when we could all use more help here on Earth. ]

Collaboration

Culturalization is a beginning. But with a certain critical mass, with sufficient Culturalization and a growing community, we create the potential for Open Collaboration. This is the vision that drives how my Team is approaching the challenge of landing a robot on the Moon.

The X PRIZE Foundation started with the vision of "Revolution through Competition". That was brilliant. We're taking it to the next logical step: "Revolution through Open Collaboration". Competition incentivizes entrepreneurs to take risks that might otherwise be passed by. Even though the prizes rarely exceed the costs associated with winning them, entrepreneurs are competitive folks, and the thrill of the challenge drives us onward. Charles Lindbergh lost money crossing the Atlantic on that first flight, so why did he do it? Look at what came next. Paul Allen lost money winning the Ansari X Prize with Scaled Composites.

So as I said, we're taking the XPF's vision to the next logical step: Revolution through Open Collaboration. Open Collaboration is a proven method for solving complex problems -- its just that most of those problems have been in the Computer Sciences space. Look how people answered my questions about their knowledge of the Milky Way Galaxy! They can just look it up online. Where did "online" come from? Open Collaboration. Where will they look it up? Wikipedia of course. Where did that come from? A bunch of volunteers wrote it. Where did they get the software that hosts that service? Some programmers used Open Collaboration and Open Source to write the mediawiki engine. What operating system does it run on? Linux, an Open Source / Open Collaboration free software system. What about the Internet itself, where did that come from? That's a bit more complicated, but

largely, primarily it was a collection of protocols coupled with free sample implementations that were published and available for anyone to copy. It started as a U.S. government funded project (through DARPA), but became much more. The first protocols were written on purchased operating systems from companies that were sponsoring the R&D efforts, and also from University students and faculty who developed much of the code. BTW, if Al Gore was there, he never sent me a single email message!

Revolution through Open Collaboration. That means we don't work in a vacuum (yet), it means that we draw on the time and talents of volunteers from all over the world. With Team FREDNET, we have folks actively participating in our development effort who live on all 6 continents in more than 30 countries. We have some people who are just lurking, of course. We have some people who try to help, but don't really have the background to participate in engineering discussions. That's okay. The lurkers prove we have something worth tracking. The non-engineering members prove that what we're doing is important to the "rest of the world". The interest is there, even if the knowledge is incomplete. This is what amazes me, how much people are willing to contribute and participate actively in a project with a bunch of people they've never seen, and from places they've frequently never heard of, developing plans for hardware that they'll most likely never even get to touch ... and the goal is to put all this stuff together on a rocket somewhere, and Cooperatively land it on the Moon, drive a little robot around, take some pictures and some videos, maybe do some other interesting side trips, and then just get the privilege of saying "You see that! I helped!". The other amazing thing is that even the non-engineers want to help. They want to either learn the engineering and the science, or the communications, or they want to find a supporting role they can play in the effort!

The other really important thing to realize is that this is just the Beginning. Open Collaboration creates a "Virtual Space" where people can band together to solve complex, real world problems. Open Collaboration, and using the Tools that we've been developing to manage this kind of Collaboration firmly establishes Communities centered around solving those problems. I see those problems as existing in their own individual "Virtual Spaces", although sometimes those overlap -- solving one problem helps to solve others. The Big Idea though, is to identify the problems that you can solve through Open Collaboration, and then to attract the Community Members who want to inhabit those Virtual Spaces and can participate in solving those problems. Imagine what we can accomplish by redirecting some of the misplaced energies in our world: why are people in North Korea trying to build

nuclear weapons -- I suspect part of that is because "their government told them to do it", but what if those people knew that there is an Open group out here, inviting them to help solve more pressing issues. How about working on an Open Collaboration Electric Vehicle. Or a partly Solar-charged Electric Vehicle? Or a gas-electric co-generation water heater? How about a simple, cost-effective Open Design Water Pump for use in third world nations? Through Open Collaboration, we can solve problems like these, Energy, Transportation, Clean Water, Education, and some less obvious ones too. How about Medical Needs -- how's that for changing the way Health Care works?

This is really such a basic idea. It has been around for centuries. *Pigmaei gigantum humeris impositi plusquam ipsi gigantes vident.* "If I have seen a little further it is by standing on the shoulders of Giants" (Sir Isaac Newton). Somehow though, between the World Wars at the start of the last century, the Cold War in the middle years, and the terrorist wars these last few years we, especially here in the U.S., have become complacent regarding our freedoms of speech and association. While Open Collaboration is embraced by Space Agencies beyond our shores, here our government discourages and even attempts to prevent free exchange of scientific knowledge. I can cite two prominent examples: The European Space Agency (ESA) actively supports the development of Global Educational Network for Satellite Operations (GENSO), which is used to support the growing cubesat community. Although GENSO is partly supported by NASA, U.S. ITAR laws deter participation by non-NASA-sponsored participants, while the European GENSO community flourishes (see esa.int and genso.org for more information). The ESA also supplies a free software package that can be used to help simulate missions. Although some of our Teammates are using that software, we here in the U.S. cannot interfere or even suggest what how they should use it - to do so would violate ITAR. So even on our Open Collaboration Team, we in the U.S. have to limit our participation on certain tasks.

Commercialization

Our goal with Culturalization and Open Collaboration should be an increased ability to achieve profitable, privately funded, non-government sponsored Space Commercialization. We can hardly expect Venture Capitalists to rush into this business having seen only the initial successes of SpaceShip One, and having had no groundwork laid with them through effective Culturalization. That is, by creating a society which is raised with the understanding of the importance of Space, we lay the groundwork for future business leaders to be ready, willing, and able to seize the opportunities in Space Commercialization when they begin to materialize. As things stand today, we are a rather small

community.  And just like Lindbergh, our success will serve as a model for others to succeed.  The prize money is just a short-term reward ... continued commercial successes are the longer range goal that justifies the initial investment required to win the prize.

Through careful planning and a little choreography, we can foster a society with an innate understanding of the importance of reaching beyond our own fragile world.

Conclusion

Through Culturalization, we can prepare our society for the coming expansion into Space.  Through Open Collaboration, we can solve many of our existing problems, and apply those methods to reaching out, above and beyond our atmosphere.  By standing on each others' shoulders we can establish a presence on our Moon.  From our Moon we can reach the Planets, and from the Planets we can reach the stars.

We must redirect our people, resources, energies to work together: truly become one people and one planet working together to solve complex real world problems.

I cannot see how to get to the stars today.  Like you, I can barely see a realistic path to other planets.  But eventually someone will be standing on our shoulders, building on the foundation that we've laid beneath ourselves, and reaching for the next goal.

Working together, through Open Collaboration, we can reach our goals.  This is what we can do for our planet.  Revolution through Open Collaboration.

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