AI RFI Responses, October 26, 2018

Update to the 2016 National Artificial Intelligence Research and Development Strategic Plan RFI Responses

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Subject: RFI Response: National Artificial Intelligence Research and Development Strategic Plan

From: Soumyendu Sarkar

United States need to come up with creative ways to boost the effectiveness of the Gross Domestic Expenditure for AI.

1. **Effective multiplier effect of R&D investment:** Resources and man power are a lot cheaper in China, Russia and other developing countries. So the same absolute investment will go a lot further in China. However the financial footprint of the Private Sector is much larger in the United States. So if part of the direct R&D investment in the US is set aside to be used as tax breaks for matching investments in the private sector, with a fair and equitable return inflow back to the US AI R&D funds based on commercial success, then we can leverage the size of our markets to amplify the total effect of R&D investment. To gain insight into returns of investment, we can look into the TARP model. Also China does not have this big an economy to derive similar benefits.
2. **Prioritize and focus governmental US AI R&D investments:** The AI related to social media and other consumer facing businesses are currently better funded for the immediate ROI by the American private sector. So the focus should be more on applied and fundamental areas related to security, defense, strategic industrial differentiation (like aviation), societal benefits, and areas related to our national interest. However part of the R&D funds still need to be invested on pure fundamental research with a potential to help areas of national interest and competitiveness.
3. **Incentivize the usage of AI products from American enterprises triggering additional organic investments**: When Lenovo came up with AI based medical image diagnosis, there was apparent help from the Chinese government to run pilots in many hospitals across China. Government needs to address the red tapes and regulations, to figure out a way not only to make it easy to deploy AI, but also to spend some of the funds allocated to R&D to incentivize its deployment for pilot, which will initially cost the service providers without immediate returns. And just like the model described in item #1, this can be in the form of tax breaks and money back to the government funds for cases of business success. This will reduce the barrier of new strategic AI technology for market entry and contribute to AI R&D success for American enterprises. This will give us a level playing field to compete and address the entire successful AI product development flow from R&D to product to successful deployment by mitigating financial risks.
An accelerated adoption of AI will generate and perpetuate the cycle of more organic investment and funding for AI R&D by the private sector.
4. **Academic Investment at Inception at school levels:** We need to extend investment of Government Funds beyond the Higher Education sectors and R&D with a longer term view. We need to encourage and mobilize the interest on AI in the middle and high schools, to have a higher and active participation of the brighter young minds and prepare them for a competitive AI curriculum for higher studies.
In China and in the developing countries, the kids and parents are over incentivized with relatively higher financial returns and generate an organic interest. With the affluence of US economy, we need to be more creative to generate interest in kids and lay the groundwork for success in AI, with a curriculum at the school level. Also to incentivize the schools and hold them accountable, schools should be assessed on their relative progress to continue getting the funds at different levels.
In addition, funding for school level AI competition and its publicity at the local, state and national levels, will encourage the youth, and create a culture of AI innovation for a generation of workforce to come.

This is submitted at a private citizen.

Bio:
I am currently the Lead Architect for the Artificial Intelligence Organization in **Hewlett Packard Enterprise**.
Previously I have worked as a Senior Engineering Manager at **Intel Corporation** on Computer Vision and related areas.
I have also worked for 15 years at **Bell Laboratories, Lucent Technologies** and the subsequent spin offs and acquisitions, as a Distinguished Member of Technical Staff.
I have also worked for **General Electric** before that.

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I would be happy to answer any questions or provide any additional information if requested, as I am passionate to see United States progress as a world leader in Artificial Intelligence.

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