

# SSTIG *New Frontiers*

March 2024

<https://www.sstig.info/>

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## TOPICS

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- Welcome message
- Guest Column (Alan Shark)
- SSTIG Awards
- Member Highlights
- Books by SSTIG Members
- Conferences and Events
- Feedback

## Welcome

Dear SSTIG Colleagues,

It is our distinct pleasure to inaugurate this new feature of SSTIG New Frontiers, which is intended to provide periodic updates about our ASPA section. We aim to enhance SSTIG's mission, which is to *assist interested public administrators in learning about and discussing the uses and limitations of science and technology in government*. SSTIG and its members are interested in a broad range of topics, from environmental science to information technology, science innovation policies, and every-

thing in between. Hence, we are quite open about what the SSTIG New Frontiers should cover. Please feel free to provide us with your ideas and suggestions.

Our main purpose for this new feature to be useful to our SSTIG members. In this vein, we will cover current developments and events that would be of interest to you, including your achievements and successes. We also hope to develop the interconnections between members more and provide additional venues for collaboration. We will have a synergetic focus on a selected significant theme of broad interest in each quarterly period with our "Lunch and Learn" webinars and other activities.

The focus for the first quarter of 2024 is on Artificial Intelligence (AI). AI is a hot topic across many disciplines presently, with a very quick uptake. We are thankful to Dr. Alan Shark of Public Technology Institute, who has taken the lead as a coordinator for this topic. He led the first themed Webinar entitled "AI in State and Local Government" on January 24, 2024, where he moderated a discussion between Nick Stowe [Chief Technology Officer, State of Washington, (WaTech)] and Dr. Stephanie Deitrick [Chief Data Officer, City of Tempe, Arizona]. Dr. Shark is also author of the Op-Ed in this issue of the *SSTIG New Frontiers*. The second themed Webinar was held on February 28, entitled "Responsible AI". Dr. Sukumar Ganapati moderated the discussion between Marijn Janssen [Professor of ICT and Governance at UT Delft] and Ricardo Baeza-Yates [Director of Research, Institute for Experiential AI @ Northeastern University (Silicon Valley campus)]. If you missed the webinars, you can catch up with them at the SSTIG website [<https://www.sstig.info/>].

We have lot more in this issue of SSTIG New Frontiers. Dr. Alan Shark has a very interesting take on AI in his Guest Column. We are announcing three SSTIG awards. The call for SSTIG elections will be out soon. We are also proud to showcase our member highlights and book publications. One important date to note is for the SSTIG Annual Business Meeting. It will be held virtually over Zoom on 24 April at 2.00 p.m. EST (Link: <https://unf.zoom.us/j/95008668747>).

Please feel free to let us know if you would like to see any feature that should be enhanced or newly added. We are open to your suggestions. We are here for you!

*Sukumar Ganapati and Georgette Dumont*  
(Chair and Co-Chair, SSTIG)

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## Guest Column: On the Frontier with Artificial Intelligence (AI)

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*By Dr. Alan R. Shark*

There was nothing short of alarm when the faculty meeting turned to the topic of generative AI. Listening to the discussion (debate) some saw AI as dooming education as we know it. Going back in time, imagine the controversy some 40 years ago among engineering school faculty who expressed concern that the standard hand-held slide-rule might be replaced by sophisticated hand-held calculators? Should this new technology be allowed in class during exams? The main concern wasn't against a new and promising technology, but instead their fear centered around how students would lose the connection of thinking through a process as opposed to having it instantly solved for them. Given the many complexities and allure of generative AI (GAI), the consequences are far more serious. Today professors are rightfully concerned that students will use this nascent technology to short-cut the learning process and use it to prepare outlines and in some cases actual assignments submitted as their own work. Personally, I have established my own policy and basically encourage students to use it – be it responsibly.

AI as we understand it today is as transformative as the Internet being made available to the public several decades ago. Today, professionals already use AI – both academic and in public management, to augment their work. They are creating outlines, summarizing data and writing code, summarizing action steps at meetings, seeking to find patterns and anomalies from sources of data, and even helping to write memos, outlines, and articles. So, AI as we see today is from AI-assisted programs that remain mostly invisible except for its output that often does not require attribution – though a disclaimer should be minimally required.

The talk of AI was always in the background until the early part of 2022 with the introduction of Open AI's ChatGPT. This was the moment the public began to take notice and learn about the power, potential, and pitfalls regarding generative AI. As with most forms of innovative technology, our laws, regulations, and policies always lag far behind. But that hasn't stopped state and local governments from experimenting and developing innovative applications. Today AI appears to be everywhere. With every household appliance featuring and every new laptop all claiming to be AI infused - it makes one wonder what exactly is AI and are all these claims justified?

Yet, the history of artificial intelligence (AI) dates to antiquity, with myths and rumors of artificially intelligent beings. However, the modern concept of AI began to take shape in the early 20th century, with the groundwork laid in the 1900s and where major strides were made in the 1950s. Significant developments include the creation of the first artificial neural network, the development of the perceptron, and the introduction of the Turing test. The 1980s showed a period of rapid growth and interest in AI, known as the "AI boom," marked by breakthroughs in research and increased government funding. The field has seen exponential growth in training computation, leading to even more powerful AI systems. The history of AI provides an important context for understanding its current state and potential future developments.

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. This can include learning, reasoning, problem-solving, perception, and language understanding. AI systems can range from simple applications like a recommendation algorithm in a shopping app to complex autonomous robots. Central to

AI is the ability to process large amounts of data and learn from it, allowing the system to adapt and improve its performance over time. AI technologies are increasingly integrated into various sectors, revolutionizing industries by providing enhanced data analytics, automation, and novel solutions to complex problems.

Many, like this author believe that AI as deployed *today* is more akin to Augmented Intelligence which can be defined as:

*“... the theory and development of computer systems able to supplement human decision making, planning and forecasting based on abundant sources of quality data”.*

So much of what fascinates us is the use of Large Language Model. Large Language Model (LLM) is a type of artificial intelligence program that processes, understands, and generates human language based on immense datasets of text. These models, such as GPT (Generative Pre-trained Transformer), are trained using deep learning techniques, specifically neural networks, on vast amounts of textual data. During this training process, they learn language patterns, grammar, nuances, and even the context in which words and phrases are used.

The "large" in their name refers to both the size of the training data and the complexity of the neural networks involved. These models have millions, or even billions, of parameters, which are the parts of the model that are learned from training data. After training, an LLM can perform a wide range of language-related tasks. These include but are not limited to writing essays, summarizing text, translating languages, answering questions, and even creating content like poems or computer code.

What sets these models apart is their ability to generate coherent and contextually relevant text over extended passages, understand and respond to queries, and even engage in conversations that feel natural. This capability stems from their understanding of language patterns and nuances learned during training. However, it's important to note that while LLMs are powerful tools, they are not without limitations and do not possess true understanding or consciousness. They are tools that mimic language understanding based on patterns in the data they have been trained on. Unfortunately, we also know, that AI systems generate false and biased information – sometimes referred to as “hallucinations”.

As of this writing we are only witnessing the 4<sup>th</sup> generation of generative AI. It's hard to imagine where future generations will take us and how it will surely change how we live and work. AI is here to stay, and we must pay careful attention every step of the way as well explore the new frontiers of AI and at the very least, especially when it comes to public policy and administration.

**Dr. Alan R. Shark** is the Executive Director for the Public Technology Institute (PTI), a division of the nonprofit Fusion Learning Partners. and Associate Professor for the Schar School of Policy and Government, George Mason University where he is also an affiliate faculty member at the Center for Advancing Human-Machine Partnership (CAHMP). Shark serves on the Executive Committee of ASPA's Section on Science and Technology in Government and is a NAPA Fellow and Co-Chair of NAPA's Standing Panel on Technology Leadership. Shark also hosts the bi-monthly podcast Sharkbytes.net. Dr. Shark acknowledges collaboration with generative AI in developing certain materials.

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## SSTIG Awards: Call for Nominations (Deadline: April 8)

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### **Excellence in Science and Technology Research Award**

The “Excellence in Science and Technology Research” award recognizes a scholar who has made substantive research contribution to improve our understanding of how science and technology can be leveraged to enhance public services. The award aims to highlight recently published research that is broadly within the scope of Section on Science and Technology in Government (SSTIG) mission: *to assist interested public administrators in learning about and discussing the uses and limitations of science and technology in government*. SSTIG and its members are interested in a broad range of topics, from environmental science to information technology, science innovation policies, and everything in between. Preference will be given to current SSTIG members.

In the above spirit, the SSTIG executive committee would like to invite applications or nominations for the 2024 “Excellence in Science and Technology Research” Award. This award will be presented virtually at the 2024 SSTIG business meeting. The winner will receive a certificate of recognition for the research.

To apply (or nominate someone) for this award, please provide the title and the manuscript of a recent research piece (published from January 2023 to March 2024), along with a brief explanation (250-300 words) of how this research enhances SSTIG’s mission.

In order to be considered for the award, applicants are encouraged to email their materials to Professor Sukumar Ganapati ([ganapati@fiu.edu](mailto:ganapati@fiu.edu)) by April 8, 2024. Please use the subject line as “2024 Excellence in Science and Technology Research Award”.

### **Excellence in Government Innovation Award**

The “Excellence in Government Innovation” award recognizes the contributions of public sector professionals in advancing information and communication technology adoption or innovation in government. The award aims to highlight the innovative work done by government leaders who leverage recent advancements in science and technology in enhancing their organization’s goals. The award is sponsored by the Section on Science and Technology in Government (SSTIG). The winner of the award will receive a plaque of recognition at the SSTIG business meeting.

The SSTIG executive committee welcomes nominations of government professionals who are befitting for the above award. Self-nominations are welcome. For the nomination, please provide the following materials: (i) A short explanation of the nominee’s innovative work (400 words or less); (ii) A short resume, bio-sketch, or CV of the nominee (no more than 2 pages).

For timely consideration of the award, please send the above materials by email to Professor Georgette Dumont ([g.dumont@unf.edu](mailto:g.dumont@unf.edu)) by April 8, 2024.

## Digital Governance Junior Scholar Award

The “Digital Governance Junior Scholar Award” award recognizes a junior scholar (MPA or Ph.D. student) who has made a substantive contribution (or shows great promise) to the understanding of how to leverage information and communication technologies to improve public services. The award is sponsored by the Section on Science and Technology in Government (SSTIG). The winner of the award will receive a certificate of recognition and a cash award of \$300. Preference will be given to current members of SSTIG.

To be considered for the award, applicants should submit the following: (a) a cover letter explaining your research agenda, accomplishments, and future direction (400 words or less), (b) a writing sample that illustrates your research, and (c) an e-mail of support from a faculty sponsor.

All the materials should to be sent by email to the SSTIG Chair, Sukumar Ganapati ([ganapati@fiu.edu](mailto:ganapati@fiu.edu)) by April 8 for consideration. The Award committee will give out the award virtually at the 2024 SSTIG business meeting.

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## SSTIG Member Highlight

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### Kayla Schwoerer

Kayla Schwoerer, Ph.D. is an Assistant Professor in the Department of Public Administration and Policy at the University at Albany, SUNY. She earned her Ph.D. at Rutgers University-Newark’s School of Public Affairs and Administration (SPAA) in 2022; Master of Public Administration from Arizona State University (2016); and B.A. in Sociology from Texas Tech University (2012).

Dr. Schwoerer’s research focuses broadly on public and nonprofit management, with a particular focus on issues related to digital technologies and citizen-state interactions from a behavioral science perspective. Current and ongoing research projects include: investigating individual-level perceptions of the use of AI and algorithmic systems by government agencies, including the impact of algorithmic transparency and accountability; usability attributes of open government data and impacts on open data use; and the impacts of UX design principles on digital citizen-state interactions. She has been an active member of SSTIG since 2019 and currently serves on the board.

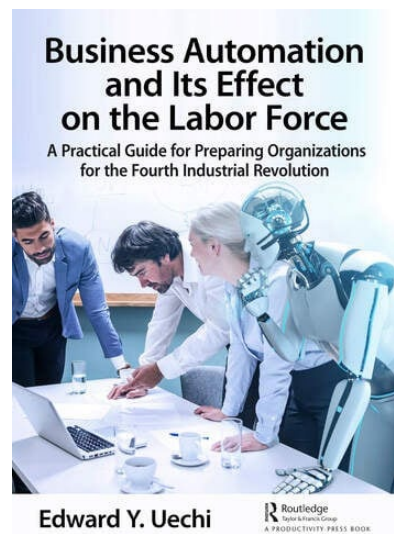
### April Heyward

[April Heyward](#) is a member of the Digital Twins for Health (DT4H) Consortium. DT4H is a network of researchers and practitioners who share a common vision and mission centered around digital twins for health and well-being. Research focus areas include but not limited to Data Acquisition and Integration, Multi-scale Modeling and Simulations, Responsible AI for Predictive Health, and Smart and Connected Communities. One of the current projects DT4H is working on is Human Digital Twins (HDT). April’s specific interests in this space (but not limited to) is how HDT lends itself to personalized medicine and personalized public health, how HDT impacts clinical operations; security and privacy issues for the virtual environment and physical environment (e.g., physical patient) and the bidirectional communication link between the virtual and physical environments; and ethical considerations. For more information on DT4H, visit <https://dt4h.org/>.

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## Books authored by SSTIG members

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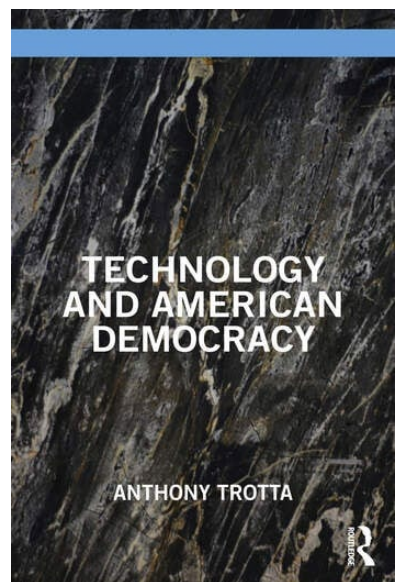
### **Business Automation and Its Effect on the Labor Force: A Practical Guide for Preparing Organizations for the Fourth Industrial Revolution**

Author: Edward Y. Uechi; Publisher: Routledge (2023)

Link: <https://routledge.com/Business-Automation-and-Its-Effect-on-the-Labor-Force-A-Practical-Guide/Uechi/p/book/9781032038346>

"Business Automation and Its Effect on the Labor Force" reviews specific technological systems that have been developed for the following eight industries: agriculture, manufacturing, construction, transportation and warehousing, accommodation and food services, health care, administrative and support, and educational services. The author makes forecasts on when the systems would be ready to be deployed. The book concludes with a discussion of the implications that widespread business automation could have for the labor force.

*Author bio:* Edward Y. Uechi is a management analyst, an information technology advisor, author of two books, and an inventor. His research looks at the microeconomics and governance of organizations at the nexus of technology and labor with an overarching view of economic security and environmental sustainability. He currently works at the U.S. Department of Labor.



### **Technology and American Democracy**

Author: Anthony Trotta; Publisher: Routledge (2024)

Link: <https://www.routledge.com/Technology-and-American-Democracy/Trotta/p/book/9781032579627>

The growth and proliferation of technology in American society places new demands on the U.S. government and the health of its democracy, affecting both policymaking and public administration. This book explores the underpinning democratic theories, including constitutional justifications, that guide decision makers during the application of Information Technology (IT) in governance to promote democratic principles such as transparency and accountability. The book examines IT's role to facilitate deliberative democracy, alter modern bureaucratic structures and functions, and affect of public policy, public budgeting and performance measurement.

*Author bio:* Anthony Trotta holds a Ph.D. in Public Administration from the School of Public Affairs and Administration at Rutgers University-Newark and has extensive university-level teaching and course development experience in political science, public administration, and public policy (both in the traditional and virtual classroom) at the undergraduate and graduate levels. Dr. Trotta is also the author of *Advances in E-Governance* (Routledge, 2018).

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## Conference News and Events

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**ASPA's 2024 Annual Conference** will take place in person in Minneapolis, April (12-16), 2024 around the theme of “Building Resilient Communities”. It is the premier professional development event of the year for those who practice, teach or study public administration. ASPA's Annual Conference is the only space in the profession that convenes all of us for in-depth conversations, research presentations, workshops, networking and more. [Link: <https://www.aspanet.org/annualconference>]

**DGO 2024 Conference** will be held in Taipei, Taiwan in June (10-14), 2024 around the theme of “Internet of Beings: Transforming Public Governance”. The dg.o conferences are an established forum for presentation, discussion, and demonstration of interdisciplinary research on digital government, civic engagement, technology innovation, applications, and practice. Although the due date for research paper submissions has already passed, posters and demo proposals can be submitted until March 10, 2024. [Link: <https://dgsociety.org/dgo-2024/>]

**Public Management Research Conference (PMRC)** will be held in Seattle in June (26-29). A pre-conference workshop entitled “Civic Tech, Administrative Burdens and Public Management” will be organized on June 26. The workshop is aimed at public management researchers interested in information technology, public sector reform, administrative burdens, and the use of randomized-controlled trials. It seeks to bridge the gap between public management and civic tech communities by building greater awareness of civic tech as a field and the potential of public management research for helping to advance civic tech initiatives. The workshop is organized and led by Don Moynihan (Georgetown University), Kayla Schwoerer (University at Albany, SUNY), Sebastian Jilke (Georgetown University), and Stephan Grimmelikhuijsen (Utrecht University). PMRC attendees can register for the pre-conference workshop when registering for the conference. [Link: <https://evans.uw.edu/faculty-research/pmrc2024/pmrc-registration/>]

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## Feedback:

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We would like to have your input on the activities that would be attractive to you as a member. We are also looking for volunteers with various SSTIG activities. Please take the feedback survey at: [https://fiu.qualtrics.com/jfe/form/SV\\_01E0P5mIRnCJ9fU](https://fiu.qualtrics.com/jfe/form/SV_01E0P5mIRnCJ9fU).