THE PATUXENT PARTNERSHIP
ANNUAL REPORT

2017

CONTENTS

DEVELOP. CONNECT.
ACHIEVE
2017

The Patuxent Partnership connects the dots to foster collaboration among academia, industry, and government from technology to STEM initiatives in Southern Maryland and beyond to promote growth for the betterment of all.

We are a non-profit member organization working to advance technology through speaker programs, forums, and networking; to advance science and technology transfer through the exchange of ideas, information, and data related to technologies; and to increase workforce development through an array of programs and initiatives.

The Patuxent Partnership was established in 1997 for the purpose of expanding the business base in Southern Maryland through technology development.

Over the past 10 years, TPP's mission has changed to keep pace with the evolving needs of our members, the Navy, DoD, and the community. TPP looks to advance technology through speaker programs, forums, and networking; to advance science and technology transfer through the exchange of ideas, information, and data; and to increase STEM workforce development through an array of initiatives from physics to cybersecurity.

TPP focuses on diversifying the technology business base in Southern Maryland; seeking to sustain and expand that base by marketing regional technology capabilities; growing the intellectual capital and workforce capacity; and fostering effective collaboration among industry, government and academic partners.

TPP became part of a partnership intermediary agreement with Naval Air Warfare Center Aircraft Division in 2011 and also became part of an educational partnership agreement with NAWCAD and St. Mary's College of Maryland. TPP has a long-term partnership with the College of Southern Maryland, providing support to the Pathways program, robotics, and other STEM activities.

LIKE NO OTHER CONNECTION

a message from our
EXECUTIVE DIRECTOR & BOARD PRESIDENT

Dear friends,

It's hard to believe another year has already come to a close.

Over the past several years, we have strived to raise the bar for The Patuxent Partnership and its members. As challenges to the Navy and Southern Maryland rapidly change and evolve, we have seen our member community come together to show resilience, determination, and a shared sense of purpose.

Our Board of Directors continues to proactively support and engage, which only strengthens our efforts. What has shone through is our members' steadfast commitment to collaboration and creative thinking toward a common goal. It's all about connecting the dots.

To that end, we saw many notable successes in 2017. TPP worked with members to develop programs around themes of mutual importance. We continued to deepen connections and conversations between Pax River, industry, and academia. We began directly engaging younger members of the workforce by hosting our first social and networking event for young professionals.

We hosted a number of briefings, two full-day symposia, and continued to partner with the Association of Naval Aviation and collaborate with the Center for the Study of Democracy at St. Mary's College of Maryland. We covered a broad spectrum of topics including cybersecurity, transportation, technology and innovation, U.S.-China policy in the South China Sea, Russia, Poseidon & Triton, weapons capabilities, additive manufacturing, and our neighbor, NAS Patuxent River.

Attendees regularly speak highly of the caliber of TPP programs and we are honored to have distinguished speakers and panelists participate throughout the year. Each time we have one of these information exchanges, it energizes the discussion and offers possibilities for deeper partnerships among government, industry, and academia. TPP is proud to be the facilitator.

We are now two-thirds of the way through our three-year grant from the Office of Naval Research, which enables us to support and improve STEM workforce development opportunities for the Navy in Southern Maryland. In alignment with NAWCAD workforce development and recruitment goals, this "STEM-for-all" grant supports education initiatives in four areas for middle school, high school, and college-level students: UAV, cybersecurity, augmented reality technology, and classical sciences.

The outcome of these programs is a generation that will be equipped to lead us into the future of science and technology by building a strategic pipeline from elementary school through college. For example, one of our 2013 scholarship recipients completed the Pathways to Engineering Program through the College of Southern Maryland and the University of Maryland Mechanical Engineering program at the Southern Maryland Higher Education Center. Upon graduation, she was offered full-time employment at Pax River.

Above all, it is the active support and participation of our benefactors and members that makes TPP so successful. Sharing your challenges, accomplishments, and lessons learned works to benefit everyone in our community – throughout Southern Maryland and beyond. Thank you for your feedback, your engagement, and for making 2017 yet another remarkable year for The Patuxent Partnership!

We are looking forward to an even better year to come.

Best regards,

Bonnie Marie Green
Executive Director

Gene W. Townsend
President, Board of Directors

OUR MEMBERS

174 *corporate members*	**19** *government organizations*	**7** *academic institutions*
34 *association affiliations*	**9** *workforce retention affiliations*	**9** *benefactors*

Our members represent a wide variety of career disciplines and areas of interest, each with the goal of improving the region's quality of life through education, workforce development, and retention. TPP members provide key support to initiatives, from leadership seminars and Navy programs to science fairs, robotics, internships, and other STEM-related programs. Our members are invested in a wide range of activities and collaborations designed to increase interest and involvement in STEM disciplines throughout the community.

employee of member

government & active duty military

▲ *= 10 people*

> # "Teaming with our industry partners and academic community will bring the best and brightest ideas to bear."
>
> *Roger Budd, Raytheon*

Member of the Year: Raytheon

The Patuxent Partnership named Raytheon 2016 Member of the Year at our Annual Dinner in May. The Member of the Year award recognizes a member company that exemplifies the highest levels of leadership, community support, and commitment to the economic growth and development of Southern Maryland.

Raytheon, a TPP benefactor, sponsored numerous educational and charitable programs and encourages its employees to give back. Raytheon's investment in the next generation and future workforce remains a company priority and is evident through the many STEM education outreach programs they support in Southern Maryland.

Raytheon is also a proud sponsor of numerous veteran programs across the country. Locally, Raytheon has provided considerable support to programs such as Melwood's Operation: Tohidu, Operation Warrior Refuge, and other community outreach programs designed to provide veterans with housing, employment and other basic needs.

"We believe being an integral part of the local community is the best way we can give back," said Roger Budd, Raytheon Patuxent River Field Office Site Lead, who accepted the award. "Teaming with our industry partners as well as with the academic community will bring the best and brightest ideas to bear."

OUR BENEFACTORS

ASEC	**HTii**	**Northrop Grumman**
Boeing	**KBRwyle**	**PAE**
General Dynamics Information Technology	**Lockheed Martin**	**Raytheon**

PROGRAMS

10.27.16 — **The Arctic – Where Climate Change Has Already Hit Home** with Dr. John Walsh, Chief Scientist and President's Professor of Global Change, International Arctic Research Center, University of Alaska, Fairbanks. *Joint program between The Patuxent Partnership and Center for Study of Democracy at St. Mary's College of Maryland*

10.27.16 — **Annual Meeting: Innovation in Southern Maryland**
Presentations by Dr. Rebecca Bridgett, St. Mary's County Administrator, and Mr. John Wasilisin, President/Chief Operating Officer, Maryland Technology Development Corporation (TEDCO)

11.09.16 — **How to Complete a DSP-5 or DSP-85:
What Export License Reviewers are Looking For**
Mr. Mike McCloskey, lead consultant and instructor, Foreign Disclosure and Export Solutions Corporation, presented on the inner workings of the export license review process.

12.07.16 — **Air Wing-Ship Integration and Interoperability** (TPP/ANA Panel)
Moderator: Rear Adm. Bruce Lindsey, Commander, Naval Air Force Atlantic
Panelists: Mr. Gary Kessler, Deputy Assistant Secretary of the Navy (Air Programs), Office of the Assistant Secretary of the Navy, Research, Development and Acquisition; Capt. Mark Colombo, OPNAV N980C, CVN Branch Head; Mr. John Green, Principal Deputy PM, PMA-251, Aircraft Launch & Recovery Equipment; Capt. David Kindley, F/A-18 and EA-18G Program Office (PMA-265) Program Manager

12.15.16 — **Holiday Party**
Annual holiday networking party for members. Donations were collected for H.O.P.E. food pantry.

01.10.17 — **Foreign Military Sales Essential to U.S. Defense**
Vice Adm. Joseph Rixey, Director of the Defense Security Cooperation Agency (DSCA); Rear Adm. Francis Morley, Deputy Assistant Secretary of the Navy International Programs (NIPO); Maj. Gen. Larry Martin, Assistant Deputy Under Secretary of the Air Force, International Affairs; Ms. Ann Cataldo, Deputy Assistant Secretary of the Army for Defense Exports and Cooperation

02.14.17 — **Additive Manufacturing**
Ms. Liz McMichael, NAVAIR Additive Manufacturing/Digital Thread IPT Lead; Dr. William Frazier, Chief Scientist, Air Vehicle Engineering, NAVAIR

02.21.17 — **2017 SMC Science and Engineering Special Awards Reception** honoring the Middle and High School TPP and INCOSE Award winners. Special Guest Speaker: Mr. James Scott Smith, Superintendent of St. Mary's County Public Schools

03.02.17 — **Cybersecurity: Threat Detection and Management**
Sponsors – Gold: Booz Allen Hamilton, Intel Security; Silver: GTRI, RPI, Smartronix
Exhibitors: Avian, CSM, IBM, Red River, RSA, UMBC, Unanet
Speakers & Panelists: Rear Adm. Bill Leigher, USN (ret), Director, Government Cyber Solutions, Raytheon, former Director of Warfare Integration for Information Dominance (OPNAV N2/N6F); Maj. Gen. David Senty, USAF (ret); Director, Cyber Operations, MITRE; Stu Young, SES, Director of Systems Engineering; Dr. David Burke, Cyber Warfare Detachment Technical Director; John Kriz, Senior Scientific Technical Manager (SSTM), NAVAIR 5.4; Capt. Jeff Dodge, Multi-mission Tactical Unmanned Aerial Systems (PMA-266) program manager; Cmdr. Jonathan McEllroy, Cyber Warfare Detachment Class Desk and Special Projects Lead; Rear Adm. Bill Leigher, USN (ret), Director, Government Cyber Solutions, Raytheon, former Director of Warfare Integration for Information Dominance (OPNAV N2/N6F); Brig. Gen. Tim Lunderman, Air National Guard Assistant to Staff Headquarters Air Force Chief Information Officer A6; Anthony Vultaggio, Chief Technology Officer, Smartronix; Sarah Standard, Cybersecurity / Interoperability Technical Director, DASD (DT&E); Giorgio Bertoli, Senior Scientifc Manager (SSTM) for Offensive Cyber & Acting Chief Scientist Intelligence & Information Warfare Directorate (I2WD); Chris Inglis, former Deputy Director National Security Agency, Distinguished Visiting Professor in Cyber Security Studies, USNA; Rear Adm. Gib Godwin, USN (ret), Pricewaterhouse Cooper; Michael Redman, RPI Group, Fully Qualifed Marine Corps Validator; former Chair for Cyber Security Training & RMF Planning Working Group; Mike Ruiz, GTRI, Senior Research Engineer; Mike Morgan, BAH, Navy Marine Corps; Cyber Strategy; Ned Miller, Intel Security, Chief Technology Strategist for Public Sector; Vincent Lamolinara, Defense Acquisition University, Cybersecurity; Steve Newton, AVIAN LLC; Homer Minnick, UMBC Training Centers; Joel A. Rasmus, Managing Director, CERIAS, Purdue University; Roy Wilson, Defense Acquisition University; Doug Woods, GTRI; Rear Adm. Mike Moran, Program Executive Officer, Tactical Aircraft; Capt. David "DW" Kindley, PMA-265; Capt. John "Bails" Bailey, PMA-234; Capt. Laura Schuessler, PMA-272

03.30.17 — **Women's History Month Featured Speaker: Stephanie Hill**, Vice President and General Manager, Lockheed Martin Rotary and Mission Systems Cyber, Ships and Advanced Technologies, discussed her work at Lockheed Martin and the critical importance of STEM outreach and workforce development. *(Joint program between TPP, Leadership Southern Maryland, Women in Defense)*

PROGRAMS

04.19.17   **Maryland Defense Network Demonstration** provided attendees information about the Maryland Defense Network (MDN), a database of defense reliance and supply chain networks of defense contractors.

05.03.17   **Advanced Weapons Capabilities in the Maritime Domain**
Rear Adm. Mark Darrah, Program Executive Officer for Unmanned Aviation and Strike Weapons (PEO (U&W)) spoke about how the Navy can advance weapons capabilities in the maritime domain. Mike Williamson, PEO (U&W) Advanced Development Lead, highlighted key elements of Innovation & Modernization PAX, an effort that will allow NAVAIR to rapidly test and potentially field new capabilities.

06.06.17   **Intro to Pax River: Historical/Future Organizational and Financial Perspectives**
Gene Townsend, former Comptroller of Naval Air Warfare Center Aircraft Division (NAWCAD, 1977-1996), discussed how the creation of NAWCAD, the NAVAIR relocation and the Competency implementations have changed the way business is done and financial structures.

06.28.17   **Identifying Solutions to Warfighter Challenges through Technology and Innovation**
Sponsor: KBRwyle
Exhibitors: Calvert County Department of Economic Development, Dell EMC, Florida Institute of Technology, MIL Corporation, Smartronix, St. Mary's County Department of Economic Development, SURVICE Engineering Group
Speakers & Panelists: Dr. David E. Walker, Director of Technology, Office of Naval Research; David Cohen, Director, Mission Engineering & Analysis Department, Naval Air Systems Command (AIR-4.1); Robert Smith, AIRWorks, NAWCAD; Jazz Myres, NAWCAD Innovation Challenge; Dr. James Sheehy, Chief Technology Officer, Naval Aviation Enterprise; Mike Williamson, Deputy PEO for Advanced Technology, PEO (U&W); John Wasilisin, President and COO, TEDCO; Michael Schroeder, Director, NAWCAD Technology Transfer Office; Dr. Chris Wilhelm, Customer Advocate for Science & Technology, Lead, Office of Research and Technology Applications, Naval Surface Warfare Center, Indian Head; Thomas Luginbill, Director of Entrepreneur & Innovation Institute, College of Southern Maryland; Ronnie Gist, Associate Director, Maryland Industrial Partnership Programs, UMD; Dr. Daanish Maqbool, CTO and CEO, North America Wave Engine Corporation; Dr. Robert Caret, Chancellor, University System of Maryland; Emily Harman, Director, Office of Small Business Programs, Department of Navy; Barbara Ives, Director of the Office of Strategic Partnerships, College of Southern Maryland; Chris Kaselemis, Director, St. Mary's County Department of Economic Development; Dr. David Barrett, NAWCAD; Earl Wyatt, former Deputy Assistant Secretary of Defense, Emerging Capability and Prototyping; Mark Hodge, Vice President Fixed Wing Solutions, Elbit Systems of America; Col. (ret) Tom Nelson, Director, Washington DC office, BMNT; Dr. Alexander Stimpson, Senior Research Scientist, Humans and Autonomy Lab, Duke University; Benjamin Riley, Georgia Tech Research Institute, former Dep Assist Secretary of Defense, Rapid Fielding; Rear Adm. Mark Darrah, PEO (U&W)

| 07.18.17 | **Jim Ports, MDOT Deputy Secretary for Operations**, briefed attendees on transportation priorities, upgrades, as well as concerns in Southern Maryland. |

| 08.10.17 | **#Connect Networking Social**
TPP hosted an inaugural networking event to connect like-minded peers in the area. Young professionals were encouraged to get to know seasoned pros. Established professionals were able to meet and be inspired by motivated, new talent. |

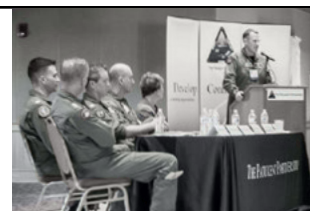| 08.30.17 | **Updates on Pax River with Rear Adm. Charles Rock, Commandant, Naval District Washington**
Rear Adm. "Chip" Rock addressed the following topics: NAS Patuxent River's role as a critical asset in the present and future of Naval Aviation, community relations, an important mission for any installation, Navy budgeting challenges (eyeing a firm foundation for solid growth), military construction and sustainment (and the impact of shrinking budgets that require project prioritization) and parking/traffic concerns to and on base. |

| 09.21.17 | **Poseidon & Triton: Welcome to the Family** (TPP/ANA Panel)
Moderator, Rear Adm. Trey Wheeler, Commander, Patrol Reconnaissance Group, Norfolk. Panelists: Angie Knappenberger, SES, Deputy Director of Air Warfare (OPNAV N98B), Pentagon; Capt. Daniel Mackin, Program Manager, Persistent Maritime Unmanned Aircraft Systems (MQ-4C Triton), PMA -262; Air Commodore Gary Martin, Air Attaché, Embassy of Australia; Capt. Tony Rossi, Major Program Manager, Maritime Patrol & Reconnaissance Aircraft (P-3/P-8), PMA-290; Rear Adm. Paul Sohl, Commander, Operational Test & Evaluation Force, Norfolk |

| 09.27.17 | **Intro to NAWCAD and Patuxent River** briefing with Ms. Leslie Taylor, Executive Director, NAWCAD and Deputy Assistant Commander for Test and Evaluation, NAVAIR, at University of Mary Washington Dahlgren. |

11 venues 21 programs 1,709 attendees

AVIAN, LLC

Bay District Volunteer Fire Department

Great Mills High School

Historic St. Mary's City

Holiday Inn, Solomons

KBRwyle

Lexington Park Library

Southern Maryland Higher Education Center

St. Mary's College of Maryland

The Patuxent Partnership

University of Mary Washington Dahlgren Campus

PROGRAMS

CYBERSECURITY
THREAT DETECTION & MANAGEMENT

March 2, 2017

From its start in 2010 to the present, U.S. Cyber Command has grown to more than 6,000 employees with a budget of roughly half a billion dollars. The challenges presented by the rapidly developing field of cybersecurity inspired TPP's day-long program, "Cybersecurity: Threat Detection and Management."

 "The rate of change for cyber today is unlike any integration challenge we have faced," said Rear Adm. Bill Leigher (ret.).

The program featured several speakers and panel discussions focusing on the challenges, current strategies and initiatives, and the need for broader awareness and education.

Chris Inglis, former Deputy Director, National Security Agency and Distinguished Visiting Professor in Cyber Security Studies at the United States Naval Academy, spoke about the very real cybersecurity issues that the nation faces, how it affects everyone and how midshipmen at the Naval Academy are being trained to think about cybersecurity in every aspect of their jobs as naval officers, whether they major in cybersecurity or not. This foundation will enable these future warfighters to incorporate cybersecurity early and always.

❝**New challenges to cybersecurity require a workforce in which network and software engineers along with scientists and designers from all disciplines are conversant and aware of how their individual technologies must be protected.**❞

Stu Young, SES, Director of Systems Engineering, NAVAIR

TECHNOLOGY & INNOVATION

June 28, 2017

Barriers to transferring innovative technology and products between government, industry, and academia put the military at risk of falling behind in its ability to adapt and overcome in a rapidly evolving threat environment. This was the focus of the "Identifying Solutions to Warfighter Challenges Through Technology and Innovation" conference in June.

Through guest speakers, panel discussions, and exhibitor demonstrations, the program addressed how to foster innovation, bring technology to commercialization, and cultivate an environment to encourage out-of-the box thinking.

Over 140 attendees learned different aspects of transferring technology into and out of the military environment, while exhibitors offered information and demonstrations. Speakers described collaborations and opportunities to speed delivery of innovative technology into the marketplace and to the warfighter.

The consensus was that government, industry, and academia must work together to accelerate innovation and technology transfer in such a way that the military can maintain national security and technological superiority without compromising security or financial stability.

Translating academic research into commercially viable technology goes "beyond the science experiment and looking like a product," said Dr. Daanish Maqbool, CEO for North American Wave Engine Corporation. It requires an equal mix of technical and business know-how.

Federal conflict of interest rules and licensing and patenting policies also present significant challenges to technology transfer. Active engagement is key in converting research into scalable technology and products that solve real-world problems for the warfighter.

The University of Maryland is making progress in this area, as it updates its licensing and patenting policies on products developed with university resources, said Ronnie Gist, Associate Director of Maryland Industrial Partnerships Program at the University of Maryland.

Changes to proprietary rights held by professors have coincided with a 10 percent increase in research and development on campus, said University System of Maryland Chancellor, Dr. Robert Caret, who affirmed the importance of keeping academia involved.
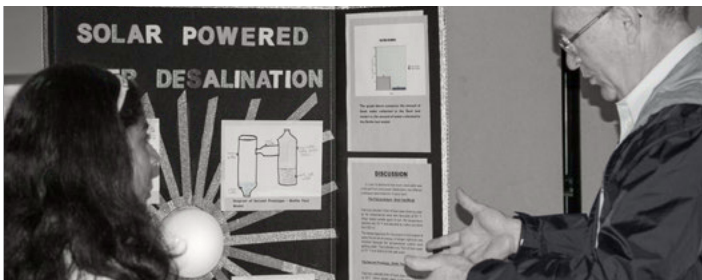
Incubating emerging technology "is the primary effort" behind the University of Maryland's plans for an academic research and educational building at the Southern Maryland Higher Education Center.

STEM INITIATIVES

Education and workforce development are key components of TPP's strategic plan and support the community's economic diversification and success. With our member organizations, we collaborate with public and private academic organizations to advance STEM education and activities for our students.

To generate interest in STEM education and career paths, TPP regularly partners with the region's public school system and colleges and universities throughout Maryland to provide STEM opportunities to the entire community.

Summer AeroSpace Camp (formerly Space Camp) provides students in grades 2–11 opportunities to explore quadcopters and unmanned systems, rocketry, and robotics through hands-on learning. The program provides an opportunity for students in grades 7–11 to receive UAS pilot certification training through the FAA. TPP sponsorship offsets registration costs so that any interested student will have the opportunity to attend regardless of their ability to pay.

Summer Cyber Camp is designed to introduce basic cybersecurity concepts and generate awareness and interest in computer science and cyber education and careers. Held at the Forrest Technology and Career Center, the camp is a one-week course offered to rising 7–9th grade students who wish to explore cybersecurity. The program includes a field trip to NSA's Cryptologic Museum where students are able to speak with experts and learn about how the cybersecurity field has developed.

Science fairs and expos continue to showcase our region's best and brightest young minds. TPP recognizes this exceptional work through a series of four awards in each

division. In 2017, many local award winners went on to place at the regional fair. TPP provided travel assistance to three students who went on to compete at the INTEL Science Fair in Los Angeles, California.

Robotics programs can be found in nearly every school in Southern Maryland and are used to prepare students for careers in STEM fields. TPP provides direct support to the College of Southern Maryland, which manages the region's robotics programs. With teams in LEGO, VEX IQ, VEX, and VEX-U, over 1,200 students are involved in competitive robotics in Southern Maryland.

STEM-ING is designed to introduce middle school girls to careers in STEM disciplines. TPP provides support to the STEM-ING program through our Education Partnership Agreement with NAWCAD and St. Mary's College of Maryland, and our Partnership Intermediary Agreement with NAWCAD. As a partner and sponsor of this event, TPP and some of our member companies provide mentors, volunteers, and the financial support needed to ensure the program's success and growth. In 2017, over 135 girls attended STEM-ING.

Mobile STEM Learning Boxes

The Mobile STEM Learning Box initiative was created by the Ridge Elementary School robotics team and implemented by TPP and the St. Mary's County Public School System. The project focuses on the creation and deployment of a series of mobile learning boxes, each containing a classroom bundle of robots. The boxes are shared among all the elementary schools in the county.

The STEM-for-all model allows every student in the county's elementary schools to have the same resources and opportunities for robotics and computer science, regardless of their school's resources or location. TPP members Northrop Grumman, Dominion Energy, Raytheon, Association of Old Crows Pax River Roost, and AVIAN LLC donated over $18,000 in support of the project.

Pathways to Engineering Program provides a path for students seeking engineering degrees through the A. James Clark School of Engineering, University of Maryland (UMD). TPP provides up to four full scholarships each year for students in the Pathways to Engineering Program at CSM. The 2017 TPP Pathways to Engineering Scholarship recipients are:

- **Patrick Brogan**, 1st year EE Student (Huntingtown HS)
- **Jeremy Brown**, 1st year ME Student (Leonardtown HS)
- **Christopher Grizzle**, 2nd year ME Student (Chopticon HS)
- **Allan Li**, 2nd year ME Student (Great Mills HS)

Pathways Program (UMD Clark School of Engineering Students)

- **Ryan Evans**, 3rd year ME Student (Patuxent HS)
- **Devin Kimmey**, 4th year ME (Great Mills HS)

2013 scholarship recipient Sabrina Paz graduated from the Pathways to Engineering Program with a Mechanical Engineering degree from UMD. Upon graduation, Sabrina was offered full-time employment at NAS Patuxent River.

National Academy of Finance (NAOF) at Chopticon High School prepares students for careers in financial services. In addition to TPP staff serving on the Program Advisory Council for the academy, TPP hosts a NAOF intern each summer. The internship process is a valuable tool to help students connect classroom instruction with real world application.

Southern Maryland Math Circles is hosted by professors from the Math Department at St. Mary's College of Maryland to bridge the gap between classroom curriculum and the exploration of open-ended math problems that challenge the advanced student. TPP member RED-INC sponsors

the Math Circles program, allowing students access to this extracurricular program free of charge.

Destination Imagination (DI) is an international program and competition that introduces arts to STEM (STEAM). DI students gain the creative, critical thinking, collaboration, and project management skills needed to thrive in school, careers and beyond. TPP Benefactor Northrop Grumman Corporation sponsored the St. Mary's County DI program for the 2016-2017 school year. Twenty-three SMCPS teams from elementary to high school participated in the program.

TPP UAV Training Program is an initiative under the ONR STEM Grant designed to generate interest in the field of UAV technology and engineering. Open to all high school students in the tri-county area, the program consists of weekly training sessions at the students' assigned school and group trainings held throughout the school year. TPP member Aviation Systems Engineering Company (ASEC) developed an online flight training program available to all students via STEM-Link.

Applied Physics Endowed Fund, established in 2012, created and supports the St. Mary's College of Maryland applied physics program. The fund also promotes research, internship, and professional development opportunities through collaborative efforts between SMCM, NAS Patuxent River, and the DoD community in Southern Maryland. In 2016–17, the physics program received national recognition on multiple occasions.

Of the six students who graduated with physics majors in 2017, four now work for NAWCAD, and one works for a contractor supporting NAWCAD. Five students participated in internships or a St. Mary's Project as part of the atomic physics research partnership between SMCM faculty and NAWCAD.

ONR GRANT

Thanks to a three-year grant from the Office of Naval Research, TPP is able to implement a comprehensive STEM workforce development and recruitment system for NAWCAD. The program contains elements in unmanned aerial vehicles, cybersecurity, classical sciences, and augmented reality technology. Educational initiatives in these areas will benefit the current and future workforce in Southern Maryland.

Although the full benefits of the grant initiatives will not be realized for several years, there were many notable successes during the second year of implementation.
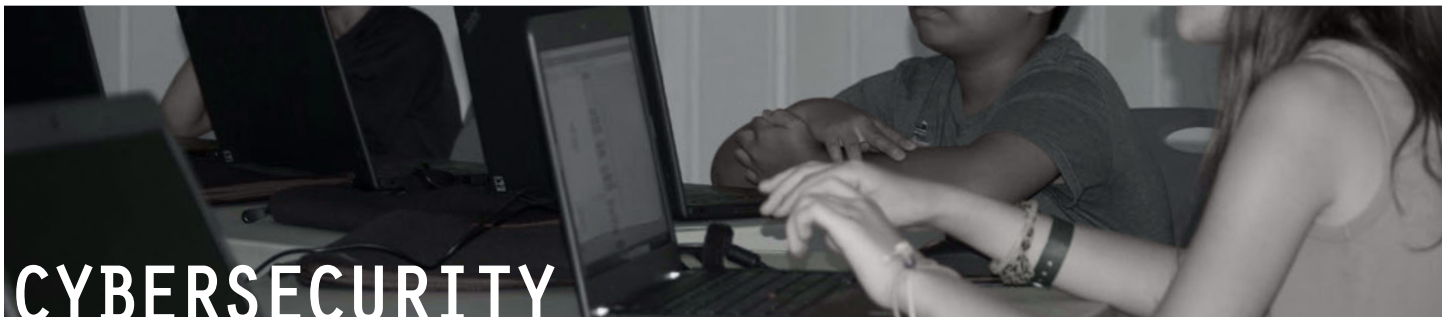

UAV

K-12 The UAV segment of the grant introduced a quadcopter program open to all high school students in the tri-county area.

The program is free to any high school team and is designed to reach a broad range of students throughout Southern Maryland. Because there is no registration fee or specialized equipment, schools can sustain the program beyond grant funding.

TPP benefactor Aviation Systems Engineering Company, Inc. (ASEC) developed a flight training program for the 2017–2018 school year, which is accessible by all students via STEM-Link. This online course allows coaches and students access to flight safety and training material throughout the school year. The course, developed by certified UAV instructors, provides standardized training for all participants throughout the region at no cost.

The 2016–2017 program culminated with a Skills Expo in April, where quadcopter teams demonstrated their learning. Each team presented their challenge to the other quadcopter teams and included challenge logbook information including timelines, successes, failures, learning experiences, and a detailed explanation of the skill challenge, its expected outcome, and its uses in real life.

UMD The University of Maryland developed a UAV component to be included in the Mechanical Engineering degree program being taught at the Southern Maryland Higher Education Center. The UAV curriculum supports the Navy's workforce development by providing students with a better understanding of UAV flight physics and mechanics, aerodynamics and flight analysis. The College of Southern Maryland Pathways to Engineering program is the primary source for the UMD program enrollment.
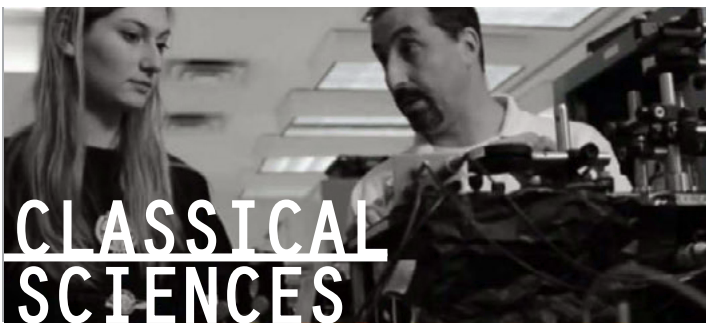
CYBERSECURITY

K-12 A high school cybersecurity curriculum was introduced for the 2016–2017 school year. Seniors registered for two semester courses – Principles of Cybersecurity and Ethical Hacker – after meeting prerequisites (AP Computer Science or completion of Networking II). Those enrolled in the cyber program attended the AFA Air and Cyber Conference at the National Harbor in September and participated in the 2017 Cyber Patriot Competition. The cyber program has been expanded to include juniors during the 2017–2018 school year.

Rising 7–9th grade students participated in one of two week-long summer cyber camps held at the James A. Forrest Career and Technology Center. Students also met local professionals in the cybersecurity and electronic warfare fields.

UMD The University of Maryland introduced a key cybersecurity course in fall 2017 with lab work to enrich the Electrical Engineering program taught at the Southern Maryland Higher Education Center.

Cybersecurity is a cross-cutting functional area and requires that all engineers understand what part they and their platforms play. This UMD cybersecurity course aligns with NAVAIR's internal cybersecurity workforce development efforts and will be a valuable introduction to the topic for anyone going to work for NAVAIR in a technical field.

CLASSICAL SCIENCES

The classical sciences section of the grant includes college programs in physics, math, and chemistry in support of Navy Research and Development initiatives.

St. Mary's College of Maryland, in collaboration with NAWCAD laboratories, has placed students in NAWCAD R&D labs to develop solutions to real world problems. Students provide fresh perspectives on existing problems and the development of new technologies and methods to better serve the military. In return, subject matter experts at the lab provide students with a wealth of information and experience garnered from years of R&D work.

AUGMENTED REALITY

Augmented reality is cutting-edge technology with a variety of applications in everyday life. From use on televised sporting events to military use on the battlefield, AR augments real-world environments with virtual displays and objects.

TPP member RED-INC developed a mobile AR learning lab to support education outreach in the school system. The mobile lab is designed to give middle and high school students hands-on experience with AR. Over 700 middle and high school students received a demonstration of AR technology during the 2016–2017 school year.

IPA PROGRAM

The Intergovernmental Personnel Act Mobility Program strengthens the government's management capabilities and accomplishment of agency mission requirements. The program allows for the temporary assignment of personnel between the federal government and eligible non-profit organizations. The IPA program is instrumental in the transfer and use of new technologies and other science and technology requirements, and promotes collaboration among government agencies.

TPP was authorized to participate in the IPA program in 1999 by request of the U.S. Navy and has since developed long-term relationships with many federal departments and agencies, including the Departments of Defense and Homeland Security.

TPP employs subject matter experts and details them to federal agencies to serve in senior positions to facilitate technology transfer and foster knowledge sharing across, within, and among government agencies, academia, and private industry. They are recognized experts in their fields, current in the latest technologies, and experienced senior-level managers.

With the insights derived from their work about emerging technologies and trends in science and technology development, our IPA employees help us strengthen our programs and foster big-picture discussions with our partners and members throughout the year.

IPA COMMANDS

Department of Homeland Security

Science and Technology Directorate

Federal Emergency Management Agency

Cyber Security Division

National Defense University

National Guard Bureau

NASA

Office of the Secretary of Defense

Developmental Test & Evaluation

Narcotics and Transnational Crime Support Center

U.S. Air Force

U.S. Navy

Naval Air Systems Command

Naval Postgraduate School

Naval Air Warfare Center Weapons Division

Naval Sea Systems Command

Office of Naval Research

Office of Technology Development Support

Naval Special Warfare Command

U.S. Army

Army Training and Doctrine Command

Army Capabilities Integration Center

Rapid Equipping Force

Engineer Research and Development Center

High Performance Computing and Modernization Program

Unified Combatant Commands

United States Africa Command

United States Northern Command

United States European Command

United States Central Command

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HTii

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Executive Director

Chuck Angus

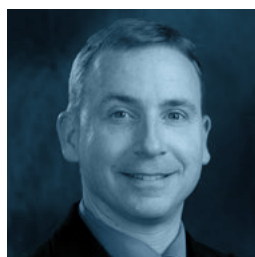Site Executive, Patuxent River Field Office, Raytheon

Rebecca Bridgett

County Administrator, St. Mary's County

Steve Eastburg

Executive Vice President, Smartronix, Inc.

JD Fassett

Field Office Manager, Georgia Tech Research Institute

Tracy Harris

Vice President and Dean, College of Southern Maryland Leonardtown

Bert Johnston

Defense Aerospace Consultant

Mike Johnston

Director, PAE Applied Technologies

Randy Loyer

Director, PricewaterhouseCoopers

Jackie Marsteller

President/CEO, Marsteller LLC

Ed Rule

President/CEO, Naval Systems, Inc.

Frank Schenk

Federal Account Executive, Autodesk, Inc.

Linda Vasallo

Director of Economic Development, Calvert County

Michael Wick

Provost and Dean of Faculty, St. Mary's College of Maryland

Leslie Taylor
Navy Liason

Executive Director, NAWCAD; Deputy Assistant Commander for Test and Evaluation, NAVAIR

COMMITTEES

BOARD GOVERNANCE

The Board Governance Committee is responsible for ensuring that the board composition and structure is in compliance with the bylaws and contains a diverse group of directors capable of accomplishing the mission and objectives of the organization. The committee provides the Board with periodic review of board composition and terms, identifies new board member candidates, and keeps the Board aligned with its roles and responsibilities and with the organization's purpose.

FINANCE & ADMINISTRATION

The Finance and Administration Committee is responsible for ensuring the organization's financial stability by providing oversight on its budget and investments. The committee's primary role is to provide expertise needed to assure the full Board that the organization is on sound financial footing. To perform this role effectively, committee members need to work as a team with the Executive Director, Finance Director, as well as accountants, auditors, and other financial professionals.

ACADEMIC & OUTREACH

The Academic & Outreach Committee identifies and recommends initiatives and programs that are aligned with our mission and the TPP strategic plan. Committee members provide regional support for STEM education-related activities and identify new opportunities to support workforce development in S&T related fields.

STRATEGIC PLANNING

The Strategic Planning Committee is responsible for developing the organization's mission, vision, and goals through the creation and implementation of a comprehensive strategic plan to be implement by the Board of Directors. The committee regularly reviews the organization's goals to ensure the strategic plan is in alignment with ever changing objectives of the community and Navy partners.

HEADQUARTERS STAFF

Bonnie Green

Executive Director

Sarah Cannavo

Executive Assistant
STEM Outreach Coordinator

MaryKay Myers

Finance Director

Jen Brown

Programs & Membership Director

Kelly Taylor

Staff Accountant

Sarah Ehman

Communications
& Membership Manager

CONNECT WITH US

Sign up for our weekly newsletter to stay up to date on upcoming programs, member news, and opportunities.

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Join us at our programs by registering online at paxpartnership.org.

Become a member to gain access to exclusive member benefits, like members-only programs and events, our online knowledgebase, and our member network of 200 corporate partners and over 3,000 registered members and program participants.

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