

# AEROSPACE

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Ben Iannotta: So, I've got you on speaker phone. We're in a huddle room, or I'm in a huddle room. So, it's private and all that.

Basil Hassan: OK.

Iannotta: So, first thing I want to do, well, it's really great to get some time with you because I know I see you at events, but I don't think I've ever said more than hello to you. And that's my oversight, not yours. So, this is kind of a treat, as it will be for the other candidates. So, first thing I want to do is get some of the basics out of the way. So, by introduction what we're going to do is transcribe this interview. If you realize you misspoke about some fact or something like that. We'll bracket it in. "Hey, Basil got back to us and said X Y Z."

Hassan: OK.

Iannotta: Treat it like that, for the transcript, fuller transcript that we plan to have online. We'll lightly edit it, take out stops and starts, things like that but otherwise it'll just be what you said and then in the hard copy, we'll have excerpts just like we did two years ago. And so with some bio info so I wanted to get that bio information from you. By the way, how long do you have? Is it 45 minutes or an hour?

Hassan: Yeah, I've got as much time as you need.

Iannotta: So, we'll keep it to an hour because I've got the room for an hour. Let's see, so what's your current job title there at Sandia? Senior manager? What's your job title there at Sandia?

Hassan: Yeah, it's senior manager.

Iannotta: Senior manager for what could I say? Aerospace research development and applications?

Hassan: Well, I mean I can give you the name of my organization which I'm the senior manager for the — I just changed jobs so —

Iannotta: Oh, I see.

Hassan: It's called the engineering, stockpile analysis and responsiveness program.

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lannotta: I couldn't quite make out the second word you said. The engineering what?

Hassan: The engineering comma stockpile assessment.

lannotta: Oh, stockpile. Yeah, gotcha.

Hassan: Comma and responsiveness program. It's in the resume that I sent you.

lannotta: Yeah, right. That sounds familiar now.

Hassan: OK.

lannotta: What does stockpile assessment mean? Stockpile of what?

Hassan: It's assessing the nation's nuclear deterrent.

lannotta: OK.

Hassan: Those words are probably not going to mean a whole lot to the random viewer. They're very sort of localized to the Department of Energy.

lannotta: That's good. So then, within AIAA, you're currently chair of the honors and awards committee?

Hassan: That's correct.

lannotta: And you've been a board member for a number of years in the past, right?

Hassan: That's correct. So, I was, under the old board structure, I was the director of the engineering and technology management group. Then I was the vice president for technical activities and then I was an at-large board member.

lannotta: OK, so all told, how many years were you on the board? From when to when?

Hassan: About nine years.

lannotta: Sorry, I spoke over you.

Hassan: Nine years on the board.

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lannotta: Nine years. So, from which years to which years?

Hassan: I think it was, let me check here just so I can give you the right —

lannotta: Sure. That'd be great.

Hassan: 2008 to 2017.

lannotta: OK. Gotcha. All right, and then, so what's something notable in your day job over the years that you've achieved, and there might be some of the stuff, I guess, is probably classified but maybe you can at least categorize it. And then also that could be an opportunity to say something that you're really proud of from your AIAA volunteer work.

Hassan: What I sent you this morning was too long so I was going to rewrite it.

lannotta: Oh, you know I was, — that's so funny — I was off my email preparing for this so I totally missed that. I apologize.

Hassan: I should have sent it to you earlier.

Hassan: I would say two notable career events for me was helping NASA determine the cause of the Columbia accident investigation.

lannotta: Oh, OK. So, you were on the CAIB [Columbia Accident Investigation Board] then?

Hassan: What's that?

lannotta: Were you on the CAIB or you supported that?

Hassan: I supported the CAIB. I supported the NASA engineers and others here at Sandia doing analysis to help understand the cause.

lannotta: So, as an engineer at Sandia you did that?

Hassan: Yeah. Engineer and manager. It was about the time I transitioned between being a staff member to a manager, and so I actually spent about seven weeks at NASA Johnson helping to coordinate Sandia's analysis work and helping to understand the cause. And then also got to help with some of the return-to-flight activities and some of reviews supporting the return to flight.

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Iannotta: OK, and is there anything in particular that stands out as far as working with AIAA?

Hassan: You know, I think when I was vice president, I had the opportunity to work with the staff and the rest of the volunteer leadership to create our forum model for the conferences.

Iannotta: Oh, OK. Yep.

Hassan: And that came at, I think, at a very critical time when we were having reductions in conference attendance because we had so many of them, and I think bringing many of our conferences together into fewer and larger events just provided a larger breadth of content for our attendees. Not only the technical content they were used to but bringing in some of the programmatic activities that are going on in our industry through the Forum 360 and some of the plenaries, some of those kinds of engagements, I was really proud of what we did as a team there.

Iannotta: Gotcha. And then, those are great examples, so then how old are you?

Hassan: I am 52.

[interviewer asks for birthdate not-for-publication]

Iannotta: And what city do you reside in? Or town, whatever.

Hassan: Albuquerque, New Mexico.

Iannotta: Gotcha. And then your degrees are from North Carolina State University?

Hassan: Yeah. A B.S. in 1988, **M.S.** in 1990, and Ph.D. in 1993. All in aerospace engineering and all from North Carolina State.

Iannotta: All right, so let's kind of plunge in here. I'm curious when and why you got involved with AIAA.

Hassan: So, I would say the things that got me into aerospace were as a kid I got to go to the National Air and Space Museum in Washington, D.C., and a couple years later, I got to go to the 75th anniversary of the Wright brothers' flight down in Kitty Hawk. I would say those two things really got me interested in flying and aerospace and anything having to do with those topics. And my dad was a professor at North Carolina State, and he saw my interest from those two

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events and he actually started taking me to the student section meetings of AIAA when I was a kid.

Iannotta: OK.

Hassan: So, I probably started going to AIAA meetings when I was 11 or 12 years old, and then when I became a freshman in aerospace engineering at North Carolina State, I joined AIAA immediately.

Iannotta: OK. So, it's interesting. Why did you stay involved? We unfortunately have student members that don't stay members once they become professionals.

Hassan: Right, so I would say there's probably — sometimes it takes one person to make a difference in being involved in an organization like this, and when I was a graduate student, I had a mentor at NASA Langley Research Center. They had funded my graduate research. His name is David Throckmorton, who's a longtime AIAA member and he's actually a current member of the Board of Trustees. And when I was graduating with my Ph.D. and coming to Sandia, he encouraged me to join an AIAA technical committee. He happened to be chairing the thermal physics technical committee at the time. He told me, he said, "This is one of the best things you can do because it will get you to the conferences. It'll get you working with other people in the profession and the networking opportunities would really be great." And I didn't fully appreciate all that at the beginning. And I asked my boss when I first started working in Sandia if it was OK if I got involved and he said, "Absolutely." And I got involved on the technical committee in 1994, I believe, during my first year of employment here at Sandia. And Dave was right. I got to really understand more about work going on in other organizations. I got to meet a lot of people. Those networking opportunities have turned into opportunities for me and a lot of the things that I've done during my career. Including helping to bring programs and funding and things like that to Sandia. It all wouldn't have happened had I not had that opportunity to network through AIAA.

Iannotta: And so it sounds like it was really mentoring by a current member that got you involved or continued involvement?

Hassan: Yeah. Yep.

Iannotta: So, now you're running for president. What do you see is the role for the AIAA president?

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Hassan: I think it's a very important role and as I put in my candidate statement, I think we're sort of at a pretty critical time in our history. So, when I started getting involved in AIAA, we sort of thought of as the professional society for aerospace engineers doing research and development. There was a lot of money coming to professors and a lot of work being published back in those days.

Iannotta: About what year was that?

Hassan: Let's say 30, 35 years ago. Back in the '80s.

Iannotta: OK.

Hassan: Our membership was high and people counted on AIAA for what I'll just call information exchange and a lot of that information exchange took place at conferences, it took place through journals, publications. And then the networking piece of being able to go somewhere and meet people. If you look at today's aerospace professionals, getting access to information and networking is still very much important. And sharing information, but we do it a lot differently now. We have something called Google, which we can type a question into and probably get 75 percent of the information we need and I think the needs of aerospace professionals are changing and how we deliver that information and how we accomplish that ability to network is changing as well. We didn't have iPhones and social media and things like that back then. We actually depended on face-to-face networking and, as I mentioned earlier, that was one of the key things that has kept me involved as a volunteer at AIAA. I feel like I've reaped a lot of benefits from being a member, both personally as well as professional, and I want to make sure that the younger professionals who are coming out of school have the opportunity to be able to experience some of the same things I did because I believe it could truly be beneficial for their careers. So, if AIAA is going to be a venue to do that we have to think about evolving ourselves and making sure that those networking opportunities, those information exchange opportunities are not only meeting the needs of the current members but are also going to be meeting the needs of our future members. Whether they're brand new and just coming out of school or they're people who are the non-aerospace engineers but who work in what is a very large and robust aerospace industry.

Iannotta: So, what are some of the things as president you might do to make that a reality?

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Hassan:

So, you know, the first thing that I'd like to make sure we do is that we're able to provide potential members that value proposition of why AIAA is important. Why they need to take their precious time where there's a lot of opportunity to do different things and help them understand why AIAA can help you both personally and professionally. So, I think that comes by making sure we have a lot of engagement opportunities, whether it's in person at a forum, it's at a section meeting or it's being done virtually through some sort of virtual communication. Not everybody's going to be able to travel so we need to sort of lower the barrier of entry to allow people to participate and I think that's just going to be different than the normal model we've done in the past. I think we need to engage the younger professionals earlier. When I was a student, being a student member of AIAA was an expectation from the faculty. I've been on five university advisory boards during my career at Sandia and I'm finding that participating in AIAA is an option now. And I don't know that the benefits of membership have been communicated to the younger professionals because there's so many other organizations that they can be a part of and spend their time. And even when I go speak to AIAA student members, I'm constantly telling them that, "Hey, this is a good thing. I wouldn't be here talking to you today if it wasn't for my participation." So, I think figuring out a way of getting the future members more exposure to what the benefits of being in this organization are is really going to be an important thing that I think myself, the volunteer leadership and the AIAA staff will need to focus on. We're going to need to create a program that will recruit and retain people within our ranks.

The other thing which I think is important too is taking a hard look at the products and services that AIAA provides members and making sure that they're timely and relevant. Again, you know, a lot of things that we've done as an organization is put on conferences or put together journals and books and things like that or have professional development courses. And there's a lot of competition for doing those things. There's other organizations that put on conferences. There's new journals popping up all over the place. And I think we need to take a hard look at those products and make sure that they're relevant and that they're providing the members or future members the things that they really want together. Given that change in how we access information and network and things like that.

So, I would like the Board of Trustees, if I'm elected, to focus on those strategic aspects of making sure that AIAA is a relevant organization and is providing timely and relevant products for people who want to join us and I believe if we can do that, then we will be able to reverse the membership trends. **One of the things that personally I have gotten out of AIAA is, I think, I grew up to be a**

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**better leader by moving through the different volunteer opportunities that I had within AIAA and that's made me a better leader back here at work. It's a lot harder to convince a set of volunteers to do something than it is to convince someone who works for you, and I've been able to hone my leadership skills through AIAA.**

And I feel that is something that we can give back to the younger generations as they are quickly getting out of school and moving into areas of responsibility back in their home organization. And I think we can help develop the future leaders because of the experiences we've all had in AIAA and I see that as sort of my way of giving back to the community.

Iannotta:

So, that kind of raises a conundrum for me that I think about a lot in my role here as editor-in-chief of Aerospace America. Working at AIAA, I, of course, want to see us succeed and I see how hard the staff work and especially the volunteers work to make us successful. But if I look out in the aerospace world, I see all these amazing innovations happening and all this energy. We're going to have self-flying aircraft, urban air mobility planes, cleaner and more efficient jet engines, reusable rockets, commercial space enterprises out there. All sorts of science on the moon and Mars and beyond. So, while our membership has been declining, the community has been succeeding.

Hassan:

Correct.

Iannotta:

So, why is an organization like AIAA still so important?

Hassan:

Well, I think it goes back to some of the basic things I talked about in the beginning of why people join professional societies and it goes back to the basics of information exchange and networking. And those things never go away; just in how we provide it needs to be different. The other thing that I've realized as I've moved through my career is that most of the people who join AIAA are not in the same jobs they were in when they started working or when they got out of school. Sometimes they could be working in very different areas, aerospace related or not. **And I think our organization has very much catered to the sort of R&D entities that we were all used to dealing with when we got out of school or when we started our first jobs, where we might have been very involved in the R&D of all these different areas. Aerodynamic, structural response or we were applying those capabilities to building the airplane or the next spacecraft and things like that.**

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And now you've got this whole group of aerospace professionals that have their jobs might evolve into program management or things like that where maybe they're not necessarily interested in the details of particular physics models or things like that but they're interested in the integration of those capabilities to help provide successes in their programs. And I think that's one thing that we probably didn't hone our offerings to that part of the community and those are the people who are helping to make the decisions of, "Am I going to bring my younger generations to these conferences or not?" Because they want to know that it's going to affect the bottom line of their program.

We've also got people in very different areas than we're used to dealing with. So, information technology, being able to take — have Amazon deliver packages with drones or looking at what the next generation of spacecraft are going to be like. A lot of the successes of those types of systems are going to be more tightly coupled to the information technology side or tightly bringing in of some of the disciplines of computer science or electrical engineering or things like that, which may not be the core of the traditional aerospace areas. There's new ways of doing manufacturing like additive manufacturing and other advanced manufacturing capabilities.

Again, they're related to our industry but they really haven't formed the core of what we do and if we want to be able to cater to those folks who are branching out in those other areas, that means our offerings have to evolve, as well. **We still want to keep those members and volunteers who came to AIAA for the core aerospace discipline but at the same time, I think we need to expand to include those whose career paths are going in a different direction.** I think if we're able to do that then they'll see that the integration of all the things that we do will help provide them some benefit both in the information exchange and the networking areas.

Iannotta:

So, it sounds like the point is there's success happening but you see a role for AIAA to make that success maybe happen faster and maybe reach even higher levels.

Hassan:

Yes. I believe we have the opportunity to expose the aerospace community to the broader sets of capabilities and engineering disciplines that make up what we do. We can sort of break down some of the stove pipes that maybe have existed in our industry and open people up to thinking about new approaches and new ways of doing things, which ultimately will transition into better systems, better aerospace systems for the future. So, whether you're in industry

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and you're working on a proprietary program or you're in a government laboratory and you're working maybe classified programs or you're in academia and you're doing that fundamental research, to me AIAA can be the entity to help bring those communities together so they can think about all phases of development of aerospace systems. And think about even some of the policy things that are driving our industry and driving the things that will happen in the future, the things that our country or the world will invest in and I think AIAA can be a nice focal point for having those hard conversations about policy issues. How are they going to affect the technical areas that we need to invest in and things like that?

Iannotta: So, of course, at AIAA there's discussion about revenues. It's more fun to talk about the achievements of the community but revenue for an institute is also important. Do you think revenue is a sound metric of whether we're providing adequate value to members?

Hassan: So, personally, I believe that the biggest metric — and I'll get to the revenue thing in a second — the biggest metric we need to track is participation and engagement. If people are participating in the things we do, and they're engaging in the products and services that AIAA can put together, then I believe the revenue issue will solve itself because we will bring people who will be happy to join as a member or come to our events or purchase our products because they see value in what's being provided.

And that may seem like a very simplistic view, but the bottom line is if people don't participate, or they don't find value then we will have a revenue problem, but I tend to not want to focus on the money piece of it because I think in order to make some of those things happen, I think we have to actually do a little bit of investment. And the first place I would invest in would be in the students. For example, if they have the opportunity to go to really great student conferences that AIAA helps support, and the AIAA Foundation helps support, they're going to quickly see the value of what that information exchange and that networking can bring them. So, we have to start early, and we have to show the value, and we're going to count not only on revenue to come in to help fund some of those programs, but we're also going to have to count on there being a very motivated volunteer group that has experienced those things and wants to be able to, like I said earlier, give people the same experience that we had as we moved through our careers into the organization.

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But it kind of goes back to the field of dreams comment, if you build it, they will come. If we provide the right products and services that are timely and relevant, then I think people will come.

Iannotta: Great. So, what do you think about AIAA's strategic plan? Do we have the right approach in place? The right goals?

Hassan: Yeah, I think so. I've had a little bit of an opportunity to sit in on some of the board meetings and I was involved in some of the work that went on to create our new governance model. And I think that the board is going to have to work pretty hard to make sure that we can achieve those things. You know, it's one thing to set a metric around increasing the membership by X percent or increasing the revenue by X percent or something like that, right? Those are sort of quantitative metrics that we can try to achieve, which is a good thing because it gives a way of measuring it. But I think the bottom line is that we have to sit down and figure out which areas do we want to invest in to make those products and services better so it will attract people to come here. For example, if we want the membership to grow, we can't just set a metric and hope it happens, right?

Iannotta: Right.

Hassan: We've got to put programs in place or communication mechanisms in place to go out and attract people to come in, right?

Iannotta: Do you think – [crosstalk]

Hassan: OK, go ahead.

Iannotta: Do you think the membership goal, growth goal, that's been set is realistic?

Hassan: I think, yeah, I think it is. I think we can probably do better. When I first started at AIAA membership was probably around 37 to 40,000 members, OK? We're roughly half that now, and there is no reason for us to be that low because the number of professionals working in the aerospace industry at large is still relatively large, right? But, again, I think that people have to realize the value of what AIAA can offer them and in some cases it's going to involve them spending money out of their pocket or it's going to involve their organizations spending precious resources for time and travel or training and we have to make sure that we've got superior products. And if we have superior products, then people will come.

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- Iannotta: What level of growth do you think is realistic for membership?
- Hassan: I think that we could realistically grow by, you know, a couple of percent a year if we work very hard to do that.
- Iannotta: So, that's close to the goal, right?
- Hassan: Yes.
- Iannotta: In the strategic plan.
- Hassan: And I think that, and that's a modest goal, it's not Earth-shattering by any means but part of that comes in figuring out why the students, once they get out of school, we lose them within the first five years, OK? We need to find out what's not interesting to them in the institute and I've found that there's various different classes of people.
- So, you might have a student who is very active in AIAA when they're a student and then they go get a job in some part of the country and suddenly they find that their local section's not very active or their local section might be in a town that's two hours away and the barrier for them to participate is a little high because they don't have that same support system that they did maybe when they were in college. And so a lot of times we lose them there or maybe the organization that they go to work at maybe isn't as supportive.
- I was very lucky at Sandia that I had management that was supportive of me participating and saw the value of what I was doing because it wasn't just me going off and traveling. They saw that I was networking. They saw that I was meeting people. They saw that I was bringing opportunities back to the labs and so they saw that as a benefit. That was an investment in me that was ultimately an investment in the organization. And I think there's some education that we probably need to help provide some of the young professionals when they get out there that yes your entree into the AIAA professionally life could be a little harder in some cases. But if we provide opportunities for them to engage through virtual networking or virtual meetings or things like that, then that might be a low barrier for them to get over to continue to be active.
- Iannotta: So, what technical or related fields do you think AIAA has the possibility of contributing to and that you think could produce membership growth?

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- Hassan: One of the areas where I think there's always been a strong synergy has always been sort of in the energy area because a lot of the same challenges they have are similar to ones that we have in aircraft and spacecraft. So, there's things like power management or like in the renewable energies, being able to harvest energy and use it efficiently and things like that. So, I think there's a lot of synergy there. I think in the information technology and the cyber fields, as well. Aerospace systems tend to be very high-tech, high-fidelity systems that require a lot of integration between the individual subsystems, like your propulsion system and the control system and things like that. And I think that there's a lot of areas in automation and robotics and some of those areas that are starting to grow that I think a lot of the same technologies we think about in the aerospace industry have some nice synergy.
- Iannotta: Great. So, let's see. Yeah, we've covered some interesting topics. I just wanted to give you a chance, if there's a question you're surprised I didn't ask. Jump on that. If there's something in your candidate statement that you wanted to highlight, this could be a good chance to do it.
- Hassan: I think you asked some really good, thought-provoking questions, which are things that I've been thinking about for a while. And probably the one question you didn't ask me is why me and why now?
- Iannotta: OK.
- Hassan: To be the AIAA president.
- Iannotta: It's a good one.
- Hassan: And I thought about that quite a bit over the last couple of years because I've had the opportunity to be involved in AIAA in many different ways and across various parts of the institute, so I started out my career on technical committees and sort of worked my way up the volunteer structure. I was an associate editor for the Journal of Spacecraft and Rockets. I've been a section officer here in the Albuquerque section. More recently, I've been involved in the honors and awards committee and things like that. So, I've had the opportunity to sort of see a broad cross section of what the institute does and what it supports.
- Hassan: And at the same time, I've had this really great experience where AIAA and its members have trusted me and invested in me to help make the institute a good place. Right? And I've had the opportunity to contribute in a lot of those areas and so, at this point in my career, I want to see younger professionals coming

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out of school or early in their careers reap some of the same benefits that I have been able to take advantage of. And, you know, I have conversations with a lot of my colleagues who I've met through AIAA and they're actually my friends and we've developed strong working relationships even though we don't work in the same companies that do the same things.

And I think we've all sort of realized that if we don't take action now to try to turn the institute around and have it evolve to the evolving nature of our professional, that maybe in 20 years from now, the institute won't be as successful and it won't be able to contribute to young professional lives the same way as we were able to reap those benefits. So, I see this as an opportunity to give back, and AIAA's been an important part of my life and I love the institute and I love what I've gotten from it and I just want to make sure that people who are coming into their professional career will be able to experience that as well. And I just felt that at this point in my career now where I feel like I can sum up all these experiences that I've had within AIAA and hopefully bring, turn us in a positive direction by working with my colleagues.

Iannotta: Do you think if somebody works in say Silicon Valley or for one of the new space company startups, is there value in being an AIAA member?

Hassan: Absolutely, I think there is. The microelectronics industry is part of just about everything we do, from the cellphones we carry to the computers and tablets and all that kind of stuff, but they enable a lot of the new advances that we're going to need in the next generation of aerospace vehicles, right? The airplane, the look of an airplane hasn't changed that much since the 707 came out, right? But all the systems involved in that airplane have changed due to advances in microelectronics or subsystems or things like that. So I think we need, there's going to be a very big, in my mind, investment in how we communicate to the outside world about why AIAA will be important to you in your future and we're going to have to reach out beyond the usual boundaries that we have normally communicated with. We tend to communicate with our members and we tend to communicate with the historic aerospace organizations and I think for us to grow and to bring in those people that are in adjacent industries, then we're going to have to communicate a little broader. And that's tough, it's a challenge, right? We get bombarded with so many things every day on the website and emails and all that and I think it's going to take a concerted effort and it's going to take, in my mind, it's going to take a partnership between you all on the staff who think about AIAA on a daily basis to those of us who volunteer, who've got a day job and only get to think about AIAA for minutes or a week, right?

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lannotta: Right.

Hassan: But I think it's to our advantage because the more people we can bring in with very diverse backgrounds, I think it enhances not only what we can achieve in this industry or as a profession, but it makes AIAA an organization that can open people up to other areas that may help them in their day jobs that they never thought about when they see those four letters or four words American Institute of Aeronautics and Astronautics.

lannotta: Yeah. So, it's a lot of food for thought doing these candidate interviews for being the editor-in-chief of Aerospace America and in some ways it reassures, or reinforces rather, what we're doing and then it gives me brainstorm. I think one of the ideas that you kind of reinforced, sometimes we're under a bit of pressure to speak the particular language of a field and, "Oh, why do you need to spell that out?" or "Why can't I have 10 different acronyms in the article," or, "Gee, everybody knows that term." And you know, so the balance we try to strike is say things in a way that would be understandable to somebody in an adjacent field and without totally insulting the intelligence of the specialist.

Hassan: Yeah.

lannotta: Anyway, I don't know why I tossed that out there, but I think it's interesting.

Hassan: I was even talking to Dan Dumbacher over the last couple weeks, even how we communicate through the AIAA Momentum email that comes out once a month. We pack so much stuff in there that it's impossible for somebody to get it all, right? So, I think we need to be very targeted in how we try to communicate with people. And maybe there's some way with artificial intelligence that will help us figure out the things that people are interested in based on what they do and we can make those kind of communications targeted to the things they're interested in. I don't know how to do that but I'm sure somebody does. And the world of – going back even to the Apollo days and going to the moon and all that kind of stuff – the things we have done in our industry and our profession are exciting and people get really jazzed about what we do. That was always a big interest and that's why people got into this business because it was exciting and now you look at what all the new space companies are doing and the UAV companies and the opportunities for autonomy and all that kind of stuff. And we just have to make sure that we're part of that.

lannotta: Right.

# AEROSPACE

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Hassan: We're just not the same people who sit in our labs and write our computational fluid dynamics codes or go to, you know, our engine test cells or those kind of things. Those people are still going to be there. And they're still going to have a need for what we do in the industry but it's all those other areas that make the aerospace industry successful in those adjacent areas that I think is the areas where we need to put our efforts and demonstrate our relevance.

Iannotta: So something struck me that you said. When you were talking about momentum and you gave that example, it sounds like maybe in your view part of the recipe is being user friendly?

Hassan: Yeah. [Aside about election announcement and Momentum newsletter] Maybe thinking about different ways about how we communicate with people, I think, is going to be one of the big challenges going forward, because if we're not communicating the right things, then I think setting goals for membership and revenue and all that kind of stuff are not gonna happen unless we're able to attract people's attentions in the way that they find useful for them.