



NATIONAL ACADEMY OF INVENTORS

SEVENTH ANNUAL CONFERENCE
April 4-6, 2018 | Washington, D.C.

Exploring the Intersections of Innovation

#NAI2018



Preliminary Agenda

#NAI2018  [@AcadofInventors](https://twitter.com/AcadofInventors)

For the [2018 Annual Meeting of the National Academy of Inventors](#), we will explore the *fundamental intersections of innovation* that will advance our world into the future. The conference unites innovators and leaders from all disciplines and geographic locations to a venue where knowledge is exchanged and collaborations thrive.

Wednesday, April 4, 2018

7:00 AM – 4:00 PM **NAI Check-In and Information Table Open**
Location: Grand Ballroom Foyer, The Mayflower Hotel

7:30 – 9:00 AM **Welcome Breakfast** featuring [Technology & Innovation](#), *Journal of the NAI*
Location: Palm Court Ballroom, The Mayflower Hotel

A unique opportunity to meet the Editorial Board and Editors of *T&I* and learn how to get involved with future issues.

9:00 AM – 12:00 PM **Session A: Intersection of Innovation and the Future**
Location: Grand Ballroom, The Mayflower Hotel

Session Co-Chairs:

[Helen M. Blau](#), Stanford University

[Stephen D. Russell](#), Space and Naval Warfare Systems Command (SPAWAR)

- **Opening Remarks:** [Paul R. Sanberg](#), National Academy of Inventors
- **Individual 15-Minute Presentations:**
 - *How Artificial Intelligence Can Fundamentally Transform the Patent System and Accelerate Innovation*, [Dean P. Alderucci](#), The University of Chicago
 - *Automated Vehicles: The Killer Opportunity For Interdisciplinary Innovation*, [Robert W. Heath, Jr.](#), The University of Texas at Austin
- **Keynote Address:** *The Dawn of Synthetic Physiology*, [Ronald M. Evans](#), Salk Institute for Biological Studies
- **Panel:** *Inventing Green: Making Environmental Responsibility More Accessible to Current and Future*
 - Hosted by [The Lemelson Foundation](#)
 - Moderator: [Cindy Cooper](#), The Lemelson Foundation
 - Panelists: [Eben Bayer](#), Ecovative Design; [Janine Elliott](#), VentureWell; [Jeremy Faludi](#), Dartmouth College; [Marsha Willard](#), Presidio Graduate School
- **Individual 15-Minute Presentations:**
 - *Innovation: Key to the Future of Moore's Law*, [Tsu-Jae King Liu](#), University of California, Berkeley
 - *Artificial Intelligence, Chaos and Cognition*, [William Ditto](#), North Carolina State University

12:00 – 1:00 PM **Networking Lunch** Hosted by [The Lemelson Foundation](#)
Location: State Room, The Mayflower Hotel

1:00 – 1:30 PM **Coffee Break and Afternoon Refreshments** Hosted by [Plasma Igniter](#)
Location: Grand Ballroom, The Mayflower Hotel

1:30 – 4:00 PM

Session B: *Intersection of Ideas and Entrepreneurship*

Location: Grand Ballroom, The Mayflower Hotel

Session Co-Chairs:

[Susmita Bose](#), Washington State University

[Nicolas Torno](#), Institut Pasteur

- **Panel: *Ideas for Problem-Solving: From University to Invention to Entrepreneurship***
 - Hosted by the [AAAS-Lemelson Invention Ambassadors](#)
 - Moderator: [Sorin Grama](#), Promethean Power Systems
 - Panelists: [Huda Elasaad](#), change:WATER Labs Inc.; [Ellie Fini](#), Bio-Adhesive Alliance Inc.; [Sanna Gaspard](#), Rubitection, Inc.; [Jason Kang](#), KinnoS Inc.; [Diana Yousef](#), change:WATER Labs Inc.
- **Individual 15-Minute Presentations:**
 - *Inventing a New Way to See Clearly: Noninvasive Vision Correction with Femtosecond Lasers*, [Wayne H. Knox](#), University of Rochester
 - *Biophysics Meets Gene Therapy: How Exploring Supercoiling-Dependent Structural Changes in DNA Led to the Development of Minivector DNA*, [Lynn Zechiedrich](#), Baylor College of Medicine
- **Panel: *Making Sense of Venture Capital, Government and Other Funding Sources***
 - Moderator: [Julie Lenzer](#), University of Maryland
 - Panelists: [Ben Buettell](#), R7 Partners; [Crystal R. Icenhour](#), Aperiomics, [G. Nagesh Rao](#), U.S. Small Business Administration; [Rick Schwerdtfeger](#), National Science Foundation

4:00 – 5:30 PM

Break Before Signature Gala

5:30 – 5:45 PM

Buses Depart for Signature Gala

Location: Front Lobby, The Mayflower Hotel

6:00 – 10:00 PM

NAI Signature Gala: *Art of Innovation and the American Patent System*

Location: [The Smithsonian American Art Museum](#)

Dress Requirement: Formal (black tie not required)

Formal event held at the home of the original U.S. Patent and Trademark Office in celebration of NAI Fellows and our nation's patent achievements from its earliest beginnings to today. Event will begin with a cocktail hour and a brief program followed by a seated dinner. After dinner, guests may view open exhibits.

- **Welcome Remarks:** [Paul R. Sanberg](#), President, National Academy of Inventors
- **Remarks and Introduction to Keynote Speaker:** [Andrei Iancu](#), Under Secretary, Commerce for Intellectual Property and Director, United States Patent and Trademark Office
- **Keynote Address:** [David J. Skorton](#), Secretary, Smithsonian Institution

9:30 – 10:00 PM

Buses Depart and Return to Hotel

Location: G Street Exit of Museum

Featuring a scenic drive past U.S. National Monuments

Thursday, April 5, 2018

7:00 AM – 4:00 PM

NAI Check-In and Information Table Open

Location: Grand Ballroom Foyer, The Mayflower Hotel

7:30 – 8:30 AM

Fellow Inductees' Private Breakfast and Information Session

Location: Pam Court Ballroom, The Mayflower Hotel

Hosted by [University of Delaware](#)

An opportunity for newly-elected NAI Fellows to network and learn about their role within the organization.

8:00 – 8:30 AM

Networking Breakfast

Location: Grand Ballroom, The Mayflower Hotel

Continental Breakfast available for all registered attendees.

8:30 AM – 12:00 PM

Session C: *Intersection of Academia, Government and Industry*

Location: Grand Ballroom, The Mayflower Hotel

Session Co-Chairs:

[Kurt H. Becker](#), New York University

[Amy E. Wright](#), Florida Atlantic University

- **Opening Remarks:** Paul R. Sanberg, National Academy of Inventors
- **Keynote Address:** *Reframing Innovation*, [Gilda A. Barabino](#), President of AIMBE and Dean of Engineering, The City College of New York
- **Individual 15-Minute Presentations:**
 - *The 90% Invention Commercialization Solution*, [John R. Nottingham](#), Cleveland Clinic and Case Western Reserve University
 - *Accessible and Affordable Technologies for the Cancer Care Continuum in the 21st Century*, [Nimmi Ramanujam](#), Duke University
- **Panel: Navigating IP Policy and Patent Rights**
 - Moderator: [Elizabeth Dougherty](#), U.S. Patent and Trademark Office (USPTO)
 - Panelists: [Joseph Matal](#), USPTO; [Herb Wamsley](#), IP Writer; [Chen Wang](#), American Intellectual Property Law Association; [Thomas Stoll](#), Counsel, Committee on the Judiciary at U.S. House of Representatives
- **Signature Panel: *Need for Collaboration: How Industry, Academia and Government Partnerships Will Transform the Future***
 - Moderator: [Eric D. Isaacs](#), The University of Chicago
 - Panelists: [Timothy M. Block](#), Baruch S. Blumberg Institute; [Judy L. Genshaft](#), University of South Florida; [Vistasp M. Karbhari](#), University of Texas Arlington; [C. D. Mote, Jr.](#), National Academy of Engineering

12:00 – 1:30 PM

Networking Lunch

Location: State Room, The Mayflower Hotel

1:30 – 2:30 PM

NAI Chapters Exhibition

Location: Promenade, The Mayflower Hotel

Informative exhibition showcasing several NAI Member Institutions with local NAI Chapters including:

Institut Pasteur, France
Space and Naval Warfare System Command (SPAWAR)
Stony Brook University
Texas Tech University
University of Central Florida
University of Connecticut
University of South Florida
The University of Texas at Arlington

2:30 - 3:00 PM

Check-in for Fellows Induction Ceremony

Location: Grand Ballroom Foyer, The Mayflower Hotel

3:00 – 5:00 PM

Fellows Induction Ceremony

Location: Grand Ballroom, The Mayflower Hotel

- **Welcome and President's Address:** *State of the Academy* by NAI President, [Paul R. Sanberg](#)
- **Remarks and Introduction of Keynote:** [Randy Berridge](#), The Corridor
- **Keynote Address for NAI Fellows:** [Andrew H. Hirshfeld](#), U.S. Commissioner for Patents, United States Patent and Trademark Office
- **Formal Induction of NAI Fellows:** Paul R. Sanberg and Andrew H. Hirshfeld
- **Fellow Inductee Group Photograph**
Location: Promenade, The Mayflower Hotel

5:00 – 7:00 PM

Cocktail Reception

Location: East Room, The Mayflower Hotel

Hosted by [The Corridor](#)

Friday, April 6, 2018

7:30 AM – 12:00 PM

NAI Check-In and Information Table Open

Location: Grand Ballroom Foyer, The Mayflower Hotel

8:00 AM – 12:00 PM

NAI Student Innovation Showcase #StudentsInvent

Location: Grand Ballroom Foyer, The Mayflower Hotel

Co-Hosted by: Georgetown University, Johns Hopkins University, National Council of Entrepreneurial Tech Transfer, The George Washington University, University of Maryland, and Virginia Commonwealth University

Featuring presentations of the inventions of outstanding student teams from NAI Member Institutions across all disciplines. Students will be judged by a panel of experts, to recognize and strengthen the culture of inventorship for the next generation.

- **Opening Remarks:** [Barbara Boyan](#), Virginia Commonwealth University; [Steve Kubisen](#), The George Washington University
- **Keynote Address:** *Invention: A History of (Learning From) Failure* by [Arthur Daemrich](#), Director of the Lemelson Center for the Study of Invention and Innovation at the Smithsonian Institution

- **Judges Panel:** [Arthur Daemrlich](#), Lemelson Center for the Study of Invention and Innovation at the Smithsonian Institution; [Stephen Key](#), InventRight; [Andy Rathmann-Noonan](#), National Science and Technology Medals Foundation; [Glenn Vonk](#), National Council of Entrepreneurial Tech Transfer; [Helena Wisniewski](#), University of Alaska Anchorage

- **Student Presentations:**

- **AssistENT**

Student Team: Clay Andrews, Melissa Austin, Talia Kirschbaum, Theodore Lee
 Advisor: Patrick Byrne
 Johns Hopkins University

Restricted nasal breathing is one of the most common complaints heard by ENT (ear, nose, and throat) specialists. This condition is a daily source of discomfort that reduces productivity and quality of life. Slight dilation of the nasal passages directly counteracts nasal obstruction and reverses symptoms in 89% of those afflicted. To this end, many patients undergo functional rhinoplasty procedures to surgically widen the nasal passages. However, up to 20% of patients experience unimproved or worsened symptoms postoperatively. We are developing Schnozzle, a comfortable and discreet nasal dilator that improves breathing instantly upon insertion. Schnozzle is also designed with form-fitting materials that enhance comfort and grip the nasal cavity to safely remain in position. The device's use case is analogous to that of a contact lens; rather than undergoing invasive nasal reconstruction, users will simply deploy the device in the nose to breathe better instantly.

- **OptoDyCE: Optical Dynamic Cardiac Electrophysiology**

Student: Aleks Klimas
 Advisor: Emilia Entcheva
 The George Washington University

The OptoDyCE Platform will provide drug researchers and developers with a high-throughput (HT), high-content, low-cost solution to quantify cardiotoxicity to deliver cheaper, more effective, and safer drug treatments. OptoDyCE will improve cardiotoxicity prediction in early-phase drug development. It has been estimated that better preclinical study design propagates through the pipeline; improved prediction could reduce Phase II attrition by as much as 50%, lowering final costs by ~30%. With costs reduced, developers will have the freedom to tackle higher-risk projects, such as patient-specific and patient-population therapies, without increasing R&D budgets.

- **Powered Wrist-Hand Orthosis for Individuals with a Spinal Cord Injury**

Student Team: Amber Gatto, Kalyn Kearney, Andrew Li, Kareika Wharton
 Advisor: Stephanie L. Carey
 University of South Florida

Between 45%-60% of all reported spinal cord injury (SCI) cases (in the US) are classified as incomplete quadriplegia, ranking it the most common SCI. The majority of cervical SCIs occur in the C5-C7 segments causing patients to lose upper and lower limb functionality. Patients with an incomplete C5-C7 SCI lose grasping abilities, but wrist function is almost universally retained. Most rehabilitation techniques, therefore, apply the tenodesis effect (wrist extension for grasping, wrist flexion for releasing). Current tenodesis wrist-hand orthoses (WHOs) engage only the thumb and index finger for gripping, not allowing for whole-handed gripping, meaning that only 20% of ADLs can be completed. Scion's powered WHO began as a student project and utilizes a modified version of the tenodesis effect (wrist flexion for grasping, wrist extension for releasing) to help individuals with incomplete C6-C7 SCIs independently complete ADLs.

- **Brise-solette**

Student Team: Joshnamaithili Seelam, Aniket Kulkarni, Kashyap Venuthurupalli, Chandana Muktipaty
 Advisors: Barbara D. Boyan, Rene Olivares-Navarrete
 Virginia Commonwealth University

Studies have shown that a womb-like light environment can reduce the levels of cortisol and promote the release of growth hormones, while also extend sleep duration and help

with adaptation to a circadian rhythm at an early stage. Currently the only solution for reducing light stimulus to the neo-natal infant is by using a blanket to cover the isolette and the use of films to control the amount of permitted light has not been done commercially. Brise-solette can quickly change its opacity and this would revolutionize the treatment of neonates as it would allow constant supervision of the babies during care, and also a method of notification in case of emergency. The future developments of this product would include modular advancement that make the films more reactive to different stimuli in the environment and the vitals of the baby.

- **AMProtection, LLC - Surface-Tethered Antimicrobial Peptides**

Student Team: Todd E. Alexander, Lindsay D. Lozeau

Advisor: Yael Schwartz

Worcester Polytechnic Institute

AMProtection is a startup in the medical device industry and first focuses on a product that will prevent catheter-associated urinary tract infections (CAUTI). Catheter-associated urinary tract infections (CAUTIs) create a broad and devastating impact throughout the U.S. healthcare value chain, from manufacturers to hospitals to patients. Patients endure decreased quality of life from treatments such as systemic antibiotics and implant removal, and co-morbidity can increase by 12%-25%. The AMProtection innovation is a patent-pending, novel therapeutic agent – a naturally derived antimicrobial peptide (AMP) that is covalently bound (“tethered”) onto surfaces. This AMP coating is biocompatible, is broad-spectrum, and kills bacteria directly, clearing infection through unique biophysical mechanisms.

- **Senseer: Improving hydrocephalus treatment and reducing healthcare costs using wireless sensors**

Student Team: Alex Baldwin, Trevor Hudson, Eugene Yoon

Advisor: Ellis Meng

University of Southern California

Hydrocephalus is a chronic condition caused by accumulation of excess fluid in the brain leading to headaches, nausea, incontinence, and even cognitive decline in some cases. The standard clinical treatment is to surgically implant a shunt which diverts excess fluid from the brain to the abdomen, but 40-50% of shunts fail within the first year of use, and 80-90% fail within a decade. Repeated expensive imaging studies and invasive shunt taps are currently used to try to monitor shunt performance, but these methods are inadequate. Senseer is developing a multi-sensor module which can be implanted alongside hydrocephalus shunts. Patients will be able to query the status of their shunt in real time as often as desired in an outpatient setting. All sensor measurements will be uploaded to a secure database, allowing physicians to remotely monitor shunt status and giving them tools for diagnosing or predicting shunt failure.

- **Student Exhibition and Meet and Greet**

12:00 PM

Judges Announcement and Conference Conclusion

*Agenda and timeline subject to change