RS/RM1

January 7, 2013

John Krige,
Interviewer

KRIGE: This is an interview with RS/RM1 at Georgia Tech on the 7th of January, 2013, about the general implementation of ITAR at Tech.

Thank you for speaking about this. Of course, I'm interested in you because I think you have an overview of the situation here, and I'm interested in trying to get a better handle on the global situation in the United States, how Georgia Tech fits into it, and then finally how you fit into it, so we have three levels from the global to the local to the individual. So can you tell me a bit about the global situation in the United States, how it's evolved and why it's evolved in the way it has?

RS/RM1: So, a couple things. What the current situation is, you know, I wish I could put my finger on the event decades ago, presumably, that spurred all this, but, I mean, it seems like the current state is that there are these sets of documents that guide what we, either as companies or as individuals, as Americans have an obligation to protect and to not export. I think you've probably already been through or we can go through what our understanding of export means, and they have become unwieldy, unmanageable, unmanaged, out of control, to the point where it's severely stifling innovations, severely stifling the ability for companies to be competitive, severely stifling the role, the mission of the university to develop and disseminate knowledge. It seems like a beast was created.

I started to get involved maybe five years ago, eight years ago, in that range, where there was a recognition that the beast needed to be modified, tamed, better under control because it was stifling of innovation and progress. Actually, you may be aware of Norman Augustine.

KRIGE: Yes, I know Norman Augustine's name.

RS/RM1: Yes, he led an effort—he was part a presidential-level commission that was exploring this topic. That was five or six or seven years ago, and that was about when I got started on this.

KRIGE: So I'm particularly interested in the impact of this on universities, not on corporations, and I'm particularly interested in the impact on unclassified work that is sensitive. We've always understood that if you do classified research, your work is going to be controlled in some way. You're going to be subject to all sorts of accountability.

RS/RM1: Right.

KRIGE: But what seems to me to be quite novel, at least, or at least unusual, is the way in which sensitive but unclassified work now falls into that domain.

RS/RM1: By sensitive, I think you mean just the stuff that's ended up as export-controlled.

KRIGE: Yes. Sensitive but unclassified, for which we do not have the fundamental research exemption, FRE, and I'm really interested — when did that come into place? When did you, as a researcher, first become aware of this impact on your work. Has that always been the case when you had been doing your research as an engineer?

RS/RM1: Well, I think I'm going to step back a half a step, in that I think these requirements, I'll take a risk and say they were developed for companies and there was never any intention for it to apply to universities. The reason I'm saying that is all these regulations that are out there are absolutely, completely focused on companies. They're focused on products, they're focused on specifications. They're very specifically focused on technology that's in products. That's the way it feels to me.

Then as time went on for however long these regulations were going, they started to realize, oh, my gosh, you know that this university is selling a one-off version or is developing technology related to that, and they're just putting it in an envelope and sending it to China. So I'll bet that the regulations were developed with the idea that it *didn't* apply to universities, and then as things evolved—that in itself, to me, is an interesting piece, because there was never any thought given to what exports really were and how these were going to impact the things that it impacts today. You know what I'm saying?

KRIGE: Yes, certainly we know, we do know that in the early 1980s in the Reagan administration, suddenly people began to look at international scientific circulation with the Communist Bloc, the Soviet Union and the United States. And the Secretary of Commerce, interestingly enough, in this case, and the Secretary of Defense said, "Universities are leaking, they are sieves." The universities managed to hold it at bay a little, but clearly there's been a second wave, I think, of the same kind of action. And now at universities this is part and parcel of your everyday life, right?

RS/RM1: Yes.

KRIGE: So when was the infrastructure put in place in such a serious way at Tech?

RS/RM1: Six years ago.

KRIGE: As recent as that?

RS/RM1: Yes.

KRIGE: So you were one of the first people who were actually part and parcel of the implementation?

RS/RM1: For sure. I'll bet you through MB you will find out that we were and probably still are among the leaders in terms of the process, understanding the regulations and thinking through the process.

KRIGE: But why did we, at Georgia Tech, make that decision? Where was the pressure from?

RS/RM1: I remember JG's presentation, first real presentation I saw six, seven years ago, mostly because I remember it was before I took the vice provost job that I was seeing this stuff and I was doing GTL — and I think it was these scare tactics or these examples of where specific universities were being charged. So for us I think there was a recognition that because of bad publicity in a couple different instances, [there was demand for] increasing compliance in not just this, but all these other pockets of compliance that we now live with. I think that was—

KRIGE: The trigger.

RS/RM1: There was a raise in awareness about compliance, and then, third, was just the very, very heavy DOD focus of GTRI and the recognition that, ~~probably much~~ more than almost any campus, we had huge pockets of everything from the highest classification to just sensitive information all around this campus. So I think it was recognized that there was a huge potential vulnerability here if it wasn't well managed. Now, obviously, GTRI was always doing their own thing about protecting classified information.

KRIGE: Surely, surely, but [...] the added need was for the sensitive but unclassified information.

RS/RM1: Yes.

KRIGE: And the main threat was perceived to be China, do you think, or just in general? Or was it the European countries in general? American security, in general, post 9/11, perhaps? Any sense of [the source of the threat]?

RS/RM1: I'll answer two different ways. I have an increasing awareness for China. I'm not sure I would have answered it then, but today China is an increasing threat.

KRIGE: And if it's not indiscreet, what evidence do you have for that?

RS/RM1: The things that happened in my old job. [laughs] One-tenth of 1 percent of all people do something stupid and bad. We have four thousand international students on campus, and one-tenth of 1 percent is four students, and that's about what it is we saw every year, and that is cyber threats, students on campus performing in clearly active ways to do things that they shouldn't be doing, that caught the attention of various organizations outside of Tech. And that's about the number we saw. And most were Chinese.

KRIGE: This implies that the growth in foreign students on campus is also an important variable in the story.

RS/RM1: Hugely, hugely, important.

KRIGE: Particularly students from China.

RS/RM1: And growing.

KRIGE: And also Pakistan, India, perhaps. I don't know what other countries. Well, we don't have anybody from North Korea or Iran, but certainly—

RS/RM1: Oh, we have lots of Iranians here.

KRIGE: Is that also a source of particular anxiety today?

RS/RM1: Iran and China. We have 1,100 Chinese students, visa-carrying Chinese students, and Iranians, 40, 60, so a nontrivial number of Iranians.

KRIGE: So that's another variable that we mustn't forget in understanding, first of all, increasing demand for compliance, [...] but an increasing presence of foreign students on campuses here and across the nation, I guess. And of course, that's part of our business model, as well, which makes it doubly difficult because the business model of Georgia Tech is to recruit as many foreign students as possible. Is that not so?

RS/RM1: Absolutely. And to continue the thread that you started before, so in the 1980s, the State Department was saying universities are kind of leaking like sieves, but I think today, if you were a Chinese spy or you were trying to figure out how to get U.S. technology, how would you do it? You would try to get someone to infiltrate in IBM and you'd get someone to try to infiltrate Boeing, and you'd work that company angle to get people on in this inside and to provide information. And the technology-centric institutions of the U.S. are very, very, very, very open organizations from which there is leading-edge technology that's much, much easier to access than through those companies.

And for us, Georgia Tech, we're somewhere in the group of ten leading technology-focused institutions. Maybe we're fourth. So, again, if you were staying in China or you were staying in Pakistan, you'd say, "Well, where would I send people to?" Tech is top on that list, so I think it's increased, meaning that as a—because of those other experiences, the stuff that you hear about we see is real here. [...]

KRIGE: Everybody's aware and conscious of what they have to do and what their duties are in terms of implementing these export regulations.

RS/RM1: Five years ago, it was a foreign concept, five, six seven, when she first came around campus saying that we had to do these things.

KRIGE: "She" being JG.

RS/RM1: As she went around campus telling people about this compliance and telling about this, everyone just, I think, basically rolled their eyes, thinking, "Come on." And I think today there's [...] less [opposition] among faculty, because [...] a huge percentage of those projects are managed [by] these technology control plans [....]. I bet you we have fifty, twenty, of that order of projects that have technology control plans for which many, most are not needed, the guidelines and the controls.

KRIGE: Why do you say that?

RS/RM1: I think we have erred—ask MB how many she thinks she really needs to have.

KRIGE: You've erred on the side of caution.

RS/RM1: You know MMc? He was kind of the interface between me and MB when issues came up on specific projects, digging into information, getting to the bottom of it, all that. Mike really, really helped [...] It's like, "Look, there's a wall of these. I've got a wall of documents for which we have control plans. And how many of them do we really, really need? Five percent? Ten percent? Thirty percent? Not 100 percent." But I think we're, like, three or four years into—what was the word you used—you know, over—

KRIGE: Prudent.

RS/RM1: Yes, over-prudent, and with a little luck—we've reached a certain saturation point in how to do it, which projects need that. With a little luck, because we really haven't had any major violations, we can talk about some of the things that have come up if you want, but, by and large, we haven't had major problems, and maybe that's a reflection that we used a hammer this big for a nail that's that big. Sorry, I'm blabbing. It's exactly what you want?

KRIGE: Exactly what I want. What about the kind of knowledge that is being produced here? I mean, generally, people say that universities do basic research in the public domain, of course, we know apart from those people who are doing classified work. But is there something about the way in which we're producing knowledge now which is much closer to commercialization or exploitation than it used to be in the past? Or perhaps there's no way of saying that.

RS/RM1: I think it's the latter.

KRIGE: It's the patronage system. It's the funding streams that are pushing you more towards rapidly producible products.

RS/RM1: For sure, and I have to say, I don't want that to be—that, to me, is completely clear. That's an emphatic yes, but that's probably also colored by my own approach. You know what I'm saying? I mean, I have, over time, evolved toward—because I've been involved in a couple startups. I mean, I seek out and work on projects that are not fundamental or basic. I seek out projects that are much more towards the applied than I would have before. The goal is not just to publish a paper, but—

KRIGE: And that's because the possibility of commercialization—

RS/RM1: Yes.

KRIGE: And that, of course, is another variable in the story, because this brings us back to the Bayh-Dole Act, which enabled university professors, like yourself, to commercialize their results and make some money for themselves, whereas before that was not possible, the argument being that since you have tax dollars, it's public property. So there's another motive. There's another factor there which feeds into this, narrowing the gap between doing basic and doing applied, if you like to use that kind of language.

RS/RM1: Whether you want to talk about this on recorder or not, but I will tell you why it is I cancelled [this interview] so many times. I was involved in a trial in Pittsburgh.

KRIGE: We can remove it from the transcript, if you need, afterwards.

RS/RM1: Did I tell you kind of what was going on?

KRIGE: No.

RS/RM1: Because it's directly related to Bayh-Dole. I was hired by Carnegie Mellon to help them defend some of their IP that ended up in every hard drive in the world, 4.5 billion chips, had some stuff in that was developed by a colleague, friend of mine at Carnegie Mellon. I spent the last three years, on and off, as a consultant, expert witness, kind of typical stuff. The trial was held for over a month right before Christmas. We won. I was representing Carnegie Mellon. We won. The jury awarded Carnegie Mellon $1.2 billion in damages.

KRIGE: Good grief.

RS/RM1: JG now tells me that that case and a couple others are going to have a dramatic impact on—have the possibility of moving Bayh-Dole more and more out of the picture because companies—let me just kind of get it out, because you're right. You're exactly right that the export stuff is not just all about sensitive military [technology]. It's all about competitive technology. It tends to have this, like, military application stuff, but I think all that stuff is dual-use. That's, I think, why it has the potential of stifling innovation, because it damps down—

RS/RM1: I know we're mixing all these things, but you now see, because of Bayh-Dole, you now see universities, at least in this case, Carnegie Mellon, finally willing to say, "You know what? I know the industry's going to hate me for doing this and I know I'm going to bite the hand that feeds me, but you're using my stuff and it's in 4 billion chips in the world, and I deserve to be paid for it."

And the jury said, "They do."

KRIGE: It's become a very important sort of instrument now for reasserting their rights in this area. In some ways it's positive, but in the other way, it's also going to then lead to real problems about technology transfer as well.

RS/RM1: And how companies are not willing to work with universities and whether we really are their friends.

KRIGE: So that's another variable that's important, right? You said there might be fifty in the school. Are these all, then, people with your kind of mindset in the school subject to these TCPs? All of them interested in exploiting commercially the research that they do? Are all of them on DOD funding which requires that they cannot have the FRE exclusion?

RS/RM1: I'll bet you there are more people in the camp of heavily funded projects from DOD, for which the faculty don't necessarily want to exploit it for commercialization. It's the DOD restrictions, whether it's foreign national restrictions, whether it's—I'm now stretching, but that tends to be a trigger for our folks because we're so heavily DARPA-supported, whichever projects or other DOD projects, whichever have foreign national restrictions on them.

KRIGE: So foreign nationals is where it really clicks in, in terms of these contracts from the Department of Defense, even if it's unclassified work.

RS/RM1: I don't know of any of our faculty that are doing classified work. It's all these DOD or projects for the Lockheeds and so on, that have foreign national restrictions. It's either a specific technology or typically a foreign national restriction, where folks have large research groups where they have foreign nationals all over the place, but now they have a project that has foreign national restrictions.

KRIGE: Even if they're doing really, really far from applied work. For example, if they're looking at a new kind of ceramic to put on the leading edge of a fighter wing. That's the kind of thing. So even though they're way away from actual commercialization, just the fact that they're doing cutting-edge research with a DOD contract stops them having a foreign national on it.

RS/RM1: Yes, exactly. Or they go to the book, and the book says ceramic of a certain thing for a whatever thingy, you know, that proposal goes through, and somebody up there says, "Oh, that's Regulation 10.4.7, development of materials, typically sale of products that have this certain type of ceramic on that's used for this index of refraction, all this kind of stuff, that's controlled technology."

But the whole point is more confusion. The biggest problem that I see is our faculty don't understand the regulation, much less than someone internally having to make a decision about [whether] John is working on some coding that can meet a set of guidelines. They try to get the FRE by saying, "There's no restriction on publication, no restriction on foreign nationals. My goal is to not commercialize it. My goal is to publish papers, disseminate freely" da, da, da, da. Then somebody up there says, "FRE."

KRIGE: Can I just be clear about one thing? When we say foreign nationals, do we mean that they're totally excluded from the project or they may be only on the project under certain conditions?

RS/RM1: I don't think we have the ability to fine-grain—my impression is we tend not to dig further than foreign national allowed, foreign national not allowed. Do you know what I'm saying? I think what you're headed towards is, yeah, foreign national allowed on this project, but these set of restrictions on that project.

KRIGE: Even though it's not FRE. So it's not FRE, but a foreign national can still work on it. It is regarded as sensitive, but you can have a foreign national, as long as he or she respects certain kinds of things, like—well, of course, you're going to train that person, but they can't give papers abroad, and so on.

RS/RM1: Because there's this deemed export condition.

KRIGE: Deemed export areas are really complicated for me.

RS/RM1: Deemed export says that an export's actually taking place because you have a foreign national working on a controlled technology. That, in itself, is an export.

KRIGE: Export, by virtue of the knowledge gained in the act of working on it. Right. It's going into a foreign head, basically.

RS/RM1: Yes, because then they can just get on the plane and go. So that's why I think it's zero or one.

KRIGE: Right. It's a toggle.

KRIGE: Is there a difference between different Schools of Tech? I mean, let's leave out the Ivan Allen College. I know aerospace has a huge engagement in this. You clearly do. For example, physics. Is physics more or less untouched by all of this? Is computer science? How does it distribute across the campus?

RS/RM1: ECE, aero, and computing probably have 95 percent in the projects.

KRIGE: And that's because of where they get their money from predominantly.

RS/RM1: Whoever has decided on the technologies that are controlled, they're focused on weapons, you know, rockets, anything that flies. They're focused on weapons, they're probably focused on communications equipment, and they're focused on computers. [We have] high-tech restrictions so that we keep our competitive edge [...]

KRIGE: What about the way in which your daily life at the university has changed with all of this in place? I mean, let's put aside the commercial side of it, but just in terms of your interaction with your students, the way you organize space in your labs. How do you stop these people becoming leaks of sensitive information? If foreign students, like Chinese students, are not allowed to work on these projects and yet most of your money comes from these projects, what are your foreign students doing?

RS/RM1: I wouldn't say most of the money comes from these projects. Do you know what I'm saying? I mean, we have hundreds and hundreds of research projects here.

KRIGE: From multiple sources.

RS/RM1: Oh, yes, yes. I mean, I bet you we have four or five hundred active research projects right now, so that TCPs only touch—

KRIGE: Ten percent—

RS/RM1: Yes.

KRIGE: —of your total projects.

RS/RM1: I would be surprised if it was more than 10 percent. So all those other projects—do you know what I'm saying? So the premise is just slightly different.

KRIGE: Oh, so then it's mostly NSF money, industry money—

RS/RM1: Yes, yes, yes.

KRIGE: —all sorts of money.

RS/RM1: Oh, yes, and then a lot of other DOD projects are okay.

KRIGE: Oh, so there are DOD projects that are okay. DOD makes a distinction between the kind of projects.

RS/RM1: Yes.

KRIGE: Oh, I see. Not every DOD project is necessarily covered by ITAR.

RS/RM1: Oh, for sure, or that even have foreign national restrictions.

KRIGE: Oh, I see.

RS/RM1: Not all of them have that. I mean, a lot of them do, but many don't.

KRIGE: And that's decided upstream when the grant is awarded to you?

RS/RM1: Yes.

KRIGE: I see. So they would say that you could allow foreign nationals onto this project when you get the grant.

RS/RM1: Absolutely, as you're applying for it you would know which projects have foreign national restrictions or not, and given in some areas how very, very few American students we have on the projects, some people just shy away from them.

KRIGE: And have you got any sense of how the DOD makes this distinction in terms of knowledge produced, knowledge which is really very, very blue skyish, perhaps?

RS/RM1: I think in certain segments, yes. I'm sorry. I'm going to even add another variable. So these regulations are old, meaning the technologies that are in them, by the time somebody figures out that this is a technology that should be in that book, everybody's moved on. I had a technology control plan with something with Georgia Tech Lorraine. We were developing this quantum cryptography. It's how to do crypto, but using quantum physics. People were doing this for ten years before it ended up—

KRIGE: In the book.

RS/RM1: —in the reg. By that time, all the good ideas are out. You know what I'm saying?

KRIGE: Sure, sure.

RS/RM1: So the blue-sky stuff, again, that creates a whole other layer of uncertainty on our side when you try to work with, "Okay, it's not in the book."

KRIGE: So you turn your blind eye to it …

RS/RM1: Yes. The company that we started is exploring a whole new different kind of security that allows two wireless devices to talk to each other and you'll be able to get security. There's nothing in any book, and I'm kind of going to those guys, "We think we're going to define a whole new field behind which you do security."

And they're like, "Not in the regs." So that's the piece that just—the couple projects we had never had any restrictions, and the whole purpose was to publish. Oh, and then we later filed some patents and started a company. But you know what I'm saying? do you see what I'm getting at? I feel like I'm maybe contradicting myself.

KRIGE: No, it's why you think that so many of the TCPs are irrelevant, because basically they're trying to plug a hole which doesn't exist any longer, and all the sensitive work which is really cutting-edge is not yet in the regs, and so it's falling through the cracks, exactly what they want to stop. They're missing [sensitive material], and what they don't need to stop, they're trying to stop.

RS/RM1: Yes, and the way that we manage that is that somebody looks through the proposal for some key words and goes through the regs, and there's some key words in the reg, and they run a little program that tries to spot those words in the proposal. And then someone says, "Oh, this word, cryptography," and this da, da, da, da, and all this crazy stuff that's in the reg, well, that showed up in your proposal."

I say, "No, actually, it's not the same thing." And then you go back and forth, and you say, "Oh, god, we'll just do it."

KRIGE: Yes, this slows down the whole process massively.

RS/RM1: And then sometimes we just make the wrong decision, and the professor says, "Fine, we'll do a technology control plan."

KRIGE: Okay, just for safety's sake.

RS/RM1: Yes.

KRIGE: What about the relations with your students, though? I mean, what about meetings with your students? Do you have to segment your student body in important ways? Now, some students may not talk to other students, may not give papers and seminars. If you have a graduate seminar, are you going to have to exclude people from the room who might not be there because they're a foreign national and this kind of thing? Is this onerous? Does everybody just take that for granted now, as part of academic life? Do they buck against it?

RS/RM1: Because our interaction with companies are getting more and more like that, as well. So separate even from ITAR, you have companies that are giving you proprietary information.

KRIGE: And demanding that you don't just—

RS/RM1: Just data. It's not secret, it's not sensitive, but it's something that comes from their products. They just don't want their competitors to see it. So I think that is increasingly a way of life for a lot of our folks, 10 percent, maybe. So I think over time people have gotten used to that. They organize their labs — because they're already working for Microsoft and Google — how students communicate, the kinds of things students can communicate about, what happens in your group meeting.

KRIGE: So the ITAR part is just in another domain.

RS/RM1: Just in conversations with someone in the last couple weeks, he said, "Yeah, yeah, I agree to doing the TCP. We're just going to do it, and I'll just manage it like the other projects. We've had this in place for five or six years." The first couple of times people do it, it's a real pain in the ass. It's still a pain in the ass, but they've got tradition or they've gotten used to having to deal with it. So it's clear, we do have an increasing number of projects where the companies have a right to review the paper before it goes out. They get thirty days. They get sixty days. I feel like we're getting more and more of those projects, and they would be managed similarly. In fact, I think projects that are like that now have TCPs. I think when Contracts finally agrees to those kinds of restrictions have nothing to do with a sense of technology, have only to do with restricting data or proprietary knowledge, might also fall into the category of needing technical control plans.

KRIGE: Let me take you right back to the beginning, because the further we go down the line, the more you imply that this is a small part of your academic activity and that in many ways there's at least as much going on in terms of the commercialization of your research as there is in terms of ITAR. Yet when we started, you were very strongly hostile to the saying, "It's suffocating creativity. It's cramping research. It's making our lives impossible on university campuses." So how do you match these two?

RS/RM1: It's kind of funny. I don't experience that, but that's what you hear from the companies.

KRIGE: That's what we heard from the companies I've spoken to, certainly, small companies especially. Big ones feel they can manage it, I think, but the small ones feel vulnerable.

RS/RM1: So that's my own personal answer. I think most of the faculty would say not so much it's stifling innovation, but it's a royal pain in the ass. You know, "I'm in academics to develop stuff and to make it freely available to the world, and why do we have to live that—?"

KRIGE: But that doesn't apply to a person like you who's very entrepreneurial. You're not only in academics to develop stuff to make it freely available to the world, so for you, you'd expect to have a whole bunch of regulations and you'd demand them because that's in your interest, too, that your proprietary knowledge is protected just as much as anyone else's is. So you don't buck against this particularly strongly, but a nonentrepreneurial academic may and they're the ones who are making the most fuss.

RS/RM1: Yes.

KRIGE: Have you done classified work before?

RS/RM1: No.

KRIGE: But you know how it works, I guess.

RS/RM1: Yes.

KRIGE: Is this regime different?

RS/RM1: You could kind of imagine if what we had was top secret, secret, confidential, and export, you can kind of imagine a system that was put in place to manage all that. That's not at all how, to my knowledge, how it is MB and those folks run it, so it's a system completely outside of that.

KRIGE: On the day-to-day level, in terms of people talking to each other, people giving talks, people going to conferences, people publishing, it sounds very similar to the way in which people would be functioning in a classified regime.

RS/RM1: Yes, I suppose so. Yes, I mean, I've only had one TCP, and in that instance it was more guided by technology we had already developed that was being sent and licensed to someone in France. It was technology that showed up in a book, cryptography kind of stuff, and a plan was put in place for us to transfer that. We applied for a license. It was sent. So we had restrictions on how we kept the software here, how it is it was sent, and documentation surrounding that, but as we continued to develop the software here, I don't ever remember being hindered or controlled. You know what I'm saying?

KRIGE: You mean in terms of exchanging everything you learned, in addition, with the French.

RS/RM1: Yes.

KRIGE: Of course, the free flow then is always on condition that they don't divulge that to somebody else.

RS/RM1: Presumably outside of France. They may have had restrictions on who they could send it to outside of their own university.

KRIGE: It struck me that you always come back to the concept of technology. I always see that as rather a device or an object. Of course, a lot of these restrictions actually, as we mentioned earlier, are just about talking, sending a plan, having a Skype conversation, an email. So it's really about knowledge in a very general sense of the word, isn't it?

RS/RM1: Yes, for sure.

KRIGE: It's really about controlling the flow of knowledge, not just technology.

RS/RM1: For sure.

KRIGE: It's very easy for people to say, "Yes, I understand." You can't export your car or you can't export your tank, but this is not about exporting a tank. This is about talking about the tank.

RS/RM1: Ninety percent, I'll bet you, of what it is we deal with has more to do with talking.

KRIGE: And any plans and PowerPoints, and—

RS/RM1: —not a product.

KRIGE: —not a product. It's difficult to understand it as an intellectual, actually, because we have such a different conception about what the exchange of knowledge engages, especially in academia. That's what we come into it for. If you work in a weapons lab, you understand that you can't talk about that, right?

RS/RM1: Yes.

KRIGE: But it's odd when you come into a university. That's what's fascinating to me, that you cannot talk to people about things or send them a plan or say "Can we have a conversation about this new idea I've had? Because I'm sure you can help me." No, we cannot.

RS/RM1: Well, the other thing is that SM also ended up on this National Task Force that was revisiting—I haven't talked to him about it in over a year, but it would be really interesting to find out, because the purpose of that task force was, I think, a presidential-level task force that was moving towards this high walls around smaller islands. That was the goal.

KRIGE: There is talk of that. There is talk of that.

RS/RM1: He'll know exactly where it is. And the other thing is I remember in some of the meetings, he couldn't talk—these guys all now have clearances who are on that group, and they were continually briefed by the FBI how important their work was because of all—"Let me show you all this terrible stuff that's going on out there."

KRIGE: Talking about terrible stuff: Is it willful? Is it accidental? Can you talk about the cases in which there've been breaches of the system here?

RS/RM1: I think they're all accidental. Yes, they're all accidental. [..] Like the one that was in Bloomberg.

KRIGE: Yes, I've read about that one.

RS/RM1: That was purely accidental and I think that's a typical kind of thing, someone posting a PowerPoint presentation on an insecure place where he thought that it was secure, or whatever, and no malintent.

KRIGE: The penalties for this can be enormous, right, even for such a minor infraction?

RS/RM1: I think the penalties are entirely guided by the degree to which you are proactive in reporting them. That's what it feels like to me. The guy at Tennessee, that's, like, the most famous case, and he just—

KRIGE: Deliberately flaunted the system, yes.

RS/RM1: Yes.

KRIGE: He got the chop, obviously.

RS/RM1: Exactly.

KRIGE: Whereas if one shows good faith and good intent, they'd rap you over the knuckles and say, "Don't let it happen again," but they don't—

RS/RM1: And we got a very, very, very, very, very stern response, like, yes, very, very stern response.

KRIGE: And this comes from the State Department, from the DOD, from some office in the administration? Would you know?

RS/RM1: I'd be happy to show you the letter. I'm not sure I would be willing to give you a photograph, but I think it was Army. I think, in this case, it was the army lab from which the images came from or something like that. I think they sent off their guys. The interesting thing is the displeasure with the fact that it was up there for so long before it was caught. But then once we found it, we were very, very diligent, very diligent in digging down to the root cause and exposing everything and being transparent at that point. I think that had as much to do with why they didn't pursue it further.

KRIGE: It must be very hard for young people, foreign students to understand all of this. I mean, you have two students from Iran or two students from China. They're very excited about what they're doing, want to share the information, but suddenly can't. How do you stop them? I mean, what happens if there's a female and a male and they fall in love? You can't stop them doing that, and it's inevitable that there's going to be leakage. Do you just say, "That's life"?

RS/RM1: Yes, and I think that's that line of defense where no foreign nationals allowed on these projects.

KRIGE: Let me just get this foreign national. You can have foreign nationals on the project, but it's still ITAR-regulated, is it not?

RS/RM1: I'll bet you we do not have any projects that are ITAR-regulated that have foreign nationals.

KRIGE: So they're all FRE projects. All have to be FRE for foreign nationals to be on. There's never a danger. There's never a danger.

RS/RM1: Again now I'm going to backtrack, because I'll bet you we have projects that don't have foreign national restrictions, but more company-sensitive information. You know what I'm saying?

KRIGE: Yes, sure.

RS/RM1: These guys, MB and others, will be able to draw, I think, those lines for you more clearly than I can.

KRIGE: Let me come at this another way. What about if you have some sort of a laser-cutting tool that cuts a very fine groove in a crystal, and this is a very sophisticated piece of equipment which you want to use on your totally open project, and you're going to have a Chinese student be trained on that, but somebody else is using exactly the same equipment for a very sophisticated DOD project. What will you do? Will you give the Chinese student access to this fancy laser-cutting tool?

RS/RM1: No.

KRIGE: You will not.

RS/RM1: No.

KRIGE: So they will set the terms of the kind of equipment that you use, and if the equipment is dual-use in that sense too, just here in your labs, you're not going to let a foreign national near it.

RS/RM1: Exactly, yes.

KRIGE: Does that not mean that some of the very best equipment is not available for you in your everyday research, which isn't—

RS/RM1: Yes.

KRIGE: It does?

RS/RM1: Yes.

KRIGE: Is that an impediment that can be avoided, or it's just a way of life and you just take that—

RS/RM1: I think that's kind of where the stifling of innovation occurs. That's never affected me, so I'm now, like, projecting onto the people—we have a nice little thing called the rail gun, and those folks—forget about whether we think a rail gun is a good idea or not. You can see how frustrated they would be, because they want to be the leaders in rail guns and this inhibits their ability to find the very, very best people in the world to develop the best rail gun. So I could see how that would, for sure—that's where the stifling innovation—I think that's where the rubber meets the road for us.

KRIGE: In that sense, it's like a cancer that spreads. Well, that's an exaggeration. It's like a negative effect that seeps back into other parts of the lab inevitably.

RS/RM1: Yes. Absolutely, and the piece that's even more frustrating [...] relates to modem technology, being able to send as much information as fast as you can. You can see that that's a competitive advantage, both industrial and militarily, and in there they talk about all these little details in there, stuff that we work on that I can go into the regulation and I can say that's 1960s-era technology for stuff that we do all day, every day. Every cell phone in the world has it, and yet the regulation still prohibits export of that technology, even though every single iPhone, has it —so I get into a situation of saying, "I'm going to develop something that would use this," and

I know that putting it in an email and sending it all around the world in no way benefits anybody, because it's such accepted technology and old technology, but yet it's still in the common knowledge, but yet it's still in the regulations.

KRIGE: You don't bother about the regulation.

RS/RM1: No.

KRIGE: And if you were challenged by—

RS/RM1: You look at it and you say, like, "Oh, my god. Well, at least when I've been charged with a crime, at least I can tell them that Apple exports that every day all around the world."

KRIGE: Oh, I see. That's the way you cope with the problem. You don't phone the State Department and say, "Take this thing out of the regulations." You say, "To hell with it because, anyway, Apple's doing it all the time."

RS/RM1: Yes.

KRIGE: "So if I get hammered, I'll just say, 'Well, start with Apple. Then come speak to me.'"

RS/RM1: Yes. You kind of take this risk, but, I mean, it's a—

KRIGE: But you've covered yourself by knowing that everyone's doing it.

RS/RM1: You're just assuming I'm not going to get in any trouble for technology that's so commonplace.

I want to say a bit about the system that we have in place. I used to be what was called the,—we used to joke, — designated felon and power official for Georgia Tech because that was for compliance. In the five years that I held that, there were only two instances in which my name ended up on a mea culpa document that we had to send to somebody. I'm very glad I'm not doing that anymore, but I think the system that we have in place, even if it is a huge hammer on a very small nail, for me personally, our compliance is almost a nonissue because we have such a big hammer and, I think, are doing a spectacular job of keeping ourselves out of trouble.

KRIGE: Well, it's a source of pride, obviously, to you personally. On the other hand, you also told me you had—

RS/RM1: It's not so much pride, exactly.

KRIGE: —relief. It's relief, endless sleepless nights about it.

RS/RM: Yes, yes. So looking back, I probably didn't have anything to worry about, because guess what? It never came up. I've got all these projects and, by and large, then it means it's quite well managed. The amount of time that I heard from professors that were upset, "Why do I have to do this," and all that, I mean, it asymptotically has gone almost to zero, so that in the last year or two this never came up anymore. So we were managing well. People seemed to accept it. The EEs, the AEs, and the computing guys realized it's part of life. Do you know what I'm saying?

KRIGE: Right. Yes, exactly, exactly.

RS/RM1: Kind of beaten into submission or you get into whatever.

KRIGE: Just became the way of life in campus, in university life today.

RS/RM1: Yes. So going back to did it inhibit innovation a lot, I mean, people are all still doing cool stuff, and a lot of money, and doing a lot of—

KRIGE: Sure, sure. It's hard to measure the opportunity cost. It's hard to measure the opportunity cost. Well, are other people turning to Tech as a model that you know of?

RS/RM1: I didn't see it in the last year or two, but kind of the three years before that, when everyone was trying to develop their own export, we heard a lot. The Emorys of the world, UGAs, we work with them. We, I don't want to say, trained them, but we explained to them how it is we're doing, lots of meetings for how our compliance went. So I'd say that era—actually, although, I was just at an EE department head meeting, probably twenty-five EE department heads from the southeast, and some people were just starting to talk about export. I was thinking, like—

KRIGE: Good luck. [laughter]

RS/RM1: Okay, you're behind everybody else. So I mean, I think that era, a certain amount of that era has kind of passed. People have some kind of compliance program.

KRIGE: And all the big engineering schools do this, even though Stanford apparently tried to say that they were going to not do this and put it all off campus, in fact.

RS/RM1: I think the whole UC system used to be that way, too, I think, that they would not accept ITAR projects.

KRIGE: But they're no longer able to do that.

RS/RM1: I don't know.

KRIGE: They can't afford not to.

RS/RM1: That's what I would expect.

KRIGE: And MIT, the same as Georgia Tech. You don't work closely with these people particularly.

RS/RM1: No, no, but MB or whomever, I'm sure, could tell you.

KRIGE: You're not part of a consortium and lobby group trying to get these regulations tightened up or improved.

RS/RM1: SM would be the closest to that.

KRIGE: Georgia Tech as an institution—

RS/RM1: I don't think so.

KRIGE: —doesn't see itself as having that role. Is that because of our unwillingness to take on political issues or is it because nobody else is doing it either?

RS/RM1: I think people basically accept it. I mean, I'll bet you JG—among that group, when they get together, these are the things they bitch and moan and complain about, and maybe there's some advocacy that goes through—what is it—the APLU, you know, whether there's a little bit of advocacy goes there. Right now I don't see it as, like, a major issue for which universities are pounding on somebody to try to—

KRIGE: The National Academies did a lot of work on this in the early 2000s, with universities very prominent. It seems to have died down. People have just come to live with it.

RS/RM1: Yes, we fired half a dozen or two or three people, and the program's running and people have rolled over and are taking it.

KRIGE: Are used to it.

RS/RM1: Yes.

KRIGE: Okay. I think we're done.

[End of interview]