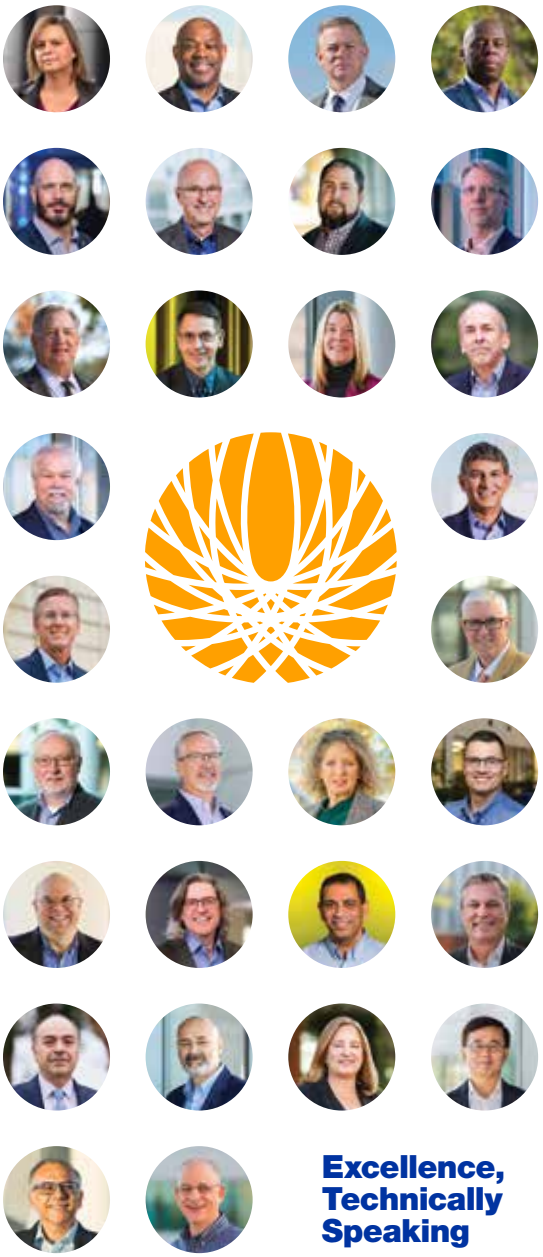


Meet the experts:

New Executive Technical Fellows

The newest class of Boeing Executive Technical Fellows possesses expertise in a variety of areas spanning the full life cycle of all Boeing products, processes and services, including flight deck architecture, vehicle health management, additive manufacturing, avionics software and infrastructure, product security engineering, human engineering and quantum technologies.

“The breadth and depth of our Technical Fellowship is unique to the industry, and we count on our fellows to be stewards of technical excellence across the enterprise,” Boeing’s Chief Engineer Greg Hyslop said. “I am confident this group will continue to strengthen our company and industry and help change the world.”

Following a rigorous candidate evaluation process, 21 Boeing Technical Fellows advanced to become Senior Technical Fellows (STFs), and nine became Principal Senior Technical Fellows (PSTFs).

Recognized as technology leaders inside and outside the company, the honorees assumed new roles in the executive tier of the Boeing Technical Fellowship, which represents less than one-tenth of 1% of the technical workforce. They are trusted consultants, advisers and mentors, and they will play an even more important role in the future as drivers of the company’s design practices.

PHOTOS: BOEING

Senior Technical Fellows

Raenaurd Turpin
Digital Sensors and Computing System Design

I was inspired by my parents' military, aerospace engineering and athletic backgrounds; these led me to connect my passion for electronics to futuristic missions and concepts at an early age. My parents also impressed upon me that it takes vision, hard work and a great team to deliver results.

Each day, I have the privilege of inspiring, empowering and integrating diverse teams comprised of the world's greatest experts. We connect and protect globally, ultimately enabling opportunity, transparency and access to education through the application of innovative technologies and systems.

I am blessed and honored to have been selected as a Senior Technical Fellow. The Boeing Technical Fellowship provides an unrivaled opportunity and responsibility to learn, mentor and coach alongside individuals of exceptional stature as we fulfill our roles as stewards of Boeing technical priorities.

The emergence of new technologies and the accelerating pace of innovation will transform our world in ways that we cannot imagine over the next 20 years. Advanced microelectronics and photonics, coupled with machine learning, will bring new materials, medicines, computational power and missions within reach.

ELECTRONIC AND ELECTRICAL ENGINEERING

Stephen Coombes
Electromechanical Packaging Design and Analysis

As a student engineer, I was introduced to electronic systems and their associated mechanical design and analysis. I found it fascinating that these systems required solutions across all classical mechanical engineering domains: thermal, dynamics, fatigue, material science and manufacturing processes. Because of that engineering variety, I chose to pursue a career in electronic product design and analysis.

I love the diversity of products for which I get to design, from satellites and manned spacecraft to tactical aircraft, commercial aircraft and watercraft. Each product design is interesting and offers a new and different engineering challenge.

I am blessed to work with such a group of highly talented, gifted engineers. Being part of this Fellowship gives me an opportunity to share my talents and learn from my colleagues.

I have the ability to drive and influence technologies that protect our fellow citizens, allow us to travel on Earth and beyond, and enable a safer, more productive life for all people.

FLIGHT ENGINEERING

Darren Fricker
Aerodynamics and Computational Fluid Dynamics

I was fortunate in high school to have a teacher who invested in me and gave me an appreciation for the fields of math and science, which led me to pursue a degree in engineering. My passion further blossomed in college with an opportunity to perform graduate student research by doing computational fluid dynamics (CFD) development and analysis under a contract with NASA. This laid the groundwork for me to land a job doing very similar work at a time when CFD was still in its infancy.

It is gratifying to see my hard work take flight and perform as intended. What excites me most is the opportunity to deepen my existing relationships and build new ones as we work together to ensure the technical excellence of our future product offerings.

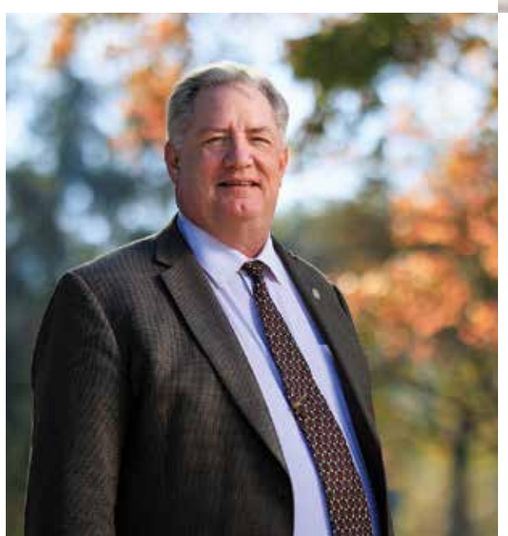
It is a tremendous honor to be selected as a Senior Technical Fellow. I am grateful to the managers and teammates across Boeing who have supported me along the way and encouraged me to stretch, at times further than I thought possible.

Friedrich (Rick) Wilhelm Künzler
Optical Systems Engineering

Several generations on my father's side were opticians in Heidelberg, Germany. My father was the director of research and development at a prominent optical health company. He always brought home neat things like an early helium-neon laser. With my curiosity piqued, I did a book report on holography in the fourth grade and have remained fascinated ever since.

They say if you truly love what you do, you never work a day in your life. I really enjoy tackling complicated problems and collaborating with diverse teams to make a long-term vision a reality.

It is truly an honor to be in the Fellowship program. I am energized by artificial intelligence and digital engineering. We have a lot to learn, and we need to pursue the codification of the next generation of tools and methods. I am excited to be part of that.



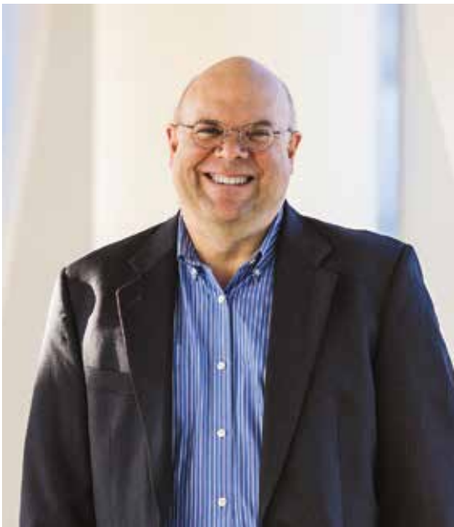
Dave Krug
Propulsion and Fuels

As a youth enthralled by aerospace, I aspired to design amazing vehicles. Although aerospace seemed a world away, programs such as the space shuttle provided inspiration to pursue my dream. Once in college, my professors introduced me to the complexities and extremes of propulsion systems. I never looked back.

The most rewarding aspect of my work is the opportunity to collaborate, innovate and solve complex problems with talented teams from around the world. Being a part of the 777 and 787 development teams gave me those initial experiences, which I have leveraged throughout my career.

It is an honor to be recognized as a Senior Technical Fellow. The responsibility to promote and ensure technical excellence in all we do is foundational to our success.

Being on the team that develops, scales and industrializes advances in propulsion is what excites me most about our future. It is these expansions that will enable many of our future products and their capabilities.



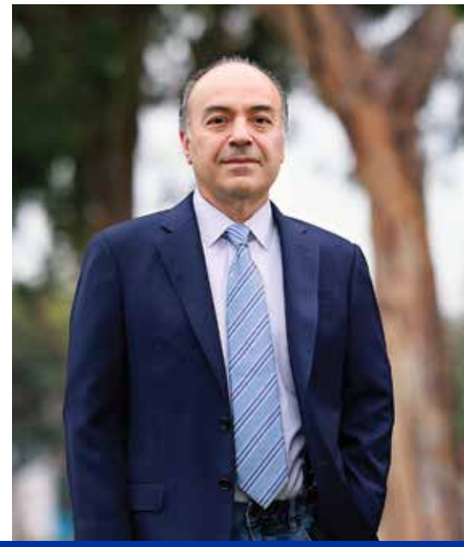
INFORMATION TECHNOLOGY AND DATA ANALYTICS

Joshua A. Taylor
Computing Infrastructure Operations

During my senior year of high school on a career day, someone came to talk to us about programmable calculators. That experience led me to change my major to computer science. Since entering the field, I have been fascinated by how we can create the networks that allow all the end systems to communicate.

Now, I am excited about the possibilities technology brings. When I started my career, we had punch cards and mainframes. Today, we have mobile computers that we use to make calls. I believe we have a bright future integrating this technology into how we build and design our products.

Being a part of this elite group is both humbling and daunting. I appreciate the recognition for my accomplishments. I also recognize that there is so much more I can to do ensure that Boeing remains an avionics and industrial leader.



Ali Yousefiani
Next Generation Structural Materials and Manufacturing Technologies

I always wanted to develop products that would help solve the big problems and make our world a better place for generations. Since materials science and engineering is at the crossroads of multiple disciplines, a deep understanding of the field can have a significant impact and yield solutions for large challenges across the board.

The most rewarding aspect of my work has been the ability to align my field of expertise to appreciably advance materials and manufacturing technologies for the aerospace industry. I also get to work with a diverse team of excellent engineers from around the world to learn, teach, coach and mentor.

I am excited about the next generation of materials and manufacturing technologies that promise to provide energy savings, carbon reduction, improved durability and reduced cost, especially as they relate to extreme environment components associated with supersonic/hypersonic flight, atmospheric reentry, rocket/aircraft propulsion, integrated power/thermal management and energy storage. As a Senior Technical Fellow, I feel better equipped to help position Boeing at the forefront of these industrial breakthroughs.

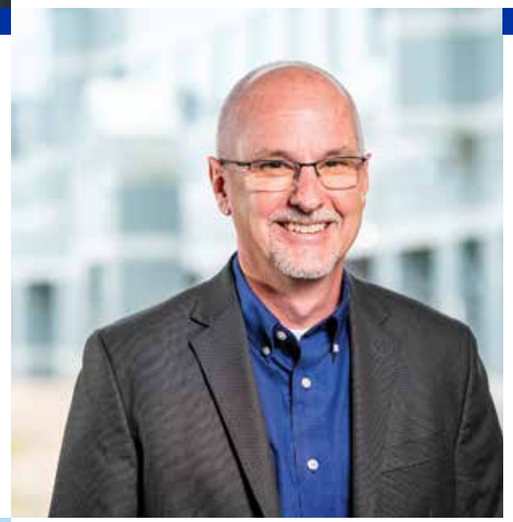
MATERIALS, PROCESSES AND PHYSICS

Talion Edwards
Measurement and Metrology

I was first introduced to 3D measurement as an engineer applying model-based engineering concepts to our legacy aircraft, whose designs were done on paper, in 2D computer-aided drawings. My work enabled me to be part of a technical community with deep roots spanning our engineering, tooling, production automation, alignment, inspection, quality and test functions.

I am honored to be recognized as a Senior Technical Fellow. To me, it signifies that this technical area is a valuable contributor to Boeing's priorities. It also highlights the continued need for technology and resource development in this field.

Dimensional measurement is required to quantitatively connect our digital thread to physical products. In order to close the model-based systems engineering loop that is at the heart of our digital tool set vision, we will need measurement technology and people able to wield it. I am excited to be part of a team that helps Boeing realize its digital vision at scale.



MECHANICAL AND STRUCTURAL ENGINEERING

Robert (Bob) Clark Jr.
Dynamics and Controls, Fluid Transient Analysis

When I was hired in 1988, I was immediately assigned to the space shuttle team. Next thing I knew, I was analyzing regulators and rocket engines. It turned out to be a unique skill that I found engaging and aligned with my education, and it also happened to be in demand across the enterprise.

The most rewarding aspect of my work is watching a system complete a successful test that it previously failed and realizing I was part of the team that made it possible.

The opportunity to serve as an STF for a company that has been building aircraft for over 100 years is incredibly humbling. It is such an honor to be recognized for my contributions and future value to the company.

There is so much to be excited for in the future — trips to the International Space Station, the moon and Mars; protecting our country; safe and reliable air travel; and the continued involvement of Boeing at the leading edge of it all.

Holly Thomas
Composite Materials, Fabrication and Bonding

As a young liaison engineer in St. Louis, I did not know much about composites. But I was surrounded by mechanics and engineers who were passionate and willing to teach. Eventually, I decided that field was where I wanted to stay.

I am fortunate that I get to see my designs come to life in the real world. I truly enjoy working through challenging issues and being around my teammates and our products. It is so satisfying to see airplanes in their final stages of completion that then fly off for delivery.

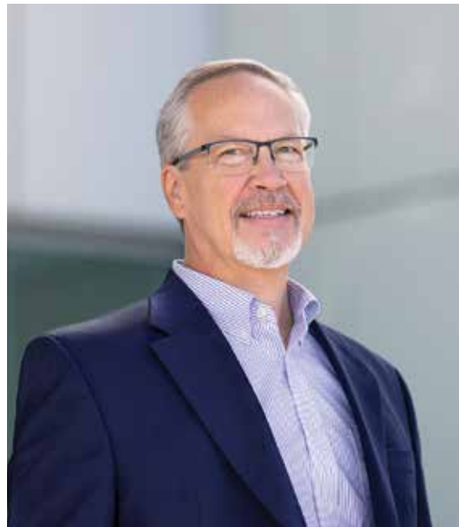
I have worked both for and with many highly capable people over the years, building a network across the enterprise and beyond. I am honored to be part of the group of leaders who will engage the next generation of our technical workforce and guide them in their career development. I am encouraged by the new engineers joining Boeing — their zeal is infectious!

Dan Zierten
Vehicle Management Systems

I did not choose aerospace as my career, it chose me. While working on my civil engineering degree, I found an affinity for the study of hydraulics. Upon graduation, my heart almost pounded out of my chest when I got to work on the space shuttle in the hydraulic system and fly-by-wire actuation group. Eventually, I landed at Boeing working on hydraulic systems and flight control actuation within Vertical Lift.

I have always loved my career in aerospace. I think the most rewarding aspect has been working multiple programs from the conceptual stage to first flight. It is always so exciting.

Becoming a Senior Technical Fellow provides me with new opportunities to guide Boeing's future in Vehicle Management Systems. Aerospace offers us an ever-expanding frontier that is ours for the taking. It only needs our imagination and desire to fuel its future.



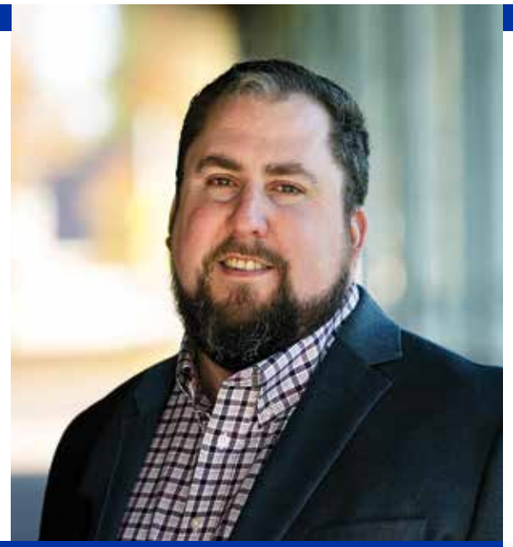
PRODUCT SECURITY

Kelly N. Edwards
Product Security Engineering

Growing up within the foster care system, I have always had a strong personal awareness of the need for trust, safety and security. This, coupled with my natural inclination toward technology, made for a logical transition into cybersecurity. My U.S. Air Force service and subsequent Boeing career have allowed me to witness firsthand the disruption cyber events can cause, jeopardizing quality and safety.

I am genuinely invigorated by our innovations that strive to future-proof the security of our platforms in a dynamic and global cyber environment. I am fortunate to observe new engineers defend and articulate their product security innovations, and it is rewarding to see this tangible transition in our engineering culture.

I am honored to be a part of the Fellowship and excited about the challenge that lies ahead to innovate new cyber resiliency practices. I look forward to expanding the cybersecurity narrative past "if" statements to include analytics surrounding the "when." Then, we can more adeptly react and more actively prevent future attacks.



SAFETY AND AIRWORTHINESS ENGINEERING

Bernhard Muster
Systems Engineering — Airworthiness and Regulatory Standards

I remember my first flight over the Atlantic at nine years old when the pilot invited me to sit in the jump seat for part of the flight. That experience left me with a passion for flying and aircraft. I became intrigued with the challenges of certifying our products in such a highly regulated environment. I have turned that intrigue into learning and developing skills in my technical specialty.

It is so rewarding to work with such a talented workforce with everyone bringing their best to developing solutions for some of the most complex problems we face.

There is arguably more opportunity now than at any other time in history to be part of innovations that will impact the world we live in for the good of our families, communities and humanity as a whole.

It is an honor to be recognized as a Fellow and to share what I have learned over the course of more than 30 years.

PRODUCT SUPPORT

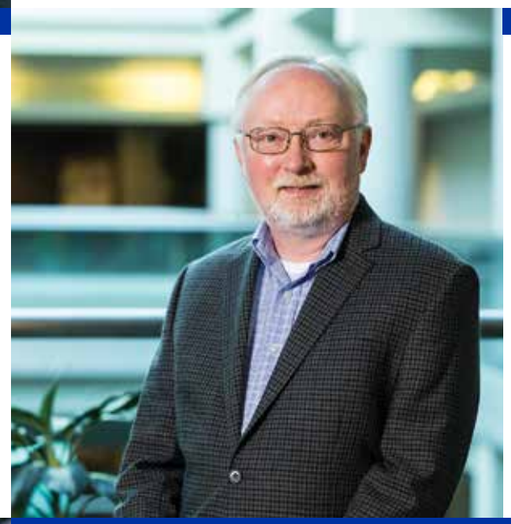
Antony Hunt
Modeling and Simulation

I came into this specialty by chance when the first company I worked for out of university bought a flight simulator manufacturer. I had an interest in airplanes and a background as a Royal Air Force Cadet, where I was introduced to the field. Now, after decades of creating commercial and government flight simulation products, I cannot imagine doing anything else.

The training and simulation products we create at Boeing are critical to safely operate and service our aircraft. Knowing that our aircraft are safer because of what we do is extremely satisfying.

Outside of Boeing, I lead an industry group looking at how to type certify eVTOLs and air taxis that will potentially change how we travel over short distances. It is this transformation that keeps aerospace engineering exciting. I look forward to seeing, and traveling in, what the new generations of engineers create.

It is an honor to be a Fellow and to be surrounded by the immense talent and knowledge this group possesses. It is humbling to influence how my particular area of expertise evolves and helps Boeing position itself for the future.



SOFTWARE ENGINEERING

Gordon Putsche
Safety Critical Software Development and Certification

My degree taught me about embedded computer systems and software. My Air Force career as a computer systems engineer taught me how to read and navigate government policy, regulations and industry standards. I draw on both in my engineering work at Boeing. This experience has kept me technically current, and I have been fortunate to have leading roles in aspects of software certification policy, procedures and activities throughout my career.

It is an honor to be part of this elite group. I must admit it is a bit intimidating when I look at the immense talent surrounding me. Teaching and mentoring are so rewarding. The best thing I can do at this point in my career is to share the knowledge I have accumulated over three decades.

Software plays a critical role in current and future commercial aviation, and it is exhilarating to see the synergies we are finding with an enterprisewide focus on vertical software development, common software design practices and technology.

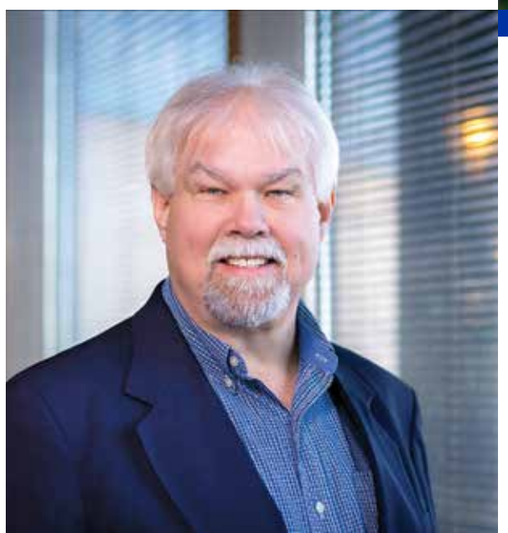
Jim Orlet
Support Equipment (Commercial and Government)

Lying in the grass watching planes fly overhead and witnessing the Apollo missions on TV as a child provided the inspiration for me to pursue aerospace. Early on, I was exposed to many varieties of aerospace electronic systems and subsystems. I discovered they all need some kind of test or maintenance equipment.

Near the beginning of my career, I had the opportunity to spend a year at a remote site as a field engineer with equipment that I designed. Understanding how the equipment was used and the people who use it permanently changed my view of design, product support and the role of maintainability in our products.

The Technical Fellowship captures the passion and expertise of Boeing's most brilliant minds. I am honored, and I hope I can add to the enormous knowledge base it already encompasses.

I am excited to be a part of the acceleration of technology, combined with data analytics, model-based engineering and additive manufacturing increasing the speed and depth of innovation. The only limitation is our imagination.



SYSTEMS ENGINEERING

Ratan Khatwa
Flight Deck Human Factors

I have always been fascinated by the science of flight, having grown up near London's Heathrow Airport. By the age of 13, I was taking flying lessons as a member of the UK Royal Air Force Air Cadets. That cemented my interest in aviation and influenced my decision to study aeronautical engineering at university.

The most rewarding aspects of my work are the very direct and positive impact on aviation safety and the role flight deck systems have played in addressing the industry's most pressing safety challenges.

The linking of emerging flight deck technologies with a contemporary design language will transform the way pilots interact with our aircraft. The innovation space will enable us to develop systems that are more intuitive for the future generation of pilots, support enhanced safety and expand the operational capability of our aircraft.

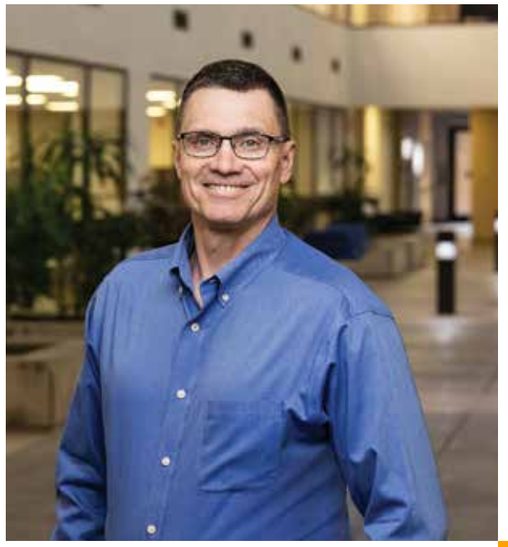
It is an absolute honor and privilege to be a member of the Boeing Fellowship. As the "technical conscience of the Boeing Company," we have a profound responsibility to provide technical guidance and an obligation to support the development of our growing workforce.

Ronald (Ron) Koontz
Avionics Software and Infrastructure

After engineering graduate school, I wanted to apply my knowledge of control systems to design and build airborne avionics systems. I started out working on unmanned rockets. I saw exciting new challenges associated with implementing these control laws in flight software. As my passion came into focus, my skills overlapped with growing industry demand to design new avionics systems and periodically upgrade and enhance legacy airborne platforms.

I always derive deep satisfaction from seeing the physical result of our technical contributions that lead to successful outcomes.

Software is at the core of every product we deliver. As a new software STF and steward of engineering excellence, I am humbled and excited to interact at this elevated level on our journey to make Boeing the premier aerospace software development company.

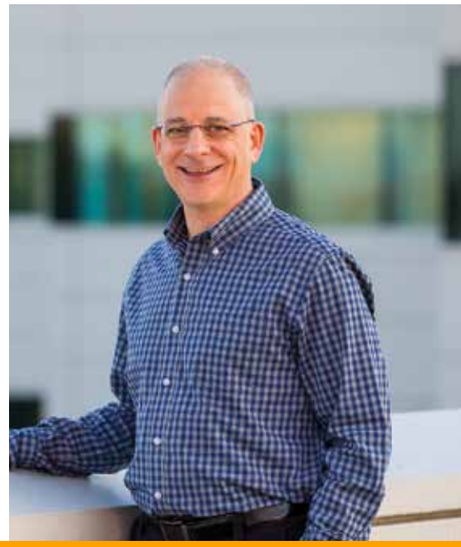


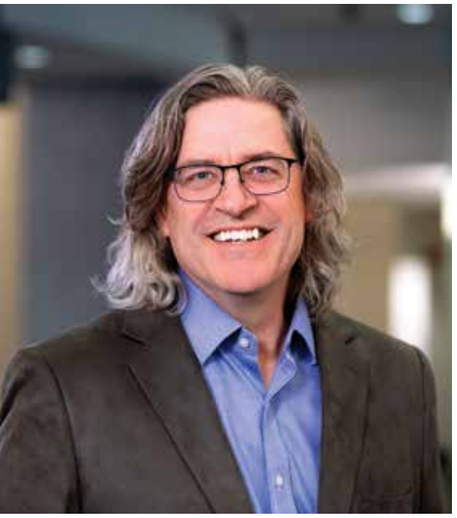
David Zeitouni
Flight Deck and Pilot Integration

As a boy, I used to go to the Newark airport where my father worked to watch airplanes take off and land. I built and flew model airplanes, which led me to the Air Force Academy to study aeronautical engineering. I then had the opportunity to fly C-17s and eventually found my way into Boeing's Flight Deck Engineering organization. It is the pinnacle of my love of airplanes — flying and engineering the flight deck for the pilot.

Every day, millions of people board Boeing airplanes and are safely transported to destinations all over the world. Flight deck functionality and the integration of the pilot with the machine play a crucial role. I cannot think of anything more rewarding than helping to lead the team that does that.

The aerospace industry is at a critical juncture, with the evolution of the role of the pilot in modern commercial aviation and autonomous air vehicles for commercial applications. I am humbled by the part I help play in defining the vision, strategy and products for these momentous changes in our industry.





Kevin Swearingen
Vehicle Health Management

When I was 10, a simple gift of an electronics experiment kit permanently moved me from the cowboy/astronaut career path to engineering. Coming to Boeing to work on automated test equipment for the AV-8B Harrier II was heaven. It has been a short step, and a lifetime career, to go from detecting equipment faults to diagnosing and predicting faults across fleets of vehicles.

Like any engineer, I enjoy solving problems — navigating over-constrained spaces to arrive at an elegant design to keep our aircraft available to fly. But I get even more satisfaction from sharing what I know and helping people understand something new.

It is a unique, exciting time to be in this field. As computers become ubiquitous, autonomous behavior becomes more robust, and machine learning and computational intelligence become mainstream, amazing new capabilities become feasible. We have a real opportunity to shape the future as we create new ways to predict what might happen during flight and react intelligently, automatically and safely.

I am humbled and grateful to be recognized this way and energized to justify it.

Principal Senior Technical Fellows

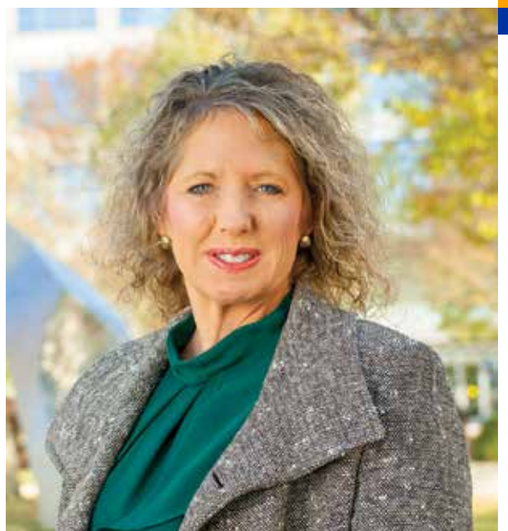
Michelle Taylor
Product Development and Electrical Design Integration

Growing up, I was always interested in space and flying, and I enjoyed solving problems and learning how things worked. My parents taught me that I could do anything if I worked hard enough. This passion and drive led me to engineering and the aerospace industry.

My favorite aspect of my job is helping our engineering teams be successful. Whether leading a team or mentoring individuals, it is rewarding to watch their growth and accomplishments. And, working with smart, innovative and diverse people, I am able to continually gain knowledge and expertise.

I am honored and grateful to be recognized for my contributions. I am thankful to the incredible mentors who saw value in my work and helped me develop my skills and utilize them in ways that have enhanced our teams and the company.

Technology is constantly changing, and our products continue to get more complex and exciting. I have been a part of amazing teams and historical events throughout my career, and I am excited to continue working with exceptional people to continuously improve, achieve the unachievable and leave a legacy that makes our families and company proud.



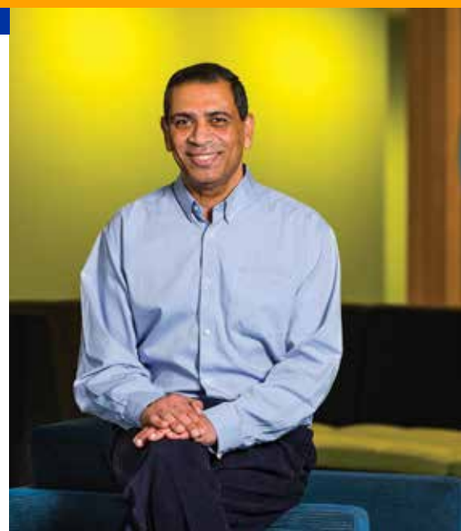
ELECTRONIC AND ELECTRICAL ENGINEERING

Arun Ayyagari
Networked Systems

I chose this field out of a passion for learning, technology, understanding how things work, creating and making things better.

I am excited about helping to broaden the sphere of technical leadership and vision at Boeing, and to continue to shape and contribute to the amazing products and services we create every day.

It is an honor to be part of this elite group and to have the ability to provide the technical vision and leadership in technology development.



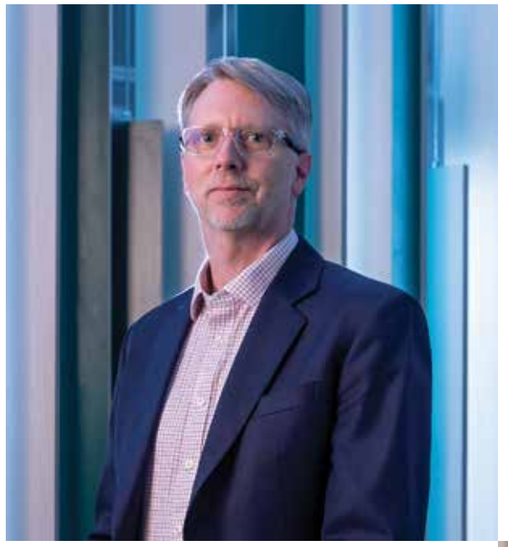
Jay Lowell
Physics and Systems Engineering

In college, I decided to major in physics because it was all about understanding how nature works. It turns out that I was also interested in figuring out how to turn that understanding into devices that take advantage of nature in new and valuable ways. That has led me to a long, diverse career developing new technology.

I am lucky to be able to work on rich, interesting projects early in development. I get to spend time figuring out how to do things that have not been done before. It is rewarding to be able to look back at the end of a project and know I helped create something that can make the world a better place.

It thrills me to think about the quantum technology that we are researching and prototyping today that will turn into new products and capabilities that will transform future Boeing platforms, processes and services.

I feel privileged to be recognized as part of the Technical Fellowship by my peers and leadership. It is an honor that motivates me to go to work every day and to try to do even more.

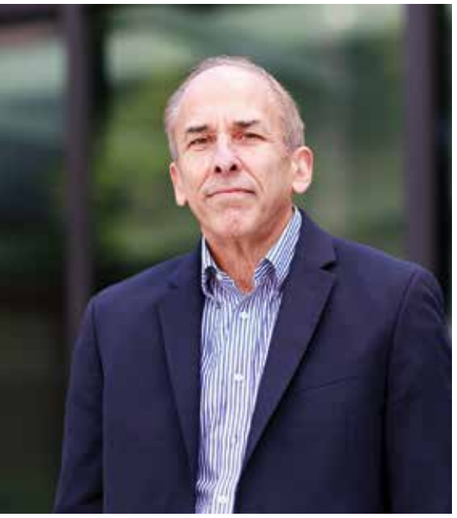


Tim Williams
Platform Survivability

My father spent 34 years in the military as a surgeon, taking care of our people in uniform and their families. I wanted to do my part to help, work in aerospace in a challenging and rewarding field, and contribute to national defense. I have been lucky to have the opportunity to do all of that while making our products more effective and protecting the people who use them.

The day-to-day interaction with such high-quality people working together to create outstanding products is very rewarding. Knowing that the products we design and build have a concrete, positive impact on the effectiveness of our mission makes the job worthwhile and satisfying.

Being promoted to the executive level of the Technical Fellowship is a tremendous honor, one I never thought was realistically achievable for me. I am excited to help guide Boeing's efforts in developing new and advanced products, both now and in the future.



Harold Schall
Electro-optical/Infrared and Vision-based Mission Systems

Growing up, I enjoyed math and science, which led me to study physics and chemistry in college and then laser spectroscopy in graduate school. After gaining hands-on experience applying state-of-the-art laser technology for basic research, I was hooked on pursuing a career in lasers and electro-optics.

It is truly a great honor to be a part of this group as well as a significant responsibility to provide the utmost technical leadership to ensure engineering excellence across Boeing.

Whether it is the development of the Airborne Laser pathfinder directed energy system or upgrading the KC-46 remote vision system, the most rewarding aspect has been working with multidisciplinary teams in close collaboration with our customer and end user/operator to establish new or improved capabilities.

I am excited about the wide range of features that will be enabled for both commercial and defense applications as we leverage synergies between vision-based mission systems, machine learning and autonomy.

INFORMATION TECHNOLOGY AND DATA ANALYTICS

Paul Dodd
Cybersecurity

I was drawn to the compelling intersection of human behavior and technical systems. Cybersecurity is an emergent and nascent field where the most critical problems are defined by the ingenuity of human adversaries, not principles of physics.

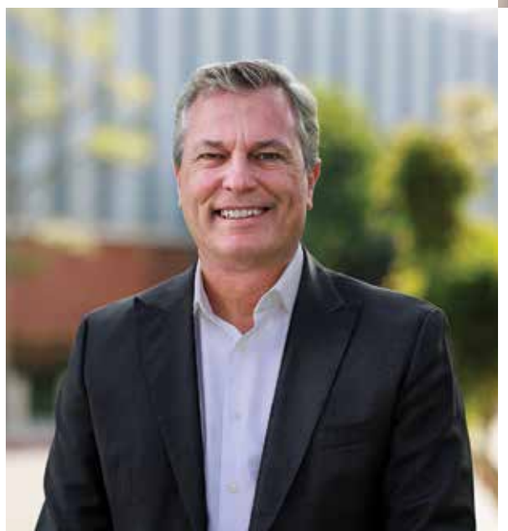
Like safety, cybersecurity relies on standards of risk management that must be distributed to enable everyone to protect themselves and each other. Embedding security into system design to help people understand risk early is rewarding.

It is inspirational that the company demonstrates its commitment to inclusion in the pathways to technical leadership. We are at a tipping point where our digital systems are about to become truly global to meet the conflicting needs of data sovereignty restrictions for compliance and global data replication for performance. Boeing is at the leading edge of this work.

John Sullivan
System Architecture and Development

I have always been drawn to large-scale challenges. And it is most rewarding for me when I get to see concepts become reality.

It is an honor to be a part of Boeing's Technical Fellowship, as it facilitates focus on technical innovation and integrity. There is an endless supply of opportunities for innovation. I cannot wait to see what future generations create.



Guijun Wang
Digital Enterprise Systems and Technologies

I found my passions in computer science and aerospace. I have been fortunate to be at the forefront of using computer science to advance aerospace processes and products, including large-scale mission-critical systems, software/systems engineering products and global-scale systems and technologies for engineering, manufacturing, quality and supply chain.

It has been a rewarding experience to work on technology innovations, large-scale system designs and analyses, solution implementations, and knowledge exchanges in collaboration with many talented individuals and teams throughout the enterprise and industry/academia communities. But the most satisfying aspect of my work is mentoring and teaching opportunities that help others grow and succeed.

I am honored to be a member of the Fellowship. As the aerospace industry undergoes a digital transformation, I am excited to help Boeing define and mature the digital enterprise systems and innovate technologies for the design, manufacturing and support of digitally advanced aerospace products across the life cycle.

Emily L. Howard
Human Engineering

I have long been fascinated by human behavior, and I knew at an early age that I wanted to study behavioral science. I have always enjoyed solving complex problems, and humans are undoubtedly some of the most complex elements of our world.

I was also strongly influenced by the Gemini, Apollo and space shuttle programs, which opened up new frontiers for human exploration and simultaneously strengthened our connections to each other and our ability to enrich life here on Earth. Ultimately, human engineering has allowed me to combine my love of technology with my passion for enhancing human experiences.

I am excited by the human dimension of autonomy, robotics and artificial intelligence. By learning how humans interact with these technologies, we can improve our products and operations to be safer and more efficient while respecting the unique value that only humans contribute.

It is a tremendous honor to be a Principal Senior Technical Fellow. What we do at Boeing makes a positive difference in the world. Working with the brightest minds in our industry, along with the coolest innovations, inspires me every day.

Jill Seebergh
Chemical Materials and Processes

Growing up, I did not know anyone who was a scientist or an engineer, and college was not the default pathway for a lot of my peers. Fortunately, I had a high school chemistry teacher who saw my potential, encouraged me to pursue engineering and found ways for me to build my skills and confidence. It was a master class in mentoring, and I am forever grateful.

Every time I step onto a Boeing airplane, I cannot help but be proud of the technologies that I helped to invent and develop that ended up there. The most rewarding aspect is the amazing teams of people I have worked with throughout my 25-year career to transition those technologies from the laboratory to aircraft.

It is an honor and a privilege to be a Fellow, and I am deeply proud to be included in such a talented group. It is also a tremendous responsibility to ensure that the culture of engineering excellence extends into the future. I have been fortunate to have many Fellows as mentors over the years, and their wise counsel influenced the arc of my career and enabled me to have a positive impact for Boeing.

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