Questions for the Record from Chairman Darrell Issa for Dr. William Hannas
"IP and Strategic Competition with China: Part III – IP Theft, Cybersecurity, and AI",

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The Honorable Darrell Issa
Chairman, Subcommittee on Courts, Intellectual Property, and the Internet
United States House of Representatives

Dear Chairman Issa:

Thank you for the opportunity to respond to your follow-up questions regarding testimony I provided to your subcommittee Oct. 19, 2023 on "the dual challenges of Chinese technology appropriation and China's progress toward general artificial intelligence (AGI)." My replies follow.

Question 1. How have cultural and political differences between Communist China and the United States affected our respective AI development paths?

Here are nine differences in no special order:

- China's ability to access U.S. technology, including AI, through legal and extralegal means allows it to monitor U.S. technical advances, minimize risk, reduce R&D expenses, and import what is useful to fill gaps in its own capabilities. The U.S. has nothing comparable. China's propensity to "borrow" from competitors is part of its national psyche and will persist even after China has achieved technological parity.

- Although Chinese scientists and policymakers acknowledge the need for AI safety, they are much more comfortable with advanced AI than their Western counterparts and have fewer misgivings about sharing a future dominated by artificial general/super-intelligence. Chinese philosophers attribute this difference to a non-human centric world view that runs counter to Western notions of human exceptionalism.[1]

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[1] ZENG Yi (曾毅), widely viewed as China's top figure for AI governance, believes China "will regard artificial intelligence in the future as a quasi-society member or partner." Zeng Yi, "Looking at the future of AI from a cross-cultural perspective" (以跨文化的视角来看待人工智能的未来), https://hub.baai.ac.cn/view/32217.

- China does not fully share our views toward privacy (隐私权, "the right to conceal oneself") or the sanctity of the individual. It is easy to overstate these differences but in fact there is no cap on the PRC's ability to accumulate data and provide it to national AI champions. Also, China is one of the few countries that allow in vivo experiments on non-human primates. Both provide competitive AI advantages.

- China is not wedded to the generative "large language" AI models that capture the world's attention and resources. Although there are countercurrents to the LLM theme in the U.S., those voices are in the minority. Meanwhile, the PRC government is funding serious work on alternative paths to AGI "with Chinese characteristics" (以中国特色) aimed at a literal merger of artificial and human intelligence.[2]

- While tech companies and the U.S. Government can come to terms on problems of common concern, such as AI safety and securing a global competitive advantage, the relationship is generally strained. The PRC government, for its part, can focus S&T investment and compel compliance with national plans. This may or may not be a Chinese advantage depending on how one views industrial policy.

- STEM education was regarded by previous generations of Americans as the sine qua non for career advancement and the main purpose of higher education. Today U.S. colleges struggle to fill STEM enrollment targets, relying in large part on foreign admissions. By contrast, Chinese personally and as a nation regard "science" as the key to the future and are willing to put in the effort to excel in the hard disciplines, including AI.

- The result of decades of success in the United States—in science, wealth, and global power—is a dysfunctional hubris that blinds our country to genuine threats from peer-competitors. By contrast, two centuries of "national humiliation" and the bare needs for survival fuel China's desire to compete and restore its former glory. China is clear about its intent to dominate all aspects of AI by 2030. Are we taking it seriously?

- China and Sinitic cultures view existence holistically; Greco-Western culture sees things analytically. These differences manifest themselves everywhere. We tend to view AI as a disembodied target that can be pursued abstractly. China from the outset has viewed AI mainly as an appendage of other fields. Only recently did China, under foreign tutelage, started treating AI as a standalone discipline.

- The same concrete mindset tends to accord more value to practical than theoretical pursuits, evidenced by China's relative lag in AI algorithms and stronger showing in applications development. While we pride ourselves in making scientific breakthroughs, there is danger in neglecting their real world artifacts. At the end of the day, the practical uses of science are what win markets and wars.

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[2] Former UCLA professor ZHU Songchun (朱松纯), head of China's premier state-sponsored AGI research complex, disavows LLMs as plausible pathways to human-level AI. Chang and Hannas, "Spotlight on Beijing Institute for General Artificial Intelligence," Center for Security and Emerging Technology, May 2023.

Question 1a. Follow-up: How do you expect those differences to affect our competition in AI going forward?

- Mostly we are or will be outgunned. The U.S. and U.K. tech companies' current lead in LLMs is regarded by Western AI pundits as absolute, which seems dubious to me. The one area where Chinese AI scientists acknowledge a problem is in the "basic science" needed to create new and sophisticated algorithms. This Western advantage, however, is hard to quantify, difficult to sustain, and almost impossible to embargo.

Question 2. What are the biggest challenges that are facing the U.S. AI innovation ecosystem, especially in its competition with China?

1. Overcoming hubris and facing up to the uncomfortable fact that China is on a path to overtake the U.S. and the rest of the world in all aspects of AI by 2030.[3]

2. Acknowledging our present inability to track China R&D; the intelligence community—by nature and temperament—is ill-equipped to monitor open source S&T materials.

3. Legislating a nuanced suite of measures to deal effectively with China's access to global intellectual property. This third challenge entails several conundrums, namely:

   - engaging China in mutually beneficial scientific and commercial exchanges without sacrificing intellectual capital and strategic interests;

   - attracting Chinese students to U.S. universities and labs and <u>keeping them here</u>, while guarding against covert leakage to China of know-how acquired in place;

   - ensuring AI's safe development and alignment with (Western) values without ceding ground to less cautious competitors (China); and

   - confronting vested interests in business, academia, and local government that benefit from relationships with China that harm the commonweal.

4. Finally, contemplating the root causes of the decline in American STEM research and education, and addressing the problems promptly and proactively.

Please feel free to call on me and my team if we may be of further assistance.

Respectfully yours,

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[3] PRC State Council, "New Generation AI Development Plan" (国务院关于印发《新一代人工智能发展规划》的通知), PRC State Council, 2017.