

National Small Arms Center Educational Initiative

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Outline

- NSAC educational initiative
- Perception of NSAC within academia
- Advantages of university participation
- Reaching out to academia
- Advantages of multi-university collaboration
- Benefits to NSAC
- Penn State experience
- Structure and scope of a pilot initiative
- Army Research Lab Federated Laboratory concept
- ITAR issues
- Recommendations

NSAC Educational Initiative

- New initiative to significantly involve universities as partners in small arms development
- Seeks to involve cutting edge university researchers in small arms development
- Seeks to promote technological breakthroughs to create new paradigms, as well as help solve existing technical problems, in small arms development

Perception of NSAC within Academia

- NSAC's major objective is to acquire the latest guns and ammo for the warfighter
- NSAC almost always works with companies to improve and develop guns and ammo
- Most of NSAC work is classified and secret
- NSAC rarely works with universities
- NSAC requires research results in the immediate future, usually within six months
- NSAC is simply not interested in basic research at the 6.1 level
- Most of NSAC funded research is ITAR sensitive

Advantages of University Participation

- Provides students with goal-oriented research experience
- Provides faculty opportunities for research leadership and research success
- Provides faculty with opportunities to work on real-world problems of most pressing needs of the warfighter
- Provides DoD scientists with exposure to latest technological innovations
- Encourages all stakeholders to work together to address important problems of immediate DoD relevance

Reaching Out to Academia

- Contacts with University Sponsored Programs offices
- Visits to universities to make presentations
- Posting flyers at academic conferences (through currently funded faculty)
- Working with currently funded faculty to organize special sessions at academic conferences
- Posting grant information on technical society websites of professional societies (such as IEEE, ASME, IIE, SPIE, etc.)
- Providing summer research opportunities for faculty and students at NSAC

Advantages of Multi-University Collaboration

- Each university group has limited expertise to address one aspect of a problem or need
- Holistic approach requires integrating expertise and experience from several (preferably closely located) university groups to address all aspects of a problem or need
- Multiple university groups provide different perspectives and pull in complementary resources with respect to laboratory facilities and faculty expertise
- Multi-university approach is multi-faceted and provides wide ranging experience for faculty and student interaction

Benefits to NSAC

- Ability to tap into the latest and hottest research results and transition these to operational systems quickly
- Ability to reap the next generation scientists and engineers with the experience and expertise to address tomorrow's small arms technical needs
- Ability to make substantial inroads within the academic community by way of word-of-mouth advertisement at the faculty and the student level
- Ability to sponsor needed research at a fraction of the cost of company-funded research

Currently NSAC Funded Universities

- Georgia Institute of Technology
- Lehigh University
- New Jersey Institute of Technology
- Pennsylvania State University
- Stevens Institute of Technology
- University of Louisiana at Lafayette

Penn State Experience

- Visit to Penn State by Mr. Frank Puzycki in 2007.
- Penn State responded with questions and interest
- After several rounds of discussions, Penn State encouraged to respond to NSAC RFPs
- 4-year grant awarded to Penn State in 2009 (supports three graduate students) to develop through-wall and long-range sensors
- 6-month grant awarded to Penn State in 2011 (supports a Research Engineer) to develop active and passive sensors

Pilot Initiative on Multi-University Collaboration

- Pennsylvania State University (Lead Contractor): Will design and develop sensor systems for monitoring and tracking defilade targets
- Morgan State University (HBCU Subcontractor): Will investigate ergonomics aspects of mounting sensors on small arms, such as size, weight, operator-friendliness
- Both universities will collaborate closely in research, development, and graduate student education

ARL Federated

Laboratory concept

- Five Federated Laboratory consortia established by Army Research Laboratory (ARL) in 1995 in following areas
 - Telecommunications
 - Advanced sensors
 - Advanced displays
 - Software
 - Simulation
- Led by industry prime, with a strong major university, a HBCU, and ARL
- Working together on cooperative research projects, synergistic activities, and provide staff rotation

ITAR Issues

- More than 50% of the graduate students in science and engineering in US universities are foreign students on F-1 visas
- Many foreign students come from embargoed countries
- Most, if not all, of weapons and small arms research is ITAR-restricted
- Special (and heroic) efforts must be made to recruit US citizen graduate students
- ITAR-certified laboratory facilities must be established for ITAR-restricted work, accessible only to US citizens

Recommendations

- Universities to join NSATC Consortium so they can respond to NSAC solicitations
- University faculty to become aware of research needs and thrusts related to all aspects of small arms
- University faculty to actively seek out companies engaged in small arms research related to their areas of interest
- Companies to actively seek out university faculty engaged in research that can aid their small arms products
- Companies to fund university research using IRAD funds
- Companies to partner with universities in NSAC proposals



Questions/Comments?