FY 2017 ICTAS Request for Proposals
(ICTAS RFP)

Funding Opportunity – ICTAS Junior Faculty Award (JFA)

ICTAS is soliciting proposals from junior faculty with anticipated funding support beginning July 1st, 2016 (FY 2017). The ICTAS JFA program aims to identify and engage Virginia Tech’s rising stars and support their efforts to develop innovative research programs relevant to ICTAS’ mission of enhancing Virginia Tech’s ability to address large-scale research by crossing traditional discipline boundaries. Applicants are invited to submit a five-page proposal, which will be peer-reviewed and considered for award.

Responsive proposals will demonstrate an interdisciplinary high-risk/high-pay-off research project led by a junior faculty member (tenure-track but not yet tenured). Proposal topics must align with one or more of the ICTAS Solution Spaces or Platform Technologies listed on page 2 of this announcement. Projects proposed for up to two years and $60,000 in annual funding will be considered, with funding during the second year contingent on performance during the initial year. Proposals should clearly outline the goals and milestones for each year. Funded principal investigators (PIs) will be required to report their research progress to an ICTAS internal review committee. The first year report and presentation will take place in the month of April, 2017 (exact date to be notified later). The intent of the review is to provide constructive feedback and changes in direction and budget, if necessary, for successful outcome. For those successful in securing a second year of funding, a final report and presentation highlighting the accomplishments for the full duration of the award, is required (details will be provided to the awardees continuing into the second year). Subject to the availability of funds, in FY2017, ICTAS will support up to 15 JFA awards.

Important Notes:
• Faculty are eligible for only one JFA award (formerly JFC) per pre-tenure period.
• Faculty may serve as PI on only one submission in response to this RFP.
• Faculty should limit the number of proposals on which they serve as Co-PI.
• Proposals that offer only incremental advances upon existing R&D and technologies will be deemed non-responsive to this RFP and will be returned without review.

Further Information:
• Pg. 2: Areas of Interest: Solution Spaces and Platform Technologies
• Pg. 3: Format of Proposals and Submission Process

Expected Timeline for the FY 2017 RFP Program

- **Proposal Submission Deadline:** January 18, 2016 at 5 p.m. EST
- **Panel Reviews:** February 8 – March 4, 2016
- **Award Announcement:** March 25, 2016
Areas of Interest: Solution Spaces and Platform Technologies

*A Solution Space* is a domain within which we strive to develop answers to complex global and societal problems, which elude simple solutions. To this end, ICTAS is soliciting research proposals that combine multi-disciplinary platform technologies, or tools, in synergistic ways that build effective and elegant approaches to solve complex problems in the following five Solution Spaces:

- **Energy and Materials** (D. Grove, 540.231.3353, dgrove@vt.edu)
  Innovative multifunctional materials, devices and systems to enhance energy generation, storage, and distribution.

- **Engineered Health** (M. Hull, 540.231.5812, mahull@vt.edu)
  Engineered platforms to promote health through wellness and early diagnosis/treatment of disease.

- **Food/Energy/Water Nexus** (D. Grove 540.231.3353, dgrove@vt.edu)
  Systems-based approach to understand, model, design, and manage the interconnected resources of energy, water, and food, which incorporate natural, social, and human-built components.

- **Resilience and Climate Change** (J. Beeby, 540.231.2569, usnbb@vt.edu)
  Technologies and approaches that enhance the capacity of human societies to resist and adapt to the adverse effects of natural and manmade phenomena with an emphasis on global climate change.

- **National Security** (C. Tysor, 540.231.9716, ctyso@vt.edu)
  Technologies and systems to meet national security challenges that focus on cyber-security, advanced weapon systems, sensors and sensor networks, and advanced computation.

*A Platform Technology* is defined as infrastructure (hardware and/or software) upon which other technologies and applications can be built. While the above-described solution spaces help define investment priorities, ICTAS also supports high-risk/high-payoff ideas aligned with the following platform technology areas:

- **Nanoscale Science & Engineering** (M. Hull, 540.231.5812, mahull@vt.edu)
  Technologies that harness nanoscale phenomena to impact diverse areas ranging from environment and energy to electronics and computers to aeronautics and space.

- **Emerging Science and Technology** (J. Beeby, 540.231.2569, usnbb@vt.edu)
  New, rapidly developing areas of research with potential to become a significant component of established or emerging solution spaces. Examples currently include bioinspired science and technology and smart manufacturing.

- **Autonomy and Social Robotics** (J. Beeby, 540.231.2569, usnbb@vt.edu)
  Integration of autonomous systems with socially intelligent capabilities that enhance the utility of devices and systems in diverse social situations.

- **Discovery Analytics and Data Visualization** (C. Tysor, 540.231.9716, ctyso@vt.edu)
  Interdisciplinary approaches that tackle knowledge discovery and visualization challenges in critical areas such as intelligence, sustainability, neuroscience, and biology.

General questions about the RFP should be emailed to Matthew Hull at mahull@vt.edu. Faculty members considering submissions to a particular solution space or platform technology are encouraged to contact the designated ICTAS Program Managers.
Format of Proposals and Submission Process

Proposals shall be submitted according to the guidelines specified below. Applicants are responsible for meeting the submission deadline. Proposals received after the deadline will not be reviewed.

Full proposals should be emailed as a pdf file to: ictasrfp@vt.edu.

Full Proposal Guidelines:

• **Text format:** Times New Roman 12pt font (except in figures or tables, which may be 10 point font), black font color
• **Margins:** One (1) inch on all sides
• **Page limit:** The full proposal must not exceed 5 pages, single-spaced, including figures (standard 8.5” by 11” paper). Cover page, two-page bio-sketch, references, and budget justification are not included in the page limit.
• **References:** Must be included as footnotes or endnotes, font size of 10 or larger
• **Cover Page:** The proposal must contain a cover page that includes the following information.

<table>
<thead>
<tr>
<th>Cover Page (not included in the 5 page limit)</th>
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<td>ICTAS RFP: Junior Faculty Awards</td>
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Proposal Title:

Principal Investigator (Name and Dept.)
Co-Principal Investigator(s) (Name(s) and Dept. (s))
Primary ICTAS Solution Space or Platform Technology Area:

• Solution Space – *Energy & Materials; Engineered Health; Food/Energy/Water Nexus; Resilience & Climate Change; National Security*

• Platform Technology Area – *Nanoscale Science & Engineering, Emerging Science & Technology; Autonomy & Social Robotics; Discovery Analytics & Data Visualization*

Technical Abstract (250 Words)

Total Funding Request: (Not to exceed $60K/year for up to 2 years, including fringes)
**Proposal Sections:** Following is a breakdown of the sections comprising the full proposal.

1. **Overview of Problem and Proposed R&D**
   1.1. Project Introduction and Technical Background
   1.2. Project Objectives and Problem Statement
   1.3. Key R&D Goals and Project Milestones
   1.4. Technical Approach
   1.5. Relationship to Ongoing VT and External Research
   1.6. Appropriateness of Approach, Relationship to ICTAS, and Scientific Impact
   1.7. Risk and Likelihood of Success
   1.8. Has any of this work been funded previously? What was the outcome of this effort?
   1.9. Describe how this research proposal is unique, distinguishable from current and previous research efforts.

2. **Resources:** Name Key Research Team Members and their qualifications and expected contributions. Include a statement defining the interdisciplinary contributions of each team member.

3. **Importance**
   3.1. Describe the Anticipated Programmatic Benefit to ICTAS.
   3.2. Identify how this proposal will be used to secure additional funding and potential government agency, industry, or other strategic partners.

4. **References:** Bibliographic information only (*not included in the 5 page limit*)

5. **Two-page Bio-sketch for Lead PI (**not included in the 5 page limit**):**
   5.1 Use the NSF two-page biographical sketch format as a guide.

6. **Budgetary information**
   6.1. This information is **not included in the 5 page limit.**
   6.2. Provide a list of budget line items and costs associated with each item.
      6.2.1. Postdoc salary
      6.2.2. Student (GRA) support (Step \#)
      6.2.3. Wage support
      6.2.4. Total Fringe benefits
      6.2.5. Equipment (list separately for items over $2000); *provide justification*
      6.2.6. Materials and supplies
      6.2.7. Contractual services
      6.2.8. Other (*provide justification*)
      6.2.9. Budget notes
         a) Funds for faculty salary are not eligible for ICTAS seed funding, and must not be included in the proposed budget.
         b) All funds should be budgeted as direct costs (Overhead – indirect costs – is not accepted for ICTAS Seed funding).
         c) The first year report and presentation will take place in the month of April (date to be notified later). The review will form the basis for changes in direction and/or budget, if necessary. For those successful in securing a second year of funding, a final report and presentation highlighting the accomplishments for the full duration of the award, is required (details will be provided to the awardees continuing into the second year).
• **Evaluation Criteria and Selection Process**

Proposals will be grouped by solution space or technology platform for review by panels of faculty with the diverse and complementary expertise required to effectively review interdisciplinary research projects (at least 5 reviewers per panel). Panels will include members of the ICTAS Faculty Advisory Board, directors of ICTAS Centers and Centers of Excellence, former ICTAS awardees, ICTAS Associate Director for Research and Scholarship, Program Managers and other faculty of Virginia Tech as deemed appropriate. The program review committee will manage any potential conflict of interest issues brought to their attention by applicants. Applicants should bring such issues to the attention of a program manager prior to submitting a proposal. Panel reviews will be based on the following criteria with emphasis on intellectual merit, innovation, technical risk and likelihood of success, alignment with ICTAS solution spaces and platform technology areas, and potential for growth and external funding:

- Degree to which the approach, goals, milestones have been clearly described and justified.
- Sufficiency of technical detail for assessing merit of proposed work
- Interdisciplinary collaboration among disciplines
- Extent to which the proposed work is innovative and likely to impact a Platform Technology or yield progress in a Solution Space
- Sustainability of proposed research (in particular, proposals that seek to enhance existing space, facilities and processes at Virginia Tech or lead to fruitful research directions will be well-received)
- Potential impact of the program in creating a new research direction or in advancing the state-of-the-art
- Potential for growth and external funding
- Reasonable link between requested funds (budget details) and proposed outcome
- Probability and impact of success

• **Panel Review Notes**

- Panel review process will emulate the standard NSF style with rankings of Excellent, Very Good, Good, Fair, and Poor
- Rankings will be tabulated for each panel for and presented for consideration and recommendation for funding to the ICTAS Executive Governing Council.
- The specific role of faculty team members in the projects must be clearly defined in the proposal along with a statement defining the interdisciplinary contributions of each team member.