USC Price
Sol Price School of Public Policy
Executive Education Forum

USC Viterbi
School of Engineering

USC SHIELD Executive Program in Global Space and Deterrence

Developing Leaders in Policy, Space, and Technology for National Security

SHIELD

- **Space -** The domains that demand new engineering and policy innovations, physical and cyber, and their integration with Land, Sea, and Air.
- **History** - Past, present, and future, the lens through which we evaluate and formulate new Policies.
- **Industry** - The engine that translates academic work into reality.
- **Engineering** - The research, technology, and planning that organizes our vision.
- **Leadership** - The prime mover across all disciplines.
- **Deterrence -** Our goal in all our endeavors.

The USC SHIELD Executive Program in Global Space and Deterrence* sets out to educate aspiring senior leaders from the military, government, and innovation communities about the intersection of public policy and engineering, which are too often separate within the complex and growing field of defense security.

This executive education program is designed for upwardly mobile professionals and leaders in their field. Program participants will take advantage of the flexibility and interactivity offered by engaging in a hybrid program model, with in-person and online engagement throughout the program. Upon successful completion of the program, participants receive a University of Southern California Continuing Education Certificate.

Duration: September 2025- April 2026; 18 Program Days

Schedule of Presentations (TENTATIVE)

Fall 2025-Spring 2026

Week One-USC Residency

Thursday, September 18, 2025

LOCATION MCB 101

8:00AM
Check-In & Breakfast

8:30AM
USC and MDAA Program Welcome

Riki M. Ellison
Chairman & Founder
Missile Defense Advocacy Alliance

Candace House Teixeira
Associate Dean, Corporate Engagement and Programs
Viterbi Admission and Student Engagement

Frank V. Zerunyan, J.D.
Professor of the Practice of Governance
Director of Executive Education and ROTC Programs

9:00AM
Collaborative Governance

Peter J. Robertson, Ph.D.
Associate Professor (Retired)
USC Price School of Public Policy

Course Description:
This course focuses on the requirements for effective collaboration in organizations, especially in the context of interorganizational systems in which members of multiple organizations work together to address common concerns and/or achieve shared objectives. Challenges or barriers to effective collaboration are identified, along with a conceptual framework for analyzing the factors contributing to successful collaboration. Practical approaches for enhancing organizational collaborative capacity are also discussed.

12:00PM
MDAA Guest Speaker
Riki Ellison
Founder and Chairman
MDAA

1:00PM
Lunch Break

2:00PM
Collaborative Governance (Workshop)
Peter J. Robertson, Ph.D.
Associate Professor (Retired)
USC Price School of Public Policy

Course Description:
The purpose of this course is to introduce the notion of organizational ecosystems and their features as complex adaptive systems. Understanding organizations as complex ecosystems yields useful insights about what is needed to lead them effectively. This course will identify relevant approaches and give participants an opportunity to discuss practical implications for enhancing leadership in and of their own organizational ecosystems.

Friday, September 19, 2025
7:45AM
Check-In & Breakfast

8:00AM
MDAA Guest Lecture
John Rood
Former Undersecretary
of Defense for Policy

9:00AM
The Engineering Life-Cycle, and Which Life-Cycle are Most Influential On The Success of Missile Defense Projects

Neil Siegel, Ph.D.
IBM Professor of Engineering Management and Professor of Industrial andSystems Engineering and Computer Science Practice

Course Description:
An experienced and successful practitioner's view of the engineering life-cycle, the systems approach, an improved version of the "V" diagram, and lessons-learned about which stages have the most important influence on project success.

Learning Outcomes:
Understanding of the systems approach, the key characteristics and how they contribute to success, and insight into where engineering projects often "go wrong"

- Understanding of the systems approach
- Understanding of the key characteristics of the systems approach
- Learning how the systems approach contributes to project success
- Discuss where engineering projects often 'go wrong'
- How to ensure project success

12:00PM
MDAA Guest Speaker

Col. Andrew Menscher
Deputy Commander,
Space Systems Command

1:00PM
Lunch Break

2:00PM
Intercept 1961. From the First Intercept of a Long-Range Ballistic Missile to Soviet Missile and Space Defense

Mike Gruntman, Ph.D.
Professor
USC Viterbi School of Engineering

Course Description:
The story focuses on the origins of Soviet air defense and then strategic missile defense, with the first long-range ballistic missile intercept in 1961. The deployment of operational missile defense followed, a major factor in the Cold War, shaping the defense policies and programs of the two superpowers.

3:30PM
Leveraging Interactive Storytelling in Model-Based Systems Engineering: A Transdisciplinary Systems Engineering Approach

Azad Madni, Ph.D.

Professor of Astronautics, Aerospace and Mechanical Engineering, and Education

Course Description:
Distributed collaborative engineering and system validation are two significant activities performed during complex system development that affect both system affordability and predictability. The former suffers from lack of full participation of all stakeholders especially in upfront engineering leading to extraneous design iterations and rework which invariably translate into schedule- and cost-overruns. The latter is an activity that routinely runs into schedule and budget crunch and subsequent ad hoc cost-cutting measures that invariably escalate risk of unintended and undesirable outcomes. This lecture will describe innovations that are intended to ameliorate both these effects.

4:50PM
Conclusion

4:55PM-Group Photo; Tommy Trojan

5:00PM- 7:00PM
Welcome Reception- Location- USC Campus; Moreton Fig Patio

Saturday, September 20, 2025

9:00am
Check-In & Breakfast

9:15am
Capstone Teaming Welcome and Introductions

Location: USC Campus, Ralph and Goldy Lewis Hall, RGL 100, 650 Childs Way, Los Angeles, CA 90089 (MDAA Coordinated Event)

Past SHIELD alumni will be in attendance to help with capstone development

Capstone Panel

- Mr. Riki M. Ellison
- The Honorable Vic Mercado
- Lt Gen (Ret) Jon "Ty" Thomas
- RADM (Ret) Mark Montgomery
- JD Gainey
- Professor Frank Zerunyan
- Dr. Michael Falkow

Week Two-Online Interactive

Friday, October 17, 2025

8:30AM

USC and MDAA Program Welcome

9:00AM

Common Errors in Engineering Assessment, and How to Avoid Them

Neil Siegel, Ph.D.

IBM Professor of Engineering Management and Professor of Industrial andSystems Engineering and Computer Science Practice

Course Description:
In engineering, we make measurements and perform quantitative assessments; qualitative assessments are seldom adequate for our purposes. Unfortunately, there are many ways to introduce significant errors into the measurement and analysis processes. This lecture identifies the most-common of these errors, and how to avoid them.
Learning Outcomes:
An understanding that just because a number is presented, does not mean that it is correct! An understanding of the principal sources of error in quantitative engineering analysis (e.g., measurement errors, analysis errors, logical fallacies, etc.), and how to do it better (e.g., avoiding weak statistics, avoiding mis-handling conditional probabilities,

12:00PM

Lunch Forum

Lt. Gen. Phillip Garrant

2:00PM

Capstone Work

5:00PM

Conclusion

Saturday, October 18, 2025

9:00AM

Collaboration Through Engagement: Processes and Practices for Effective Problem Solving

Tara Blanc, Ph.D.

Associate Professor (Teaching)
USC Price School of Public Policy

Course Description: According to public administration scholar Vincent Ostrom, societies that operate under a government founded on principles of separation of powers with checks and

balances should presume that policies will come from interaction among multiple authorities. Such a presumption calls for collaborative solutions to the problems facing our government, including those of our military forces. In this session, participants will explore the various principles and processes of collaboration through a focus on stakeholder engagement. The session will cover a wide range of methods and tools available to build collaboration and engage stakeholders and the key skills and competencies needed to do so effectively. Interactive discussions and small group work will offer participants the opportunity to enhance their understanding of collaboration through engagement and their capacity to design effective stakeholder engagement efforts.

Learning Objectives:
By the end of this session, participants will have:

- An increased understanding of the collaboration continuum
- An increased understanding of the goals, purposes, benefits, challenges, and measures of success for stakeholder engagement
- A sharpened knowledge of which engagement practices work (and don't work) under different contexts, situations, and purposes
- A broader understanding of the range of available methods, tools, and techniques used in practice and an increased capacity to determine their appropriateness in given circumstances.
- Practice in planning and designing a process for participation and engagement.

12:00PM
Lunch Forum

2:00PM
Collaboration Through Engagement: Processes and Practices for Effective Problem Solving (Workshop)
Tara Blanc, Ph.D.
Associate Professor (Teaching)
USC Price School of Public Policy

5:00PM
Conclusion

Week Three - USC Residency

Wednesday, November 12, 2025

Site Visit Coordinated by MDAA-Vandenberg

Thursday, November 13, 2025

LOCATION TBD

8:00AM
Check -In and Breakfast

8:30AM
USC and MDAA Program Welcome

9:00AM
Institutional Design and Policy Evaluation- Policy Design Concepts & Analytics

Rym Kaki, Ph.D.
Associate Professor (Teaching)
Vice Chair of the Department of Governance and ManagementUSC Sol
Price School of Public Policy

Course Description:
Professor Khaki will be teaching a seminar with learning goals to include:
1) gaining an overview of key concepts, theories, analytics and practical research on organizations andorganizing
2) examining the complex relationship between individual behavior and organizations
3) understanding how public, private, and nonprofit organizations are shaped by their gravitating political, social and economic environments and
4) evaluating policy and policy alternatives.

12:00 PM
Lunch Forum
MDAA Guest Speaker

1:30PM
Break

2:00PM
Policy Formulation: Creating Credibility in a Set of Technology-Based Recommendations

Neil Siegel, Ph.D.
IBM Professor of Engineering Management and Professor of Industrial andSystems Engineering and Computer Science Practice

Course Description:
It is not enough to have good ideas; one must convey those ideas in a fashion that results in other supporting them; other people – including those who make policy and funding decisions -- must find these news ideas and recommendations credible. There is a tendency to attempt to create support for an engineered system (such as a new weapon) through a set of technological and financial analyses. It is the instructor's experience that this seldom is effective; most of the key decision-makers in U.S. government policy and

fiscal positions are not engineers, and they simply often do not believe the technical analyses. In this module, the instructor introduces a more-comprehensive (and in his experience, a more effective) approach, one that balances the technological and financial analyses with what he calls mission analyses.
Learning Outcomes:
Understanding of a candidate approach for creating policy and procurement recommendations that are more credible. Insight gained through examples and case studies.

5:00PM
Conclusion

Friday, November 14, 2025

8:30AM
USC and MDAA Program Welcome

9:00AM
Essentials of Inventive Thinking
Berok Khoshnevis, Ph.D.
Louise L. Dunn Distinguished Professor of Engineering
Director of the Center for Rapid Automated Fabrication Technologies (CRAFT)

Course Description:
This seminar intends to inspire the participants with a strong motivation to take the path of inventive thinking, while providing them with some essential insights about effective knowledge acquisition and active and purpose-full imagination to help them initiate and pursue novel ideas that lead to successful creation of new products, processes, and systems. Some basic aspects of protection of intellectual property as well as entrepreneurship and technology commercialization will be presented.

12:00PM
Lunch Forum
MDAA Guest Speaker.

1:30PM
Break

2:00PM
Capstone Team Work

5:00PM
Conclusion

Week Four-Washington D.C. Residency

Thursday, January 22, 2026

Site visit coordinated by MDAA

Friday, January 23, 2026

8:30AM

Check -In and Breakfast

9:00AM

Capstone Briefer Presentations

- Students will present to MDAA guest panel

12:00PM

Lunch Forum

MDAA Guest Speaker.

1:30PM

Break

2:00PM

3D printing and Its Role in Orbital Debris Mitigation

Berok Khoshnevis, Ph.D.
Louise L. Dunn Distinguished Professor of Engineering
Director of the Center for Rapid Automated Fabrication Technologies (CRAFT)

Course Description:
There are over 8000 cubic meters of space debris in Earth's critical orbits. Potential solutions including bringing them back toward Earth and having them burn out in the Earth's atmosphere, moving them to the so-called graveyard orbit where there are no operational satellites, or repurposing them for future missions are all under consideration. Among the options, repurposing what is already sent to space is most ideal but manufacturing capability will be needed to make this vison a reality and 3D printing has the promise of being most suitable for most of the fabrication processes. There are already several commercial firms that are targeting space for mining. These companies essentially aim at the natural resources, primarily rocks in the asteroid belt which contain a variety of minerals. If commercial companies are incentivized to mine the lower Earth orbit for debris and provide the material to other commercial companies which would focus on using the retrieved material to manufacture useful parts and assemblies, there would be less need to rely on the asteroid belt for material mining.

The course offers an overview of 3D printing, its various processes and evolution, as well as

space applications and related efforts. The intent is to prepare the participants to offer informed proposals to the Government to support innovative companies and new startups to pursue the goals of a) developing technologies to extract various material feedstock from space debris, and b) 3D printing systems for space application.

The instructor is one of the pioneers of the field of 3D printing as well as a pioneer in the use of special 3D printing systems for planetary construction and in-space 3D fabrication. His related technologies received two grand prizes in international competitions sponsored by NASA.

Learning Objectives:
Participants will gain a reliable knowledge of several 3D printing technologies and their potential for in-space manufacturing. The informed participants will then be prepared to propose and manage various Government programs to support s group of innovative companies and new startups in the two fields of space mining and in-space fabrication for the aim of repurposing orbital debris.

MDAA Expert Feedback on Capstones
MDAA Guest Speaker.

5:00PM
Conclusion

Saturday, January 24, 2026
8:30AM
Check -In and Breakfast

9:00AM
Lecture by Price Fellow
TBD
TBD

Course Description:
TBD

12:00PM
Lunch Forum
MDAA Guest Speaker.

1:30PM
Break

2:00PM
MDAA Expert Feedback on Capstones

5:00PM
Conclusion

Week Five-Online Interactive

Friday, February 20, 2026

8:30AM
Welcome

9:00AM
Case-studies in Space, Air Defense and Missile Defense
Neil Siegel, Ph.D.
IBM Professor of Engineering Management and Professor of Industrial andSystems Engineering and Computer Science Practice

Course Description:
Lessons learned from a life-time of building important, successful, and innovative space, air defense and missile defense systems. Most of the examples will deal with the technical issues encountered and overcome, but other examples (e.g., technical solutions to "red-tape" problems, etc.) will be included, as well.

Learning Outcomes:
Insights into where the problems actually are (in contrast to where many people expect them to be), the role of innovation, and how to innovate.

12:00PM
Lunch Forum

2:00PM
Big Data Management with Distributed Computing
Seon Ho Kim, Ph.D.
Associate Director of the Integrated Media Systems Center at the USC Viterbi School of Engineering

Course Description:
Data science is an essential part of many industries today, given the massive amounts of data that are produced, and is one of the most essential topics in IT. Its popularity has grown over the years, and companies have started implementing data science techniques to grow their business. This course provides an overview of broad data science concepts and big data.

Saturday, February 21, 2026

8:30AM
Welcome

9:00AM
Ethical Decision Quality, risk analysis, multi-attribute utility theory, information theory, Bayesian analysis, and data-based decision making
Ali E. Abbas, Ph.D.
Professor of Industrial and Systems Engineering and Public Policy

Course Description:
Decision analysis is an essential life skill, but most people only acquire it through trial and error. This module will present the foundations of decision-making in government organizations as well as large enterprises. The module has two main objectives: the first is to give an overview of decision-making and the need for a sound decision-making process. The second is to demonstrate the use of decision analysis in military technology and homeland security decisions.

12:00PM
Lunch Forum

2:00PM
Ethical Decision Quality, risk analysis, multi-attribute utility theory, information theory, Bayesian analysis, and data-based decision making (Workshop)
Ali E. Abbas, Ph.D.
Professor of Industrial and Systems Engineering and Public Policy

Course Description:
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5:00PM
Conclusion

Week Six-Online Interactive

Friday, March 21, 2025

8:30AM
Welcome

9:00AM
Organizational Behavior
Howard Greenwald, Ph.D.
Professor
USC Sol Price School of Public Policy

Course Description:
This module will focus on management and leadership in organizations with distinct command-and-control structure. Key examples of such organizations include military, law enforcement, and some areas of health care, such as house officers in advanced medical training. Special attention will be paid to the interface between organization and technology in the context of national defense and innovation. The module will emphasize two perspectives: (1) understanding the challenges of hierarchical organization and solutions available to leaders; (2) evaluating organizations to determine readiness for adoption of new technology, innovation, and change.

Part (1) of the module addresses challenges associated with leadership and management in hierarchical organizations. Challenges of this kind include potential pathologies of hierarchy such as loss or distortion of information up and down a chain of command, positive versus negative dimensions of organizational culture, and faulty decision-making (such as "group think"). This module aims at providing options for capturing and channeling the best efforts of personnel for achieving complex objectives in areas such as global defense.

Part (2) concentrates on evaluation of organizations to guide leadership decisions. Units are known to differ in areas such as acceptance of new technology, readiness for change, willingness to learn, and "climate," prevailing beliefs in collaboration versus competition among personnel. This module will provide options for assessing these dimensions through systematic observation, personnel surveys, content analysis of communication, and social media.

Both modules will encourage back-and-forth among participants, exchanges of ideas, and critical analysis of opinions and recommendations of "experts." Discussions will encourage participants to share the lessons they have learned in their command experience. Source material in this module will draw on organizational behavior, military sociology, and the instructor's textbook, *Organizations: Management Without Control*.

12:00PM
Lunch Forum

2:00PM
Organizational Behavior: Workshop

Howard Greenwald, Ph.D.
Professor
USC Sol Price School of Public Policy

Course Description:
This module will focus on management and leadership in organizations with distinct command-and-control structure. Key examples of such organizations include military, law enforcement, and some areas of health care, such as house officers in advanced medical training. Special attention will be paid to the interface between organization and technology in the context of national defense and innovation. The module will emphasize two perspectives: (1) understanding the challenges of hierarchical organization and solutions available to leaders; (2) evaluating organizations to determine readiness for adoption of new technology, innovation, and change.

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Both modules will encourage back-and-forth among participants, exchanges of ideas, and critical analysis of opinions and recommendations of "experts." Discussions will encourage participants to share the lessons they have learned in their command experience. Source material in this module will draw on organizational behavior, military sociology, and the instructor's textbook, *Organizations: Management Without Control*.

5:00PM
Conclusion

Saturday, March 22, 2025
9:00AM
Team-Building, Motivation, and Conflict Management on Complex Engineering Projects
Neil Siegel, Ph.D.
IBM Professor of Engineering Management and Professor of Industrial andSystems Engineering and Computer Science Practice
Lead Faculty Instructor

Course Description:
Everything worth doing in engineering involves lots of people, so "social considerations" are very important to project success. This lecture provides one practitioner's view of motivation, team-building, conflict identification / resolution, and many other aspects of these "social considerations".

Learning Outcomes:

- Understanding why social considerations are important to project success
- Methods for achieving team alignment, motivation
- Retention of employees
- Conflict identification and resolution
- Other "social" aspects of engineering project management.

12:00PM
Lunch Forum

2:00PM
Capstone Team Work

5:00PM
Conclusion

Week Seven- Spring USC Residency

Thursday, April 23, 2026

Site Visit coordinated by MDAA

Friday, April 24, 2026

8:00AM
Check-In and Breakfast
Location USC Campus

8:30AM
USC and MDAA Program Welcome

9:00AM
Risk and Opportunity Management for Complex Engineering Projects
Neil Siegel, Ph.D.
IBM Professor of Engineering Management and Professor of Industrial andSystems Engineering and Computer Science Practice
Lead Faculty Instructor

Course Description: TBD

12:00PM
Lunch Forum
MDAA Guest Speaker.

1:30PM
Break

2:00PM
Policy Formulation: Creating Credibility In A Set of Recommendations
Neil Siegel, Ph.D.
IBM Professor of Engineering Management and Professor of Industrial andSystems Engineering and Computer Science Practice
Lead Faculty Instructor

Course Description:
It is not enough to have good ideas; one must convey those ideas in a fashion that results in other supporting them; other people – including those who make policy and funding decisions -- must find these news ideas and recommendations credible. There is a tendency to attempt to create support for an engineered system (such as a new weapon) through a set of technological and financial analyses. It is the instructor's experience that this seldom is effective; most of the key decision-makers in U.S. government policy and fiscal positions are not engineers, and they simply often do not believe the technical analyses. In this module, the instructor introduces a more-comprehensive (and in his experience, a more effective) approach, one that balances the technological and financial analyses with what he calls mission analyses.
Learning Outcomes:
Understanding of a candidate approach for creating policy and procurement recommendations that are more credible. Insight gained through examples and case studies.

5:00PM
Conclusion

Saturday, April 25, 2026

8:00AM
Check-In and Breakfast

8:30AM
USC and MDAA Program Welcome

9:00AM
Capstone Introduction and Presentations

12:00PM
Lunch Forum

1:30PM
Break

2:00PM
Capstone Presentations

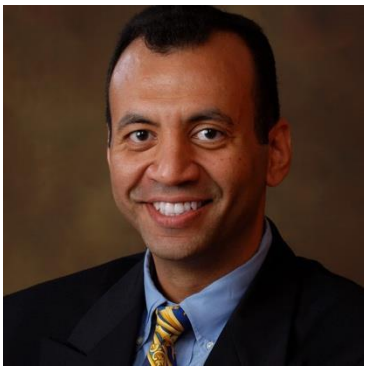
4:30PM
Conclusion

4:30PM-6:30pm
SHIELD Certificate Celebration

***Important Note:** This is a non-degree continuing and executive education program. Upon successful completion, individuals receive a continuing education certificate.

The USC SHIELD Executive Program in Global Space and Deterrence is a joint program between the University of Southern California's Price School of Public Policy and the Viterbi Schoolof Engineering. Its creation benefited from an engagement with MDAA.

Faculty Presenter Profiles (Proposed)



Ali E. Abbas, Ph.D.

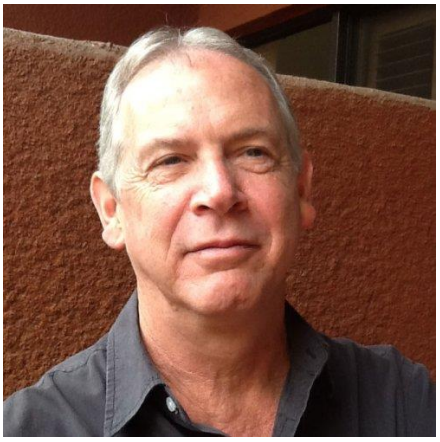
Dr. Ali E. Abbas is Professor of Industrial and Systems Engineering and Public Policy, a joint appointment between the USC Viterbi School of Engineering and the USC Price School of Public Policy. He previously served as the Director of the USC Neely Center for Ethical Leadership and Decision Making (DECIDE) and the USC Center for Risk and Economic Analysis of Terrorism Events (CREATE).

Before joining USC, Dr. Abbas was the Art Davis Faculty Scholar in the Department of Industrial and Enterprise Systems Engineering, College of Engineering, University of Illinois at Urbana-Champaign. Prior to his time at the University of Illinois, Dr. Abbas was a lecturer in the Department of Management Science and Engineering, Stanford University, where he also earned his Ph.D. in Management Science and Engineering, Ph.D. minor in Electrical Engineering, M.S. in Engineering Economic Systems and Operations Research, and M.S. in Electrical Engineering.

The recipient of multiple awards from the National Science Foundation for his work, Dr. Abbas' research focuses on decision analysis, risk analysis, multiattribute utility theory, and data-based decision making. He is widely published in books, journals, and conference publications, and has shared his expertise through television appearances, TEDx and other invited talks.

Dr. Abbas regularly teaches courses on decision analysis, and has taught numerous executive education courses at a variety of institutions, such as Stanford University, BP, Southern California Edison and numerous other institutions.

In addition to his academic career, Dr. Abbas is founder, president, and CEO of Ahoona Corp, a decision making social network that has several thousand users around the world. He has been on the Advisory Boards of Hedgestreet Inc., a binary futures exchange, and is a board member of the Decision Education Foundation, a volunteer nonprofit organization that empowers youth to make better decisions about their lives. Dr. Abbas also has extensive consulting and management experience.



Robert Banks, Ph.D.

Robert Banks joined the U.S. Foreign Service in 1983. During his 28-year career as a public diplomacy practitioner, he served as assistant executive officer in Bonn, West Germany; deputy public affairs officer (PAO) in Nicosia, Cyprus; assistant press attaché in Seoul, Korea; east Asia policy officer in the Worldnet Television and Film Service; press attaché in Managua, Nicaragua; cultural attaché in Seoul; examiner for the foreign service oral entrance exam in the Bureau of Human Resources; planning and coordination officer in the office of public diplomacy in the Bureau of Western Hemisphere Affairs; PAO in Buenos Aires, Argentina; state department chair on the faculty of the Marine Corps War College in Quantico, VA., where he taught regional studies; and U.S. public diplomat in residence at USC's Center on Public Diplomacy.

Following his retirement from the foreign service, he taught public diplomacy as an adjunct professor in USC's master of public diplomacy program. He is currently a clinical associate professor of public diplomacy at USC Annenberg, a CPD faculty fellow, and director of the master of public diplomacy program. Banks authored CPD Perspectives, "A Resource Guide to Public Diplomacy Evaluation," in 2011, and served as the guest editor for the CPD Perspectives magazine in 2019-2020.

Tara A. Blanc, Ph.D.

Tara A Blanc, Ph.D., is an associate professor (teaching) in the USC Sol Price School of Public Policy. She has taught at both the undergraduate and graduate level, including courses in public administration and public management, performance management, strategic planning, human resource management, public service ethics, leadership, organizational behavior, and the MPA capstone. Her research interests include civic engagement, political behavior, and direct democracy.

Prior to joining the USC faculty, Dr. Blanc was a faculty member in the School of Public Affairs at Arizona State University and served for eight years as associate director for the ASU Cronkite/Eight Public Opinion Poll, coordinating the design, implementation, data analysis, and dissemination of monthly public opinion polls measuring attitudes about politics and public

policy in Arizona.

Dr. Blanc earned a bachelor of arts degree in journalism, a master's degree in mass communication, and a doctor of philosophy degree in public administration from Arizona State University. In addition to teaching full time, she is a consultant and author with more than 30 years of experience, providing research and consulting services to clients in both the public and private sectors. She resides in Tempe, Arizona.

Howard Greenwald, Ph.D.

Howard Greenwald, Ph.D., has research interests in public policy, health services, evaluation research, public opinion, and organizational management. He has served as director of USC's Health Services Administration Program, chairman of the Western Network for Education in Health Administration, and commissioner on the Commission on Accreditation of Healthcare Management Education. . He has made major contributions to research on health care delivery and socioeconomic disparities in health status and treatment outcomes. Recent books include The United States Health Care System: Organization, Management, and Policy (Jossey-Bass, 2010), Organizations: Management Without Control (Sage, 2008), and Health For All: Making Community Collaboration Work (Health Administration Press, 2003). His book, Who Survives Cancer? (University of California Press, 1992), reports the results of a ten-year survival study. Earlier work includes articles in Journal of Public Administration Research and Theory (J-PART), Public Administration Review, Journal of the American Public Health Association, Milbankk Memorial Fund Quarterly, and a variety of medical journals. He has an extensive consulting practice in program evaluation, policing, and medical/legal issues.

Mike Gruntman, Ph.D.

Mike Gruntman, Ph.D. is a Professor of Astronautics and Aerospace and Mechanical Engineering.

His research focuses are: Astronautics, spacecraft and space mission design, space physics, space instrumentation and sensors, space plasmas, spacecraft technologies, rocketry, propulsion, orbital debris, missile defense. Dr. Gruntman has authored and co-authored more than 300 scholarly publications, including 4 books. His education videos have over 1.2 million views on YouTube. Dr. Gruntman is a member (Academician) of the International Academy of Astronautics.

Awards:
2011 NASA Group Achievement Award
2006 International Academy of Astronautics Luigi Napolitano Award
2001 NASA NASA Group Achievement Award
2000 NASA NASA Group Achievement Award
1999 USC Viterbi School of Engineering Exceptional Service Award
1998 Los Angeles Section of the American Institute of Aeronautics and Astronautics Certificate
1997 Los Angeles Section of the American Institute of Aeronautics and Astronautics Certificate of Appreciation

Randall W. Hill Jr., Ph.D.

Randall W. Hill, Jr. became the executive director of the USC Institute for Creative Technologies in 2006. A leader in understanding how classic storytelling and high-tech tools can create meaningful learning experiences, Hill steers the institute's exploration of how virtual humans, mixed reality worlds, advanced computer graphics, dramatic films, social simulations and educational video games can augment more traditional methods for imparting lessons.

He oversees a diverse team of scientists, storytellers, artists and educators as they pioneer and evaluate new ways to deliver effective teaching and training in areas including leadership, cultural awareness, negotiation and mental health treatment and assessment. Hill is also a research professor of computer science at the USC Viterbi School of Engineering. His research focus is on using intelligent tutoring systems and virtual humans to create immersive learning environments.

Hill's career at USC began in 1995 at the USC Information Sciences Institute where he worked on the development of models of human behavior and decision-making for real-time simulation environments. He joined the USC Institute for Creative Technologies in 2000 as a senior scientist. Prior to his work at USC, Hill served as a group supervisor and the work area manager for network automation in the Deep Space Network Advanced Technology Program at NASA's Jet Propulsion Laboratory.

Hill graduated with a bachelor of science degree from the United States Military Academy at West Point and subsequently served as a commissioned officer in the U.S. Army for six years with assignments in field artillery and military intelligence. He earned his M.S. and Ph.D. degrees in computer science from the University of Southern California. He is a member of the American Association for Artificial Intelligence and has written over 50 technical publications, including a co-authored article, "Toward Virtual Humans" featured in AI Magazine in the summer of 2006.

Rym Kaki, Ph.D.

Vice-Chair of the Department of Governance and Management Dr. Kaki's teaching and research foci pertain to human behavior in public and non-profit organizations, development NGOs' project design and evaluation, comparative public policy analysis, international development administration and social finance innovations as applied to urban poverty reduction policy. She hails from the global social finance and micro-enterprise development professions where she worked in strategic management, research and development, program evaluation and social impact assessment. She brings extensive practical experience in designing and evaluating financial and non-financial solutions to support community-oriented economic empowerment and financial inclusion, with global consultancy assignments taking her to the North Africa,

Middle East and South Asia regions.

She is currently a board member of the Section on International and Comparative Public Administration (SICA) at the American Society of Public Administration (ASPA). In 2018, she has co-founded the new Section on African Public Administration (SAPA) at ASPA, bringing together American, diaspora and global scholars and practitioners with a commitment to advance the science, processes and art of public administration on the African continent.
Dr. Kaki was a Fulbright scholar, a Visiting Assistant Professor and Director of International Education at the South Mediterranean University. She is currently the Vice Chair of the

Department of Governance and Management at the Price School. She holds an M.A. in International Policy Studies, Monterey Institute of International Studies.

Seon Ho Kim, Ph.D.

Seon Ho Kim, Ph.D. is the Associate Director of the Integrated Media Systems Center at the USC Viterbi School of Engineering. He also teaches Data Informatics in the Data Program at the USC Viterbi School of Engineering.

He received his BS degree in Electronic Engineering from the Yonsei University, Seoul, Korea in 1986. He received his M.S. in Electrical Engineering and Ph.D. in Computer Science from the University of Southern California in 1994 and 1999 respectively. Between 1999 and 2010, he worked as a faculty member at University of Denver, Colorado, and University of the District of Columbia, Washington DC.

Dr. Kim's current research interest is on spatial database, Big Data, IoT and Smart City, multimedia systems, and image machine learning. He has been leading MediaQ project which is a social media data collection and management platform, and recently TVDP project which focuses on a translational visual data platform for urban geo-tagged visual data collection, processing, and analysis. Dr. Kim’s projects have been funded by US federal and local government, industries such as Google, Northrop Grumman Corp., Microsoft, Oracle, and Intel. He is a senior member of IEEE and a member of ACM. He worked as the president of KSEA-SC (Korean American Scientists and Engineers Association Southern California Chapter) and the president of KOCSEA (Korean Computer Scientists and Engineers in America).

Berok Khoshnevis, Ph.D.

Behrokh "Berok" Khoshnevis is the Louise L. Dunn Distinguished Professor of Engineering and is the Director of the Center for Rapid Automated Fabrication Technologies (CRAFT) at the University of Southern California. He is active in robotics, and mechatronics related research and development projects that include the development of several novel Additive Manufacturing (3D Printing) processes such as Contour Crafting mega-scale fabrication, SIS, which is licensed to HP, for fabrication of polymeric and metallic parts and SSS for fabrication of high temperature alloys, ceramics and composites, as well as development of mechatronics systems for biomedical applications (e.g., digital dental prostheses fabrication, robotics for orthodontics, rehabilitation engineering, and tactile sensing devices), autonomous mobile and modular robots for fabrication and assembly on Earth, in space and on other planets, and specialized innovative equipment for oil and gas as well as renewable energy industries. He has numerous inventions and over 100 US and international patents as well as nearly 200 refereed technical publications.

He is a member of the National Academy of Engineering, a Fellow of the National Academy of Inventors, a Fellow of the American Association for the Advancement of Science, a NASA Innovative Advanced Concept Fellow, and is a Fellow member of the Society of Manufacturing Engineers, the Institute of Industrial & Systems Engineering, and the Society for Computer Simulation. He has won numerous awards including, USC School of Engineering Senior Research award, Pete Lohman Best Engineering

Alumni award, the Khwarizmi International Award (KIA Laureate) and Sharif University of Technology One of Top 50 among over 50,000 Alumni Award.

Because of his Contour Crafting invention, he received the 2014 Grand Prize among 1000+ globally competing technologies in the *Create the Future* design contest which was organized by NASA. Contour Crafting was selected earlier as one of the top 25 out of more than 4000 candidate inventions by the History Channel Modern Marvels program and the National Inventor's Hall of Fame; and has been identified as one of the major disruptive technologies of our time by the renowned Harvard Professor, Clayton Christensen, who coined the term "disruptive technology". The technology has been exhibited in numerous science & technology and art museums around the world.

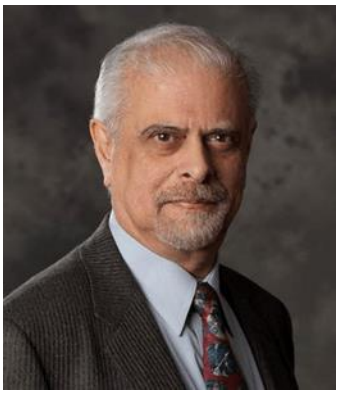
Dr. Khoshnevis' another 3D printing invention, Selective Separation Shaping (SSS) won another international competition Grand Prize by NASA in 2016 as the most capable and versatile metallic and ceramic Additive Manufacturing technology for micro-gravity and planetary applications.

He was recognized in 2017 by the *Connected World* magazine as one of top 10 pioneers in the Internet of Things (IoT). *Connected World* has celebrated luminaries such as Elon Musk as other IoT pioneers.

His inventions routinely receive extensive worldwide publicity in acclaimed media such as

New York Times, Los Angeles Times, Business Week, Der Spiegel, New Scientist, and major national and international television and radio networks. His TEDx talk on the subject of automated construction has been viewed more than one million times and was selected by the TED organization as one of five *TEDx Moments* among over 30,000 presentations.

Dr. Khoshnevis' educational activities at USC include the teaching of a popular graduate course on Invention and Technology Development. He routinely conducts lectures and seminars and gives keynote speeches on the subject of invention.



Azad Madni, Ph.D.

Azad M. Madni is a Professor of Astronautical Engineering and Executive Director of USC's Systems Architecting and Engineering Program in the Viterbi School of Engineering. He is also the Director of the Distributed Autonomy and Intelligent Systems Laboratory. He is the chair and co-founder of the IEEE SMC's award-winning Technical Committee for Model-Based Systems Engineering. He has served as General Chair of the Conference on Systems Engineering Research since 2008. He is an AAAS Fellow, AIAA Fellow, IEEE Life Fellow, IETE Life Fellow, INCOSE Fellow, and SDPS Fellow and has received prestigious awards and honors from nine different societies. His research has been sponsored by several government agencies including DARPA, DHS S&T, DoD-SERC, NASA, DTRA, OSD, MDA, ONR, AFOSR, AFRL, ARI, ARL, RDECOM, CECOM, ERDC, NAVAIR, NAVSEA, SPAWAR, MARCOR, DOE, and NIST. His research has also been sponsored by major aerospace and automotive companies including Boeing, General Motors, Raytheon, Northrop Grumman Corporation, SAIC, and Lockheed Martin Orincon joining USC, he was on the faculty of Northwestern University's McCormick School of Engineering and Applied Science.

Ryan McAlinden

Ryan McAlinden is Director of Defense and Intelligence Programs for the USC Institute for Creative Technologies (ICT). Previously he served as senior advisor, Synthetic Training Environment (STE) Cross Functional Team (CFT) for the Army Futures Command and as ICT's Director of Modeling, Simulation & Training at the USC Institute for Creative Technologies (ICT), leading projects primarily for the US Department of Defense centered around geospatial visualization and analysis. He is an adjunct assistant professor of the practice of spatial sciences with the USC Spatial Sciences Institute.

His primary research interest is identifying, developing and employing novel ways for human users to exploit and better understand the 3D virtual world around them. Immersive mediums like virtual and augmented reality continue to proliferate and are now mainstays in our society. Map-based big data are used in many of the most popular applications on our devices, from review apps, to ride sharing, to self-driving cars. However, the ability to produce and visualize 3D geospatial content for these devices remains elusive, mostly because the process for creating such content is existentially an anthropomorphic process, and as a result time-consuming, inefficient and often inconsistent.

McAlinden's goal, through automation, is to ease the burden of generating 3D terrain content for our electronic devices and systems, as quickly and cost-effectively as possible. Ultimately, he seeks to improve the agency that human users have with their maps, and reduce the human load for creating them.

McAlinden rejoined ICT in 2013 after a three-year post as a senior scientist at the North Atlantic Treaty Organization (NATO) in The Hague, Netherlands. There he led the provision of operational and geospatial analysis support to the International Security Assistance Force (ISAF) Headquarters in Kabul, Afghanistan. Prior to joining NATO, McAlinden worked as a computer scientist at ICT from 2002 through 2009 where he led several projects related to geospatial modeling and simulation.

Peter J. Robertson, Ph.D.

Peter Robertson is an Associate Professor at the USC Price School of Public Policy. His research and teaching interests focus on the development and implementation of collaborative organizational systems that enhance the quality of life for human beings, their communities, and the natural environment. The foci of his latest publications include conceptual papers proposing a set of organizing principles for collaborative organizational and governance systems, investigations into real-world efforts to create collaborative inter-organizational systems, and the results of agent-based computer simulations exploring the dynamics of collaborative decision-making mechanisms. Earlier research has addressed issues pertaining to interorganizational networks, employee attitudes and behavior, the process and outcomes of organizational change, and school-based management as a mechanism for public school reform. Professor Robertson's research has been published in a number of journals and books, including the Journal of Public Administration Research and Theory, Public Management Review, Public Administration Review, Academy of Management Journal, Educational Administration Quarterly, and Research in Organizational Change and Development. He has provided consulting and training for a variety of organizations, and is a member of the Academy of Management, the Public Management Research Association, and the Institute of Noetic Sciences.

Neil Siegel, Ph.D.

Lead Faculty Instructor

Neil Siegel is the IBM Professor of Engineering Management in the Epstein
Department of Industrial and Systems Engineering within the Viterbi School of Engineering at the University of Southern California. He is a recognized expert in the design and development of large, complex systems that serve important societal needs, both as a practitioner at the largest scales, and as a researcher.

Until the end of 2015, he held the position of sector vice-president and chief technology officer at Northrop Grumman. He led the sector's technology activities, provided oversight of the sector's research portfolio ($600M / year), and oversaw the design and development of solutions for their customers' most complex and most-important problems. Prior to that role, Dr. Siegel was the sector's vice-president and chief engineer, where he oversaw the sector's 12,000plus scientists and engineers, directed engineering process improvements, and led activities intended to further the development of the company's top technical talent.

Previously, Dr. Siegel served as vice-president and chief technology officer of Northrop Grumman's Mission Systems sector, and before that, vice-president and general manager of the company's Tactical Systems division. He has been responsible for engineering projects outside of the United States, including work in the U.K., NATO, Saudi Arabia, etc. In all, he served as a vice-president of the company for nearly 18 years.

Dr. Siegel led the engineering on a large number of successful fielded military, intelligence, and commercial systems, including the U.S. Blue-Force Tracker; the Army's first unmanned aerial vehicle; the Forward-Area Air Defense system; the fire-control segment of the world's first complete laser weapon system; and played important roles for many other systems for ground, sea, space, and cyber-space. He has made a particular specialty of air-defense and missile-defense systems. These systems have repeatedly been cited as model programs and important national capabilities. He also led work for the steel industry, the movie industry, the healthcare industry, and the electric power industry. The concepts he helped to invent to reduce unintended interactions between drugs prescribed by different doctors are used almost universally in the U.S, saving many lives each year. He invented concepts that are used in a very large number of consumer devices around the world (including GPS receivers,smart phones, and tablet computers). He is a recognized expert in information networking, especially network management, wireless networks, and networks of mobile devices. He holds nearly 50 issued
and pending patents worldwide. His expertise is recognized by the U.S. Government, as indicated by past membership on the Defense Science Board, the Army Science Board, and other senior government advisory panels.

He is certified by the International Congress on Systems Engineering (INCOSE) as an expert systems engineering practitioner (ESEP; their highest level of certification), and also a certified "black-belt" practitioner in the well-known 6-sigma process-optimization methodology.

Dr. Siegel has a doctorate in systems engineering from the University of Southern California. His advisor there was the noted computer scientist and systems engineer Dr. Barry Boehm. Among his many honors are the following:
Election to the U.S. National Academy of Engineering
Selection as a fellow of the U.S. National Academy of Inventors
Selection as a fellow of the Institute of Electrical and Electronics Engineers (IEEE)
Selection as a Fellow of the International Congress on Systems Engineering (INCOSE)
The IEEE Simon Ramo Medal for systems engineering and systems science
His former company's Chairman's Award for Innovation (three times)
The Army's Order of Saint Barbara
The iCMG award for system architecture
The Northern Virginia Technology Council CTO-of-the-year award

Recent publications include a textbook on engineering project management (Wiley), and a chapter in a book on ethics in engineering (Cambridge University Press). Public service includes board positions for two charitable organizations (including the largest non-profile hospice in California), 10 years as an elected public official (California Hazard Abatement District board), membership on the board of directors for the Electric Infrastructure Security Council, and former membership on the research foundation of the State University of New York, as well as many other items.

Frank Vram Zerunyan, J.D.

Frank Vram Zerunyan, JD is a Professor of the Practice of Governance at the Sol Price School of Public Policy and Director of Executive Education at USC Price Bedrosian Center on Governance and The Neely Center for Ethical Leadership and Decision Making, an Interdisciplinary Center USC Marshall USC Viterbi and USC Price (DECIDE), as well as Director of ROTC Programs. His key areas of expertise include Local Governments, Public Private Partnerships, Civic and Ethical Leadership, Land Use, Regulation, Negotiation and Executive Education. He teaches graduate courses on Intersectoral Leadership (Collaborative Governance), Business and Public Policy, International Issues in Public Policy, Negotiation, Place Institutions and Governance as well as International Laboratory. Frank also lectures locally and globally to build capacity and foster leadership among public executives worldwide. In his capacity as an honorary instructor colonel in the Armenian Army and Air Force, he lectures, coaches and advises on academic affairs at the Vazgen Sargsyan Military University in Armenia. For his influential work over the past five years in Armenia, he was awarded LL.D. Doctor of Laws – Honoris Causa by the Public Administration Academy of the Republic of Armenia.

Frank is a three term Mayor and still serving Council member in the City of Rolling Hills Estates, California. In his role as a public official, after serving as Chair of the Planning Commission in Rolling Hills Estates, Frank was elected to the City Council in 2003 and re-elected in 2007, 2011 and 2015. He previously served and continues to serve on various

regional public boards, including law enforcement, sanitation, technology and transit. He has chaired and continues to chair select city government committees in Rolling Hills Estates. Frank's public service on various local government policy committees extends statewide with the California League of Cities, California Contract Cities Association and Southern California Association of Governments. In 2008, Frank was elected and assumed a leadership role as the 52nd President of California Contracts Cities Association, the second largest municipal organization in the state of California with approximately 70-member cities and 7 million residents.

As a gubernatorial appointee under Governor Schwarzenegger, Frank was a state regulator serving on the Medical Board of California in the Department of Consumer Affairs. He was elected by the Board to serve as its Vice President. After five years of service on the Medical Board, Frank's term expired in June of 2011. His responsibilities on the Medical Board included the promulgation of regulation, professional discipline and the sixty million plus budget of the Medical Board.

In January of 2013, Frank was appointed to an ad hoc experts committee on capacity building in public administration at the United Nations Division for Public Administration and Development Management in the Department of Economic and Social Affairs. In that capacity, he lectures and conducts capacity building seminars at UN headquarters in New York as well as at UN Forums around the world. As part of his global academic service focused on governance, Frank was appointed to the Editorial Council of the Public Administration Scientific Journal for the Republic Armenia.

Frank has more than 30 years of comprehensive and multi-sectorial experience as a lawyer, judge pro tem, author, consultant, director, board member, professor and public servant. Frank has been honored as one of Southern California Magazine's Super Lawyers since 2004, The Legal Network's Top Lawyers in California, Marquis' Who's Who in America and American Law and Government institutions like the California Assembly, the California Senate, the County of Los Angeles and various city governments for his leadership in the public sector. In the not for profit sector, Frank chaired the Daniel Freeman Hospitals Foundation in 2001-02 and oversaw the successful distribution of $8 million in gifts. He has acted as a policy advisor and counsel to the Armenian National Committee of America in Washington DC. Frank also served as chairman of the Board of Governors of the worldwide Armenian Bar Association. As a lawyer, he is licensed to practice law in California, District of Columbia (inactive), Courts of International Trade, Federal Courts in the 9th Circuit, and the Supreme Court of the United States of America.

Frank earned his Doctor of Jurisprudence (Doctor of Laws) degree from Western State University College of Law and his Bachelor of Arts degree from California State University Long Beach. He also completed his advanced legal studies in Corporate Taxation at the University of Southern California Law Center (USC Gould). He is a graduate of California League of Cities' Civic Leadership Institute, an educational forum for the state's rising leaders.