**Jose-Marie Griffiths**

**CRAIG:** Hi, I'm Craig Smith, a former New York Times correspondent and host of the podcast, Eye on A.I.

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I'm also a special government employee at the National Security Commission on Artificial Intelligence. And in this role, I'm serving as the host for NSCAI's podcast series on the commission's work. This is the second episode of six, looking at the commission's first quarter recommendations to Congress.

In the 2019 National Defense Authorization Act, the Congress established the National Security Commission on AI to consider the methods and means necessary to integrate artificial intelligence into the national security and defense needs of the United States.

The commission consists of 15 commissioners selected primarily by Congress and is led by former Google Chief Executive Eric Schmidt and former Deputy Defense Secretary Bob Work.

Last month, the commission issued its first recommendations to Congress covering seven lines of effort, six of which are public and one of which is classified. We spoke with the commissioners leading the unclassified groups about their recommendations.

In this week's episode, I speak to [Jose-Marie Griffiths](https://dsu.edu/directory/griffiths-jose-marie.html) about her team's recommendations on how to strengthen the government's AI workforce. The recommendations focused on raising understanding of AI within the government and the need to streamline government hiring practices in order to attract and retain talent.

I hope you find the conversation as important as I did.

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Could you start by giving us an introduction to yourself and your career, how you ended up as president of Dakota State University, and then we'll get into the questions.

**JOSE-MARIE:** Certainly. So, my name is Jose Marie Griffiths, and from my accent you can probably tell that I'm originally from the UK. I was born and brought up and did all my education in London, gaining a degree in physics and graduate degrees in information science and computer science and statistics.

I moved to the United States soon after that to University of California at Berkeley as a visiting professor and from there moved on to more permanent positions, first with a research company just outside Washington DC where I was introduced to the federal government in the United States and conducted research for a variety of agencies, including some of the intelligence agencies, National Science Foundation and Department of Energy.

After 10 years in that role, I moved back full time into the academic world, and over the years grew into positions of successive responsibility. And then moved into academic administration, first as a chief academic officer, and then as president. My husband grew up mostly in Iowa, and he was very interested in a move back towards the Midwest. Dakota State University was looking for a president, and it's an interesting institution.

It has a very strong computing foundation across all of its curricula and has specializations in what we now call data science, in computer science, and in a variety of disciplines of cybersecurity. And I felt that I could bring my various national connections, particularly in the IT sector, to the university.

And so, I came out here five years ago, wasn't quite sure how I would manage the wide-open spaces and the small town. Madison is a small town of about 7,000 people, although most of those people live in the rural surroundings of Madison itself. And it's very flat here. But my mother is Dutch, and those Dutch roots are serving me well as I drive around the countryside.

So, while I appreciate the Northeast and the wonderful treed environment and rolling hills that we see in England, I also see a beauty in this kind of vast flatness that I see all around me the moment I leave Madison proper.

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**CRAIG:** I wanted to talk about your recommendations that the National Security Commission on AI has put forward.

And of the different groups, [LOE](https://en.wikipedia.org/wiki/Level_of_effort)s, your recommendations were the most extensive and are clearly needed. I was particularly struck by the statistic that the government workforce has twice as many workers over 60 years of age as under 30 years. That suggests that recruitment has been neglected for a very long time.

I was wondering if that has come up at all in your discussions about how to improve hiring or in your previous experience in government.

**JOSE-MARIE:** Well, the fact that we have sort of a binary age range for government workers is not really new. We certainly see it in public higher education generally. But I do think that the government has a wide variety of different kinds of needs, and more recently has been looking, obviously, at hiring in the technological area.

We are seeing the results of those efforts, and we're also seeing an increased set of competitors in the private sector for those same technological talents. So, I think that we have to be concerned that we will start seeing waves of retirement, creating new opportunities for young people to enter the workforce.

But quite frankly, it's still quite difficult because of the bureaucracy, the length of time it takes. And in the meanwhile, we're seeing young people being snatched up by the private sector as they're able to move much more quickly.

**CRAIG:** That's right. And again, on that ratio of over 60 and under 30. Is that because people tend to spend their entire careers in government, and that does not open up that many places for younger people?

**JOSE-MARIE:** Well, we didn't address this specifically, but I do believe that's the case. For many, many years, the government has been a good and safe, secure place to work, and I don't know now that our young millennials are looking for that kind of career path.

They're not looking for long term stability in the workforce. They are tending to move from place to place and spend shorter amounts of time in various areas of their career as they develop.

**CRAIG:** I was impressed by the program that you've laid out or the recommendations that you've laid out. One thing that occurred to me - it's happening in society in general - is there a danger of creating a two-class system where you have people who are educated and AI ready and those who are not as the government becomes increasingly AI dependent?

**JOSE-MARIE:** I don't think so. In fact, our recommendations recommend that a broad base in the government familiarize themselves with the capabilities and limitations of AI and also the role of data and good data management practices in the performance of AI. And so, we see AI understanding and AI skills being developed on a wide basis through the federal government. So, I don't really see that we're going to see a two-tier system. We haven't with other technologies as they've been introduced. We really haven't seen that happen.

**CRAIG:** Can you talk then about some of the challenges for hiring into the government, particularly into the Department of Defense?

**JOSE-MARIE:** Certainly. Unfortunately, today's bureaucratic barriers make government hiring and the security clearance process both difficult and time consuming, putting the government basically at a tremendous disadvantage relative to the private sector. Technologists and many others often face six months or more hiring process during which they receive many competing job offers, most of which pay significantly higher than government salaries. And so, they're hard to turn down.

Also, the human resource teams within government often struggle to correctly identify qualified personnel, and they struggle to use the hiring authorities outside of the competitive service, which prevents qualified candidates from joining the government. And it lengthens the hiring process for those that do.

Sometimes hiring teams use subject matter experts. So even when subject matter experts are able to choose the applicants, they're often constrained by Office of Personnel Management's Minimum Qualification Standards. And while those are important and they've increased fairness in hiring, they also prevent expert technologists who perhaps don't have Master's degrees, and in some cases, even Bachelor's degrees or comparable work experience from joining the government at a reasonable level of compensation.

In the AI world, in this new technology world, we're seeing some brilliant young high school graduates working with startups and developing significant capability. But we just have no way of capturing those and bringing them into the government using the current practices.

**CRAIG:** Yeah. One of the recommendations is to replace resumes with e-portfolios, and certainly I know from a lot of my younger friends who are in this world, particularly with the cost of education, if you don't want to go for a PhD and you want to get into industry or become a practitioner, it's not worth getting a Masters because many of the private sector employees only want to see the projects that you've done.

**JOSE-MARIE:** Yes. Well, portfolio reviews are actually used increasingly in education, both at the high school level and at the college level, university level. Really what a student or graduate is able to show as examples of the work they've done, the projects that they've completed, and the portfolios don't contain everything people have done, but usually a sample of their best work in the same way that an art student might show a portfolio of their best work. It gives people an insight into the real-world experience that young people have had. So, these portfolios are used pretty extensively these days. They have been for about 15 years, and what we want to do now is to incorporate them into the government hiring process as well.

**CRAIG:** You talk about rebalancing the relationship between HR professionals, hiring managers and organizational leaders. I thought that was interesting that HR professionals are very process oriented, where the hiring managers or organizational leaders are more focused on particular skills.

Do you anticipate that there'll be some difficulty in rebalancing responsibilities in the hiring process? I can imagine that career HR professionals would push back at having their roles reduced.

**JOSE-MARIE:** I don't know if they would. It's a question of developing a collaborative relationship between the traditional HR professionals and the subject matter experts and hiring managers, and we recommended some training for HR teams so that they understand more of the nuances of AI positions and hopefully will work in concert with the subject matter experts. What we want to do is to raise the profile of the subject matter experts in the hiring process by having the traditional HR people recognize the importance of the subject matter expertise in selecting people out.

And part of that is because actually the traditional academic or business resume that you would see typically is not really distinctive enough to actually give the specifics of artificial intelligence expertise, in part because there aren’t a lot of academic programs that say you have a Bachelor's degree in artificial intelligence. You typically have a Bachelor’s degree in computer science, and the question ultimately comes, how much AI work have you done as part of your more formal education. Or in fact, as I've mentioned, if you haven't got a formal education beyond high school, how much of the practical experience have you picked up by working on projects for startups and other companies?

So, I think that the balance is going to have to happen, and I'm hoping that the HR professionals recognize the importance of AI to the future of the government and recognize that they need more information so that they can do a better job working in concert with the subject matter experts.

**CRAIG:** Yeah, and I was impressed by the recommendation to develop online courses for Department of Defense and Department of Homeland Security and elsewhere in the government.

Are these off-the-shelf programs that you're talking about bringing in to government, or have you spoken to any of the online course companies about developing a tailored course for the national security establishment?

**JOSE-MARIE:** We actually didn't specify which the federal government should at adopt.

We believe that agencies should have the option to purchase off-the-shelf programs if they are the best choice and build their own courses independently or in collaboration with others if necessary. We think what's important though is the course should be structured with successive levels of comprehension, annual repetition and certification for different levels of competency.

So, in a true sort of curriculum development process. And the course should include baseline instruction in the nature, the development, the limitations, and the applications of AI and data science and the basics of good data management. We also believe that instruction related to the ethical principles for AI and their operationalization in practice should be included.

So, we've given some ideas of content and structure, but where the federal government goes to get those, it could be from a for-profit entity. It could be from a university that offers those courses. And it could be that they develop something in collaboration with one of their contractors or an external entity.

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**CRAIG:** Another question on speeding up the hiring process, you recommend cutting clearances to very short periods of time. How did you come up with the standard of interim security clearance within 20 days and interim top security clearance within 30 days? Is there a particular metric that you were using to come up with those timeframes?

**JOSE-MARIE:** Well, it's a good question. Clearly the government has to compete with the private sector’s hiring practices as much as it needs to compete with private sector salaries. And so, the push for shorter times for clearances has been quite loud over the last several years. But creating a way to help technologists quickly gain a security clearance and begin actually performing the work they were hired to do is a critical component. And we selected 20 and 30 days because those are very close to private sector practices while still giving time to conduct a review.

One of the things we recommend, and it relates to trying to accelerate the process for security clearances, but one of the things that may be a little bit new is we did recommend that unclassified workspaces be created for prospective hires who are going through the security process, so then they can actually start doing work. That occurs already with some universities and some of those interns, but we think that would be important as well.

**CRAIG:** I found that interesting. I didn't realize that there are classified facilities and unclassified facilities. I imagined that that would take place at the document level or the computer system level. So, are you talking about actual rooms or suites of offices where people can circulate and there's no need for clearance?

**JOSE-MARIE:** Yes. There are certain tasks that prospective hires can work on that are not necessarily classified. So, having some of those interns and prospective employees starting to work to become familiar with the agencies starting to work on some problems that are not classified in nature. There are a lot of different areas where AI could be applied to federal functionality, federal practices that could benefit from having AI expertise brought to bear. Not all the work that needs to be done needs to be done in a classified environment.

**CRAIG:** You're talking about identifying people in government with either knowledge or aptitude for AI. Do you have an estimate of what percentage of government employees fit that description, what their absolute numbers might be and what the estimated number of people needed to do what you think needs to be done should be?

**JOSE-MARIE:** Well, actually nobody has that information, which is why testing government employees, the AI aptitude is so important. So, we don't have specific estimates for those we think could have an aptitude for artificial intelligence. We believe there's a large number of government employees with the ability to code that could fit into AI roles.

And that's why we recommended the development and implementation of an annually reassessed coding language proficiency test and an AI competency test within the Department of Defense, Homeland Security, intelligence community, and FBI, so that we could actually begin to identify the numbers.

**CRAIG:** And you include recommendations for an aptitude test to measure aptitude for computational thinking. I thought that was pretty interesting.

**JOSE-MARIE:** You know, coding is one skill that can be helpful and applied, but generally computational thinking is probably an even better indicator of people's likely success in the AI and other technology related fields. So, we did recommend adjusting the Armed Services Vocational Aptitude Battery, ASVAB. And we think that the test could be for computational thinking. So computational thinking is distinct from coding. Basically, it involves a set of processes that allow people to look at a problem, break that problem down into parts. And then develop models to solve the problem and then put the parts back together, test it out, and then iterate the process again.

That approach to problem solving can be very, very important as it's applied to artificial intelligence. And we find that a number of high schools while they're offering now coding camps are now moving towards looking at computational thinking skills in addition. It was one of the recommendations actually out of the White House STEM education summit a couple of years ago. Computational thinking rose to the top in terms of needed skill.

**CRAIG:** That's interesting because it would identify people who may never have had a STEM education. I mean, that aptitude is innate really, and so you could surface a lot of people who then would be candidates for training. In your experience, how clearly can you measure that aptitude.

**JOSE-MARIE:** You can measure it in the same way that you can measure people's logical thinking ability. So, you give some examples and then see how they tease apart a problem and then begin to address it as a model almost how it might be addressed. We think we can add a component, not replace a component, but add a component and then make it voluntarily available to civilian employees.

**CRAIG:** Would that be part of the candidate screening process or is this only something that you would apply to federal employees?

**JOSE-MARIE:** It could be part of the screening process, too, but we haven't been that specific.

**CRAIG:** You talk about hiring university faculty to serve as part time researchers in government laboratories.

Is there any concern that there may be reticence on the part of academics to align themselves with the government? I know, for example, Geoffrey Hinton, who's one of the pioneers of the current supervised learning revolution, left the US because he didn't want to be beholden to DARPA funding.

And so, in the current climate, it's something that the National Security Commission Is certainly trying to overcome, or a gap that they're trying to bridge, between the national security establishment and the tech workforce. Is there a concern about that reticence and are there ways that you can mitigate that?

**JOSE-MARIE:** I think the reticence you talk about evolved out of the sixties and subsequent closure of federally funded facilities on campuses in the seventies, eighties, maybe even early nineties. I think the world has changed since then, and I think that academics who are working in technology related applications are really driven by the nature of the mission and the complexity of the problem. They like to solve really, really neat, interesting problems.

What we wanted to do with this recommendation is in part to develop an understanding of bi-directional understanding of the talent and the need. So what talent exists and what kinds of problems does the government have that need resolving and to introduce faculty to the government, to DOD in particular, and government research labs so that they themselves will bring some of their students along. And this is a way of introducing the prospects for the workforce to government work. Certainly, the national labs and the federally funded research and development centers and university affiliated research centers, are already doing work of this kind.

But building those relationships between academic researchers and the government researchers, we think was important.

**CRAIG:** And you talk also about talent exchange and increasing the number of government and private sector employees working together in fellowships and partnerships

**JOSE-MARIE:** Faculty, you know, are available during the summer, and they're also able to do a certain amount of research during the academic year. And so, this is not just a come for the summer and then we'll see you again in another summer. These kinds of relationships build over time and can be very, very positive in terms of exposing both academics and their students to the bigger mission issues that the federal government has.

**CRAIG:** The exchange that you talk about, you talk about recommending an increase in talent exchanges. Is that, for example, a government employee going to work in a research institute or in a private sector company on a particular government related project? Or is it just to have people in each other's environments to increase familiarity and understanding.

**JOSE-MARIE:** We think that that kind of talent exchange will benefit both government related projects and help participants familiarize themselves with issues that face the government and the entity that they're being shared with. Our hope is that the number of government and private sector employees participating in fellowships and partnerships with industry will increase significantly, with many of the increased number going to, or coming from AI and software companies.

Some of the agencies have programs of what they call externships, where they send people out, and what we're talking about is really expanding these kinds of programs in both directions.

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**CRAIG:** Some of the other recommendations that I was not particularly familiar with, you talk about expanding the Cyber Excepted Service.

I wasn't aware of the [Cyber Excepted Service](https://dodcio.defense.gov/Cyber-Workforce/CES.aspx). Can you describe what that is and how it would be expanded.

**JOSE-MARIE:** Yeah, the Cyber Excepted Service is one of the more effective tools for bringing in cyber professionals in an accelerated way into the Department of Defense. So, if you are qualified in various sub-disciplines of cybersecurity, cyber operations, cyber defense, et cetera, you can bypass a fair amount of the procedure in terms of becoming a federal employee. And the salary levels are higher.

So, it's worked very well for the federal government in bringing in the cyber professionals, but it doesn't adequately address AI practitioners. So basically, we asked that the Cyber Excepted Service be expanded to a Cyber and AI Excepted Service, which would avoid increasing administrative burdens by adding a new or authority, but shouldn't be taken as an indication that AI and cyber are synonymous. They are two parallel tracks under one authority, we hope.

**CRAIG:** And the excepted in that is you're excepted from the normal bureaucratic protocols for hiring. Is that right?

**JOSE-MARIE:** Yes, it's accelerated and then as I say, the salary levels are different.

**CRAIG:** There's a lot of talk of incentivizing the recommendations or the uptake of the recommendations among federal employees, both for AI courses, for programming proficiency and some of the other things. In your understanding, do those incentives have a big impact.

**JOSE-MARIE:** We believe they do and they will. It's a recognition that people have developed the capabilities to do more than they might be able to do otherwise. So incentivizing training becomes important and we think it's a way to move quickly, to allow the government to build the workforce that they really, not only need now, but that they're going to need in the future.

**CRAIG:** There is also discussion or recommendations about using [Pathways Internship Program](https://careers.state.gov/intern/pathways/). Can you describe that program and how it would be applied to bolstering the government's AI workforce?

**JOSE-MARIE:** Yes. The Pathways Internship Program has the potential to become an effective hiring pipeline, but there are several structural issues that reduce the quality of interns and the number that convert to government employment.

So, there are application caps, there are requirements for people to have worked a certain number of days on the internship before they can actually convert to a full-time employee of the government. And there's an amount of time. They have to do it fairly quickly between the end of the internship and their conversion to a full-time employee.

So, our recommendations are aimed at allowing more people to apply and allow students to convert a summer internship into a government job the following year.

**CRAIG:** And are these only available to matriculated students? Could they be available to people who have been out of university a couple of years and are in the workforce?

**JOSE-MARIE:** They could be. At the moment, they typically apply to students who are in their junior or senior year, usually.

**CRAIG:** More generally, the point of these recommendations is to raise the level of AI literacy, as you put it, among government employees and the national security establishment in particular.

When you were looking at doing this, did you look at other parts of the government or other domains that the government has focused on to increase a competency in trying to figure out ways to do it for AI?

**JOSE-MARIE:** Well, yes. Actually, our process on the commission is very, very thorough and very deliberate. We have had a great deal of consultation with experts and stakeholders throughout the government and the private sector and academia trying to identify what's actually been done.

As you say, not only in the area of AI, but in other areas of technological development. So cyber would be one example. Software engineering would be another discipline. And how have people actually expanded their technological capability within the government over successive implementations, manifestations of technology and newly emerging technological applications.

There's been a lot of extensive collaboration. We pick the best practices, tried to identify best practices in other areas.

And I actually should say, not only have we looked at what's been going on nationally, but we've even consulted internationally with some entities just to see what's going on in those fields.

AI application is needed in many, many countries, and particularly among our allies. So, we've consulted extensively with others to identify, as I say, best practices, emerging best practices, issues and concerns, barriers that exist, structural barriers, and then move to develop our recommendations.

And then our recommendations as they evolve are deliberated upon by those involved with the line of inquiry, line of effort, as well as the full commission so that before our recommendations are finalized we are very comfortable that we've identified best practices.

We've looked at every single recommendation and its rationale and before we finalize the recommendation, it's actually endorsed by each commissioner. So tremendous amount of back and forth going on. It's been a very intensive process, which might be a little unusual for some of these commissions.

Because we sort of felt that it was important to not wait until the end of our timeline to develop a report, but actually to put forward recommendations as we feel they're ready for moving forward.

**CRAIG:** Frankly, I was impressed at how thorough it appears the process has been, and I have to say, particularly in your line of inquiry, because it's a big amorphous problem and you did a very good job of breaking it down into very concrete steps.

And so, the ambition is to get the government generally educated on AI, and when we talk about AI, I presume we're talking primarily about deep learning, and to get the general understanding of what that is higher among federal employees generally, and then specifically within the national security establishment.

To create a core of people who are proficient and can fill these gaps. Is this something that then would be an ongoing process? And do you envision that the government will eventually transform into more of a high-tech workforce?

**JOSE-MARIE:** I think that's our intent. Our mandate was to look at strengthening the AI workforce, particularly in the federal government, particularly in Department of Defense.

You know, in a way, our line of inquiry really represents the human side of AI. So, when people think of AI, they think of robots and they think of all those kinds of things. We're dealing with the human side, and we felt that there's an urgency to move forward and try and catch the current legislative cycle and activities.

And we realized that there are many different authorities and procedures that are codified in law for the human resources side of the federal government. So, we felt there was some things we could address quickly that could impact the [National Defense Authorization Act](https://www.congress.gov/bill/116th-congress/house-bill/2500), the NDAA, which is under consideration now and could actually see some results earlier.

The set of recommendations we've made are in themselves, not necessarily big ideas. But when they accumulate, the effect will be a major change to the hiring of technologists and talent management across the national security enterprise. And this is one of our most basic requirements for driving a broader cultural change. And so, if we can't improve hiring practices, baseline foundational knowledge. recruitment talent exchanges, we're going to struggle to accomplish anything significant.

So, we didn't put all of our ideas into our first quarter report, which is the report that we're talking about. We actually have some big ideas that we're working on, and even more may emerge as we proceed with the commission's work.

So, our intent is to, continue to work on this, come up with some bigger ideas. It's more than just giving sort of general AI literacy across the government. We are going to look at how do we develop the very specific talent that we need, the deep technology capabilities of artificial intelligence developers and designers and influencers that's going to come as we go forward.

And we do have some ideas, but we haven't fully developed them yet. So, I don't want to upstage on next couple of reports.

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**CRAIG:** And what is the process. You make these recommendations they're sent to whom, exactly? And is there then a lobbying effort, the follows up behind them or do you hand them off to Congress and hope for the best?

**JOSE-MARIE:** We work very closely with the Congress, the White House, the National Security Council and executive departments and agencies, and our recommendations have been shared with all of them. We're hoping that Congress picks up on the recommendations that have been made in the report, the whole report, and hopefully will be incorporated into some of the current legislative developments that are evolving,

**CRAIG:** But does the commission have legislative experts that are working with the staffers that are writing the legislation?

**JOSE-MARIE:** We have an excellent staff of people who are very, very knowledgeable about the legislative process and very capable of helping the staffers put our recommendations into legislative language.

**CRAIG:** You talk about, on the AI literacy program that 20% of HR teams, hiring managers and the recruiters responsible for hiring technologists should be required to pass an AI literacy course within the first year, and that the minimum percentage of those certified should increase by 10% a year until 80% of the human resource workforce is certified.

Would that apply elsewhere? There you're talking about HR teams and hiring managers. You have a sense of the ramping up of AI literacy among the general workforce. I mean, we talked about identifying coders and people with aptitude for computational thinking, but the AI literacy would be applied across the government, not only to hiring and HR teams.

**JOSE-MARIE:** Exactly, across the government. Everybody that works within the government should have some understanding because they need ultimately be working with an AI enabled application, and that's why they need to understand something about what AI can and can't do, and something about the importance of data and data quality and data management.

Another group that we feel also need this kind of education are the acquisition managers, the people who acquire software and systems. They also need to have a better understanding of AI. But here we focused initially on the HR managers and then the mandatory training across the government.

**CRAIG:** And the training across the government, is there a ballpark target similar to this 80% for HR and hiring managers in this relevant area that you would like to get the government to generally, and is that going to be part of the recommendations?

**JOSE-MARIE:** Well, we made a recommendation on mandatory AI training. We thought that was going to be particularly critical, and that training we recommended should be mandatory for five years, and that would give everybody in the government an overview of artificial intelligence, machine learning, data management, et cetera, software decision-making, probabilistic reasoning, and an introduction to responsible and ethical development and fielding of AI. So those are the kinds of things that we thought could be integrated into existing training programs, but it should be mandatory for five years.

**CRAIG:** And when you talk about AI, are you talking specifically about deep learning? Are you talking about something much broader than that?

**JOSE-MARIE:** I think it goes beyond deep learning. I mean, there's machine learning generally, there's deep learning, there's algorithm development, there's the levels of semi autonomy, and AI is evolving itself as we go through this time.

So, you know, AI three years from now might be significantly evolved from AI as it exists today. So, we haven't sort of limited the kinds of educational programs that needs to be built. But as I say, if we look at the capabilities and limitations, whatever those are at the current time, and then this newly renewed focus on the importance of data and data management and classification of data, et cetera, all become very important to the AI enterprise.

**CRAIG:** In terms of competing with the private sector, I mean, there's a shortage of the kind of people that you're talking about, even within the private sector, so the government has some stiff competition there. What would you tell people, I mean, presumably a certain segment of our listeners are still in school or early in their careers.

What would you tell them about the opportunities that are opening up in government and how they might balance those against private sector opportunities.

**JOSE-MARIE:** Oh, I think that you'll see some of our future recommendations in this area. We'll look at the pipeline for talent generally in this country and how we can develop a better understanding of opportunities in the STEM arenas and in artificial intelligence itself. So those are recommendations that are yet to come.

One of our recommendations here that applies to the college and university sectors, we recommended expanding the [Cyber Corps Scholarship for Service](https://www.sfs.opm.gov/) program to include students studying AI. And this is a program that basically gives qualified students, it's a competitive scholarship, they have a full ride for a couple of years, two or three years, I believe. They get a stipend and these are the best of our students, but up till now that's only applied to cyber operations students, cybersecurity students. And we think that was a very successful program that's managed by the National Science Foundation. And we'd like to see that expand to include students studying AI.

So little bit like expanding the Cyber Excepted Service to explicitly include AI. We see this explicitly becoming the Cyber Corps and AI Scholarship for Service. So again, two parallel tracks under an existing authority and program.

**CRAIG:** And that scholarship, is that in return for a certain period of time of service?

**JOSE-MARIE:** Yes. It's a one for one. So, for every year that you've received the scholarship, you're required to do one year of service in federal, state, or tribal government.

**CRAIG:** I found it interesting the talk about tribal government in a few of the recommendations. Can you talk about the role of tribal government in this? Because they are not part of the federal government. They're autonomous to a certain degree. Why did you include the tribal government?

**JOSE-MARIE:** It's included in the existing programs, and I do come from a state that has one of the largest populations of native Americans in the states.

And so, it wasn't a South Dakota thing. It was already, embedded in the language of the scholarship for service. But we pay a great deal of attention as we find students who are very capable of coming into our degree programs. And sometimes they go to the federal government, sometimes they are actually pretty heavily supporting our state government right now, and a few have gone back to work with their tribal governments to increase their capabilities on the technological side.

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**JOSE-MARIE:** Workforce is really a foundational thing, and so you really can't do very much in any of the other areas unless you've got the appropriate workforce. So that's why we're not just focused on getting the sort hardcore AI developers into the mix, but also looking at broader literacy.

Looking at pipeline development, looking at people already in the workforce who may be able to add AI related skills and capabilities, who might not have thought about that as career opportunity, looking at the technical professional workforce.

As you can see, we ended up with a whole slew of different recommendations that we think collectively will actually make a difference.

**CRAIG:** Your timelines express a certain level of urgency. There was a recommendation about programs to hire university faculty within 180 days of passage of the legislation.

**JOSE-MARIE:** We have a sense of urgency. The whole commission has a sense of urgency that we need to move now and we need things to happen quickly if we are to stay competitive internationally and retain our lead.

So, it's very, very important that we make these moves and not be held up by bureaucratic artifacts that have existed for a long time. We need to become much more nimble in terms of developing and retaining a workforce. The private sector certainly is, and the government certainly needs to match that if we're going to be viable in the future.

**CRAIG:** And in the consultations, the external consultations or international consultations, did you look at all at what China is doing to increase its AI workforce in the government?

**JOSE-MARIE:** Yes. China is something that we've been looking at and monitoring.

**CRAIG:** There has been, as you say, since the sixties this widening divide between college graduates and the government mission. As competition with China becomes increasingly obvious to everybody, do you think that there'll be a societal shift back in the favor of the government in favor of the national security establishment as people become more aware of the need to keep the US competitive on the world stage?

**JOSE-MARIE:** I think it's actually already happening. It's happening in the cybersecurity realm.

There's a tremendous push for young people with computer related skills to come into cybersecurity fields. We don't see any reduction in the numbers of students coming into the university sector or the community college sector for those kinds of programs. And we continue to see an increase demand both in government generally and in the corporate sector.

And I think that has really given young people on campuses and the faculties that they work with a renewed interest in the federal government and Department of Defense applications, because those, in some respects in cyber security, are some of the coolest problems that need to be resolved. So, I think we're already beginning to see that shift. Whether we'll ever get back to this sort of massive wave of patriotism that evolved out of World War II, I don't know, but we certainly will see more people moving back in the direction of being willing to work more closely with government.

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**CRAIG:** That's it for this week's podcast. I want to thank Jose-Marie. If you want to learn more about the National Security Commission on AI, visit their website at NSCAI.gov. You can find a transcript of this episode there.

If you want to share your views on AI and national security, reach out to NSCAI at inquiry@NSCAI.gov.

And remember, the singularity may not be near, but AI is about to change your world. So, pay attention.