INTELLIGENT INFRASTRUCTURE FOR HUMAN-CENTERED COMMUNITIES

Request for Grant Proposals FY20-21

Submission Due Date: February 20, 2020 (5:00pm EST)

Summary:

Intelligent Infrastructure for Human Centered Communities (IIHCC) Destination Area is committed to transdisciplinary solutions that exist along the interdependencies between humans, community, and infrastructure with the ultimate goal of improving quality of life around the globe. IIHCC brings together and supports teams of faculty and students from across academic disciplines to address particular needs, ranging from large societal problems to industry-specific challenges.

We invite proposals for projects that are creative, innovative, and show strong potential to contribute to IIHCC’s goals and those of its research partners. These grants can be used to pursue a range of transdisciplinary activities, including creative projects, feasibility studies, and preliminary research studies. We will support projects that will ultimately become larger, longer term projects, as well as one-time events or exhibitions that are visible at the national level.

 Eligible Investigators:

All faculty members at Virginia Tech are invited to submit an application and lead a project team.

IIHCC celebrates the critical importance of diverse teams of scholars. We want to encourage the diversity of our research teams as much as possible. IIHCC is dedicated to InclusiveVT — serving in the spirit of community, diversity, and excellence to create a community that nurtures learning and growth for all of its members. See Virginia Tech’s Principles of Community (inclusive.vt.edu) for more information.
**Project Requirements:**

1. The proposal should involve Human Centered Communities plus one or more of the following areas represented by this Destination Area:
   - Energy
   - Robotics & Autonomous Vehicle Systems
   - Smart Design & Construction
   - Ubiquitous Mobility

2. The project’s long term goal should aim to achieve significant positive impact on human society. It is encouraged that research or creative project have an identifiable external stakeholder(s), and the results of the research should provide some form of value to them.

3. Preference will be given to projects led by a IIHCC cluster hire as a PI or who has a significant role on the project (see list attached).

4. Preference will be given to projects that include PIs from two or more colleges.

**Funding Information:**

- Funds may be used to buy out faculty time during the academic year or summer, pending home department approval.
- Funds will not be awarded for conference travel or food.
- Awarded funds will be available Wednesday, July 15, 2020. All project expenses must be posted to Banner within 30 days of the project’s end date.

**Grants Available:**

**A. Open Call for Projects — Grants up to $50,000 each**

IIHCC will fund several transdisciplinary projects, pilot/feasibility studies, and preliminary research. We look for project teams that involve two or more of the IIHCC topic areas listed in this document. Project duration may be for up to one year, beginning Wednesday, July 15, 2020 through June 30, 2021. Awardees are expected to present at the IIHCC TRAIN Talks in fall. And keep in mind that failure IS an option here, so take a chance on something big, something great.

**B. Open Call for Projects — Grants up to $25,000 each**

Same as above, but for projects with smaller scopes.
C. Age-Centered Environments - One award, up to $25,000
In collaboration with the Institute for Society, Culture, and Environment (ISCE) and the Institute for Creativity, Arts and Technology (ICAT), IIHCC seeks to fund a project that addresses age-centered environments. Proposals must align with the transdisciplinary mission of both institutes and the IIHCC. The proposed project should leverage and integrate a unique combination of social science expertise with design and engineering expertise at VT, and have high potential to eventually leverage external resources.

The 4 thematic areas of ISCE are as follows: Global Issues Initiative, Human Development and Health, Risk and Resilience, and Community and Built Environments. More details can be found at https://www.isce.vt.edu/.

ICAT brings artists, designers, engineers, and scientists coming together in a living laboratory that fosters creativity and promotes critical reflection. More details can be found at https://icat.vt.edu.

The awardees are expected to present at the IIHCC TRAIN Talks in fall 2020. As this grant is co-sponsored by IIHCC and ICAT, the awardees are also expected to present their research ideas and outcomes at ICAT Creativity and Innovation Day in Spring 2020 and upon request at ISCE events.

Submission Guidelines:

All applications will be submitted in two parts: a Google Form for team data, and a 5-page proposal PDF.

Step 1: Google Form: https://forms.gle/vnscq8LM9uESG92QA

After you have entered your team data in the Google Form, email a PDF copy of your submission, including cover page (see last page of this document) with all necessary signatures, to Jordan Erisman at jseris44@vt.edu by 5:00 p.m. EST on Friday, February 20, 2020.

Complete Team Information

· PI name, email, and home department

· Team member names, emails, and home departments

· Bios and expertise of team members unique to the project
Current and pending funding of the PI(s)

Budget and budget justification
- Total budget request
- Budget justification and amounts requested for
  1. Student time
  2. Faculty salary time
  3. Equipment, including software requests
  4. Materials and supplies

Step 2: Proposal Document (PDF submission to Jordan Erisman at jseris44@vt.edu): Please address each section in your proposal using Times New Roman 12-point font. Proposal should be limited to five pages, including images. Proposals received without cover sheet signatures will not be considered.

Statement of Need/Project Description
- Listing of research areas involved (see first page)
- Description of the challenge the team is looking to explore
- Linkage to IIHCC mission and goals
- Vision of how this will impact IIHCC
- Where project work will happen and whether technical resources from ICAT are needed

Methods and Strategies
- Describe the activities that will be conducted as part of your project

Goals and Objectives
- Describe the overall outcome your project aims to achieve
- Describe project outputs
- Describe plans for future funding, exhibition, etc.

Plan for Evaluating Project Success
- Describe how you will determine if your project has been successful
- Describe anticipated outcomes and deliverables

Timeline
- Timeline should begin after Wednesday, July 1, 2020 and end by Tuesday, June 1, 2021.

Review Criteria:

The proposals will be reviewed by IIHCC Research Working Group members, and then evaluated based on the following criteria:

1. Intellectual merit and innovation
2. Interdisciplinary nature of the team
3. Correlation to the mission of IIHCC
4. Broader impact of the project
5. Potential channels to advance the proposed research
6. Timeline
7. Clear outcome and deliverables
8. Alignment with project categories and/or themes

After the proposals are reviewed, a member of the proposal team may be asked to make a brief presentation to the review committee.

Awards will be announced by Friday, April 10, 2020.

**Expectations of Funded Projects:**

**Funds:** As an administrative home of IIHCC, ICAT will manage the transfer of funds to the principal investigator’s home department E&G fund upon acceptance of the project. Any unspent funds should be returned to ICAT by May 15, 2020. Please have your departmental fiscal representative contact Melissa Wyers at mwyers68@vt.edu.

**Reporting:** Project mid-report should be submitted to IIHCC by December 15, 2020. A final two- to three-page report that describes project outcomes and how the funds were expended will be submitted to IIHCC no more than 30 days after project completion. A final report template will be provided by IIHCC for completion and will be submitted to Jordan Erisman at jseris44@vt.edu.

**IIHCC, ISCE, and ICAT Engagement:** Representatives from each project are expected to participate in outreach and engagement, including giving a TRAIN Talk. In addition, those receiving an ISCE/ICAT/IIHCC grant are asked to share their work at an ICAT Playdate presentation, as well as to participate in the upcoming ICAT Creativity and Innovation Day in the year the project is funded. Projects may also be considered for display during ICAT’s *Open (at the) Source* exhibition each spring, the Virginia Tech Science Festival, the Science Museum of Western Virginia, school tours, Kindergarten-to-College, and ISCE events as feasible and appropriate.

**Resources:** It is expected that the investigators have all resources (space, equipment, etc.) necessary to complete their project, with the exception of the items and personnel requested in the proposal.

**University policy:** All university policies and procedures must be observed.
Logo: The official Virginia Tech logo can be provided upon request.

Sample Credit Lines: {Title of project} has been made possible in part by a grant from Virginia Tech’s Intelligent Infrastructure for Human Centered Communities (IIHCC) Destination Area.

Publications: Please include the following language on any publications or publicity/marketing materials (VT news releases, etc.) stemming from IIHCC-funded research: “This work has been partially supported by a grant from Virginia Tech’s Intelligent Infrastructure for Human Centered Communities (IIHCC) Destination Area.”

Printed Materials: Printed acknowledgments and publicity materials are expected to carry the Virginia Tech logo. The name of the institute in the logo must be legible and no smaller than five points. If the logo is not appropriate for the design, the credit line may be substituted in an appropriate type size. For large posters, etc., the point size should be correspondingly larger.

Films and Videos: An acknowledgment of support must be included at the beginning and end of each funded program and in all non-broadcast materials related to the project, including any elements of production repurposed for distribution as digital media. IIHCC is to be acknowledged in videos funded as part of an exhibition or other public programs, as well as in films broadcast on television. If the filmmaker intends to vary the design of the credits, IIHCC must approve the new format that is created.

Audio and Radio Materials: An acknowledgment of support must be contained at the beginning and end of each program and in all non-broadcast materials related to the project. IIHCC should be credited for radio programs and for recorded audio tours of exhibitions.

Exhibitions/Workshops: The acknowledgment of support, Virginia Tech logo, and disclaimer language should appear on signage at the entrance to the exhibition or workshop, on brochures and catalogs, and on exhibition or workshop video materials and websites. These requirements apply to the host site for the exhibition or workshop and to all participating venues. It is the grantee’s responsibility to convey this requirement to all venues as part of the contract.

Digital Projects: When possible, hyperlinks must be made between the project and the IIHCC website (https://www.provost.vt.edu/destination_areas/areas_of_focus/da_iihcc.html). All digital projects (including games and apps) released via a third party are also expected to include an acknowledgment of IIHCC support in the promotional description of the project (for example, in the description section of the Google Play or iTunes stores).
Additionally, all digital projects must incorporate the following IIHCC-specific keywords: “Virginia Tech,” “Intelligent Infrastructure for Human Centered Communities (IIHCC) Destination Area,” and “IIHCC.”

**Websites:** Hyperlinks must connect the project’s website and that of the IIHCC website (https://www.provost.vt.edu/destination_areas/areas_of_focus/da_iihcc.html).

**Public Events:** At programs or public gatherings related to the project, IIHCC must be acknowledged orally as a sponsor. Signage at the event must acknowledge IIHCC support.

**Promotion and Advertising:** The design for all print, promotion, and advertising related to the project must be submitted to the director of marketing and communication for approval prior to implementation. All promotion must include the acknowledgment of IIHCC support, and the credit line should be used whenever possible. This includes publicity campaign materials, publications, advertisements, press kits, press releases, wall panels, educational programs, special events, and receptions. Unless there is an agreement with the Provost’s Office to the contrary, all press releases and media pitching will be carried out by LSIE (Learning Systems Innovation and Effectiveness in the Provost’s office), ICAT and ISCE’s marketing teams. The official spokesperson for LSIE is Catherine Amelink, Acting Vice Provost for Learning Systems Innovation and Effectiveness.

**Print and Electronic Use:** Summaries (along with images, clips, screen shots, or the like) of all IIHCC-funded projects must be made available to IIHCC for use in its publications and on its website.
## IIHCC Cluster Hires, August 16, 2019

<table>
<thead>
<tr>
<th>Faculty</th>
<th>Title</th>
<th>Email</th>
<th>College</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acar, Pinar</td>
<td>Assistant Professor</td>
<td><a href="mailto:pacar@vt.edu">pacar@vt.edu</a></td>
<td>COE</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Akannmu, Abiola Abosede</td>
<td>Assistant Professor</td>
<td><a href="mailto:abiola@vt.edu">abiola@vt.edu</a></td>
<td>CAUS</td>
<td>Myers Lawson School of Construction</td>
</tr>
<tr>
<td>Ban, Chunmei</td>
<td>Associate Professor</td>
<td><a href="mailto:Chunmeib@vt.edu">Chunmeib@vt.edu</a></td>
<td>COE</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Bose, Niloy</td>
<td>Professor</td>
<td><a href="mailto:nbose@vt.edu">nbose@vt.edu</a></td>
<td>COS</td>
<td>Economics</td>
</tr>
<tr>
<td>Brand, Alex</td>
<td>Assistant Professor</td>
<td><a href="mailto:ai.brand@vt.edu">ai.brand@vt.edu</a></td>
<td>COE</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Cai, Rebecca</td>
<td>Assistant Professor</td>
<td><a href="mailto:cal@vt.edu">cal@vt.edu</a></td>
<td>COE</td>
<td>Materials Science</td>
</tr>
<tr>
<td>DiMarino, Christina</td>
<td>Assistant Director</td>
<td><a href="mailto:dimaricm@vt.edu">dimaricm@vt.edu</a></td>
<td>COE</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Dong, Dong</td>
<td>Assistant Professor</td>
<td><a href="mailto:donad@vt.edu">donad@vt.edu</a></td>
<td>COE</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Duarte, Juliana Pacheco</td>
<td>Assistant Professor</td>
<td><a href="mailto:pachecoduarte@vt.edu">pachecoduarte@vt.edu</a></td>
<td>COE</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Haley, Vincent</td>
<td>Associate Professor</td>
<td><a href="mailto:vincent@vt.edu">vincent@vt.edu</a></td>
<td>CAUS</td>
<td>School of Architecture + Design</td>
</tr>
<tr>
<td>Hauptman, Jonas</td>
<td>Assistant Professor</td>
<td><a href="mailto:jonah@vt.edu">jonah@vt.edu</a></td>
<td>CAUS</td>
<td>School of Architecture + Design</td>
</tr>
<tr>
<td>Jeon, Philart</td>
<td>Associate Professor</td>
<td><a href="mailto:myouna@vt.edu">myouna@vt.edu</a></td>
<td>COE</td>
<td>Industrial and Systems Engineering</td>
</tr>
<tr>
<td>Lind, Elena Spinei</td>
<td>Assistant Professor</td>
<td><a href="mailto:edlind@vt.edu">edlind@vt.edu</a></td>
<td>COE</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Liu, Chen-Ching</td>
<td>Professor</td>
<td><a href="mailto:ccliu@vt.edu">ccliu@vt.edu</a></td>
<td>COE</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Liu, Lingja</td>
<td>Associate Professor</td>
<td><a href="mailto:jliu@vt.edu">jliu@vt.edu</a></td>
<td>COE</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Martin, Eileen</td>
<td>Assistant Professor</td>
<td><a href="mailto:eileen@vt.edu">eileen@vt.edu</a></td>
<td>COS</td>
<td>Mathematics</td>
</tr>
<tr>
<td>Meadows, Joseph</td>
<td>Assistant Professor</td>
<td><a href="mailto:josephj@vt.edu">josephj@vt.edu</a></td>
<td>COE</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Mehrizi-Sanj, Ali</td>
<td>Associate Professor</td>
<td><a href="mailto:mehrizi@vt.edu">mehrizi@vt.edu</a></td>
<td>COE</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Paige, Frederick</td>
<td>Assistant Professor</td>
<td><a href="mailto:fredp@vt.edu">fredp@vt.edu</a></td>
<td>COE</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Roofigari-Esfahan, Nazila</td>
<td>Assistant Professor</td>
<td><a href="mailto:nazila@vt.edu">nazila@vt.edu</a></td>
<td>CAUS</td>
<td>Myers Lawson School of Construction</td>
</tr>
<tr>
<td>Rosa, Benjamin</td>
<td>Assistant Professor</td>
<td><a href="mailto:bros@vt.edu">bros@vt.edu</a></td>
<td>COS</td>
<td>Economics</td>
</tr>
<tr>
<td>Ruiz Gel, Enrique</td>
<td>Professor of Practice</td>
<td><a href="mailto:enric@vt.edu">enric@vt.edu</a></td>
<td>CAUS</td>
<td>School of Architecture + Design</td>
</tr>
<tr>
<td>Sarlo, Rodrigo</td>
<td>Assistant Professor</td>
<td><a href="mailto:sarlo@vt.edu">sarlo@vt.edu</a></td>
<td>COE</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Son, Chang Min</td>
<td>Professor</td>
<td><a href="mailto:changminson@vt.edu">changminson@vt.edu</a></td>
<td>COE</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Stamm, Marcelo</td>
<td>Professor</td>
<td><a href="mailto:mstamm@vt.edu">mstamm@vt.edu</a></td>
<td>CAUS</td>
<td>School of Architecture + Design</td>
</tr>
<tr>
<td>Zhang, Yu Hao</td>
<td>Assistant Professor</td>
<td><a href="mailto:yuzhang@vt.edu">yuzhang@vt.edu</a></td>
<td>COE</td>
<td>Electrical and Computer Engineering</td>
</tr>
</tbody>
</table>