



Center of Excellence in Applied Computational Science & Engineering (CEACSE)

## Centers of Excellence Grants Program

Proposal Submission Deadline: 5:00pm on October 15, 2020  
RFP Version 1.1 (revised August 4, 2020)

### Purpose and Overview

The Center of Excellence in Applied Computational Science and Engineering (CEACSE) is issuing a call for research proposals for FY 2022. The strategic goal of CEACSE is to provide seed funding to enhance and expand UTC's strength in all aspects of applied computational science and engineering, thereby gaining national recognition for the SimCenter as a premier multidisciplinary research and education center for applied computational science and engineering.

CEACSE funds will be awarded on a competitive basis via a review of the six funding criteria (p. 5 of this RFP) for each proposal. The primary goal of this program is to enable strategic development of **new capabilities and extramural projects in the area of Computational Sciences** and to assist PIs in moving from internal seed funding to external grant funding. Any proposal that does not require significant computational modeling and simulation, big data, machine learning, and/or analytics will be **returned without review**.

Proposals will be double-blind peer reviewed by domain experts from other 4-year universities and scored based on scientific merit, capacity building, and strategic excellence. We will be looking for proposals that fulfill the following three key goals:

1. Relate to modeling and simulation, big data, machine learning, and/or analytics
2. Will result in high-impact, peer-reviewed publications
3. Can "seed" larger, long-term extramural funding

There are eight priority areas for funding, aligned with the research areas of the SimCenter: Advanced Modeling & Simulation, Cybersecurity & Cyber-physical Systems, Digital Twins, Energy, Environment, Extreme Systems, Health & Biological Systems, High-Performance Computing & Algorithms. Projects outside these areas are eligible for funding, provided they are oriented toward the key goals listed above. Proposals that leverage community assets/partners are strongly encouraged.

Additionally, projects related to Smart Cities & Urban Dynamics may be proposed if they align with the mission of the [Center for Urban Informatics and Progress \(CUIP\)](#). PIs interested in this area should seek written approval from the CUIP director, Dr. Mina Sartipi ([mina-sartipi@utc.edu](mailto:mina-sartipi@utc.edu)). Dr. Sartipi will not prevent a PI from submitting a proposal that she determines has poor fit with CUIP; instead, she will suggest another appropriate area of application.

UTC professors at all tenured and tenure-earning ranks may apply as PIs and co-PIs. The maximum individual award amount is \$100,000. The start date for all projects will be July 1, 2021. The budget period will be 12 months (July 1, 2021 – June 30, 2022).

## Application Details and Requirements

The following requirements apply to all applications and should be read carefully.

### Eligibility

Tenured or tenure-track faculty from all disciplines are eligible to serve as PI or co-PI. **A faculty member may be a member of the research team on up to 3 proposals but may only serve as PI on 1 proposal (co-PI on 3 proposals, or co-PI on 2 and PI on 1, etc.).** If a faculty member is found to be in violation of this limit, excess proposals will be returned without review, based on order of submission.

### Resubmissions

Any PI may resubmit a declined proposal from an earlier CEACSE or other competition, provided it does not duplicate current or previously awarded funding. Resubmissions from a prior year of CEACSE competition **must** include an additional page (Appendix A: Resubmission Clarifications) to highlight how the proposal has changed since the original submission.

### Award and Duration

Budget requests should not exceed \$100,000. The start date for all projects will be July 1, 2021. The budget period will be 12 months (July 1, 2021 – June 30, 2022). Please plan a project that can be completed within the project period. No-cost extensions will not be offered; extensions will require a formal supplemental proposal for re-award of some or all unused funds in FY 2023. **Such extensions are strongly discouraged and will be rare.**

### Use of Funds

Requested funds must be used solely to carry out the research project as outlined in the proposed budget. Budgets must be well justified and appropriate to the type and extent of the proposed project; they will be carefully evaluated for their feasibility. Once a project is awarded funding, changes in scope, or budget revisions of more than 10% per line item (or more than \$10,000), will require prior approval. Send budget change requests to Anna Lane ([anna-lane@utc.edu](mailto:anna-lane@utc.edu)), to be approved by Dr. Tony Skjellum, SimCenter director.

### ***Allowable costs include the following:***

- PhD student assistantship (stipend, tuition, health insurance) **[see note below]**
- MS student assistantship (stipend, tuition, health insurance) **[see note below]**
- Undergraduate or MS student hourly wages
- UTC faculty or staff course release/replacement costs
- Up to two months of UTC faculty summer salary
- Other personnel costs
- Fringe benefits associated with requested salary/wages/stipends
- Equipment (items valued at \$5,000+) **[may not make up more than 30% of the total budget]**
- Software
- Travel
- Publication fees
- Materials and supplies
- Sensitive minor equipment (items valued at \$1,500+)

**Unallowable costs include the following:**

- Extra services compensation during the academic appointment term
- Non-student administrative or clerical support costs
- Indirect or F&A costs
- Supplantation of costs (e.g., lab space) typically covered by other institutional sources

**Note on Graduate Assistantship Funding:** All proposals that fund graduate students with assistantships MUST include (1) a stipend of at least \$21,000 per calendar year for PhD students or (2) at least \$18,000 combined for the academic year and hourly summer support for MS students. Please note that PhD students must be funded for the full twelve months; only MS students may be budgeted hourly. In addition to stipend, PIs must budget for tuition remission and health insurance for both PhD and MS students on assistantships, per the following table:

Budget Item	Cost
Tuition for students in the Rollins College of Business or the College of Engineering & Computer Science	\$5,657 [per long semester] + \$3,727 [per summer, for PhDs only] + 3% projected annual increase
Tuition for all other students	\$5,135 [per long semester] + \$3,379 [per summer, for PhDs only] + 3% projected annual increase
Health insurance for all students	\$2,124 [per calendar year] + 3% projected annual increase

Note: Tuition and insurance MAY NOT be budgeted for hourly MS students, including in the summer.

**Application Process**

Each application must follow the requirements outlined in this section, also available on the CEACSE webpage (<https://www.utc.edu/simcenter/ceacse/ceacse-funding-opportunity-overview.php>).

**Full Application**

Applications are to be submitted as **TWO PDF files**, plus the Excel budget file, to the internal review team ([ceacse@utc.edu](mailto:ceacse@utc.edu)) by 5:00 pm Eastern time, Thursday, October 15, 2020. All PDF documents should be sized for 8.5 in. x 11 in. paper, in one column, with 1 in. (2.54 cm) margins and 11pt type minimum (e.g., Times New Roman). (If Arial is used, the minimum size is 10pt.) The email subject should include “CEACSE FY2022 Submission,” the PI’s last name, and the proposal’s short title.

1. The first PDF file, which will only be seen by the internal review panel, will include the following:
  - A CEACSE **Cover Form** signed by the Lead PI’s department/unit head (p. 7 of this RFP; also available as a separate fillable PDF on the CEACSE webpage: <https://www.utc.edu/simcenter/ceacse/ceacse-funding-opportunity-overview.php>)
  - A list of the PI’s current (active) and pending (proposed) funding. Any format is welcome; template available upon request.
  - A **Curriculum Vitae** for each investigator, two (2) pages each. These CVs should meet current NSF Biosketch criteria. Template available upon request.

- **OPTIONAL** but encouraged: A list of individuals to exclude from reviewing the proposal, based on the research team's personal and professional conflicts of interest
  - **For applicants resubmitting a prior CEACSE proposal ONLY:** A one-page **Appendix** that explains how the PI has updated the proposal. This requirement does not apply to proposals previously submitted to external sources, and no other proposals may include an appendix.
2. The second PDF file will be sent to external reviewers, so it should not include any identifying information. This second PDF will include the following:
- **A Proposal Summary Page and Narrative** describing the proposed research within the context of the review criteria. This section should include the following components:
    - A single-spaced summary page that describes the proposal (importance, timeliness, and team qualifications), Intellectual Merits, Broader Impacts, and Keywords. This page is identical to the Project Summary on an NSF proposal and is separate from the abstract required on the Cover Form.
    - A proposal narrative of up to seven pages that answers the following questions:
      - i. What are the innovative claims of the research?
      - ii. What are the broader impacts of the research (interpersonal, societal)?
      - iii. What is the originality of the work compared to others?
      - iv. What is the technical approach?
      - v. How will this proposal develop findings that enable the PI to pursue follow-on external funding (which will then be described in the Extramural Funding Plan)?
      - vi. What are the specific roles of each PI, co-PI, student, and other personnel included in the proposed project?
      - vii. What will be the end product of the proposed project?
      - viii. What are risks associated with the proposed project (e.g., validity, timing)?
    - A references list (not counted in the seven-page limit)
    - **To assist in the double-blind review process, the proposal summary and narrative should avoid using any personnel names or gendered pronouns.** Contact Bailey Kirby ([bailey-kirby@utc.edu](mailto:bailey-kirby@utc.edu)) for assistance with this portion of proposal development.
  - An **Extramural Funding Plan** of up to one page in length. This document should include the following components:
    - A detailed plan to obtain extramural funding after completion of the proposed effort
    - A list of potential sponsors and funding programs to sustain/extend proposed activities
    - A timeline and benchmarks associated with seeking external funds
    - A brief narrative description of each funding opportunity and how it is a good fit for the described research
3. The third file is a **Budget & Justification**, in .xlsx format, using the template available on the CEACSE webpage.....

### Important Notes

All applicants should carefully consider the following additional points:

- 1) CEACSE funds cannot be used to supplant funds or resources that come from other sources.
- 2) When relevant, investigators are strongly encouraged to submit IRB and/or IACUC applications when they submit their proposals to minimize delays in initiating funded projects.

- 3) The Extramural Funding Plan is a critical element of the proposal and the review process. It must be strong, realistic, and carefully considered to be competitive. At the end of the award period for funded projects, Bailey Kirby will follow up with the PI on proposed external funding plans.

### **Application Assistance**

CEACSE information and FAQ sessions will be held on September 11, 2020, and September 15, 2020, likely via Zoom. SimCenter staff will outline best practices, answer project-specific questions, and offer general guidance on the program. All are welcome, and PIs who are unsure about applying are strongly encouraged to attend. Email Bailey Kirby ([bailey-kirby@utc.edu](mailto:bailey-kirby@utc.edu)) for budget assistance before proposal submission. No other assistance, including help with writing, will be provided. **One exception:** if the PI agrees, a SimCenter graduate assistant will proofread proposals after they are submitted and before they are sent out for review, with the goal of reducing reviewer focus on typos.

### **Selection Criteria for Funding**

All projects proposed must be capable of being conducted within the one-year timeframe and must fulfill the other award constraints noted above in the “Application Details and Requirements” section. Applications will undergo double-blind peer review, conducted by a mix of faculty from other 4-year universities with expertise in content areas and in computational science and engineering. Reviewers will assign a merit score to each proposal based on the selection criteria, below. Funding decisions will be made by a UTC internal panel that includes Dr. Joanne Romagni (Vice Chancellor for Research) and Dr. Tony Skjellum (SimCenter Director). To make final funding decisions, this internal panel will consider review scores, compatibility with institutional initiatives, and likely project success.

Proposals will be reviewed and scored based on the following criteria:

1. **Intellectual Merit.** Proposals should demonstrate scientific merit in their relevant field(s).
2. **Broader Impacts.** Proposals should demonstrate engagement with an audience outside of the immediate scientific community, including mentoring of graduate students.
3. **Importance.** Proposals should be original, significant, timely, and/or transformative.
4. **Further Funding Potential.** Proposals should document a strong potential to directly transform anticipated results into **new** extramural funding initiatives.
5. **Realism.** Proposals should include a work plan and budget that are feasible and closely aligned; the budget should reflect the scope of the proposal.
6. **Strategic Excellence [considered by the internal review panel only].** Proposals should clearly articulate how the project aligns with strategic goals of the department, college, and institution. Included here is impact on PhD production.

Any PI uncertain as to whether their research project can meet the above criteria should contact Dr. Tony Skjellum ([tony-skjellum@utc.edu](mailto:tony-skjellum@utc.edu)) **before preparing an application.**

## Award Requirements

CEACSE awards represent a significant investment from the institution. By submitting a proposal and accepting an award, awardees agree to fulfill the required terms and conditions.

### Budget & Award Management Requirements:

The PI is responsible for monitoring and managing the award budget, in collaboration with departmental Administrative Specialists and the Department Head. The PI is also responsible for ensuring that fund “spend rates” are appropriate across the period of performance of the project to complete the project activities on time and within budget. This responsibility will include developing mechanisms with collaborators to monitor the project budget and expenditures. Any violations of budget policies will result in chargebacks to the PIs’ department(s).

### Meetings & Reporting Requirements

PIs are expected to complete the following activities if they receive funding:

- Participate in an orientation session to be held in August 2022
- Submit a brief status report (using the attached form) each quarter to Bailey Kirby ([bailey-kirby@utc.edu](mailto:bailey-kirby@utc.edu)). **Due dates:** October 1, 2022; January 1, 2022; April 1, 2022
- Participate in one midterm CEACSE award meeting to share progress with Dr. Skjellum on the research activity, discuss challenges or opportunities, etc.
- Present on research activities at the annual ReSEARCH Dialogues conference in April 2022
- Submit a final report within 30 days of the award closing that provides a comprehensive summary of project activities and specific future funding plans

### External Grant Submission Requirement

A key requirement of the award is that the research team prepare and submit at least one competitive grant proposal to an external funding source based on CEACSE-funded activities. The research team should plan to work with Sam Stanley ([sam-stanley@utc.edu](mailto:sam-stanley@utc.edu)) or Todd Doman ([todd-doman@utc.edu](mailto:todd-doman@utc.edu)) in the Office of Research and Sponsored Programs, Bailey Kirby in the SimCenter ([bailey-kirby@utc.edu](mailto:bailey-kirby@utc.edu)), and/or Ashley Ledford ([ashley-ledford@utc.edu](mailto:ashley-ledford@utc.edu)) in the College of Arts and Sciences **well in advance** of the grant deadline. Proposal documents are expected to be developed with sufficient time to allow for at least one review and critique by an external expert (compensated with funds outside the award amount, provided by the Vice Chancellor for Research).

### Individual and Unit Responsibilities

The project PI is responsible for conducting research in a responsible, ethical manner compliant with the UTC faculty handbook; tracking expenditures; fulfilling reporting requirements; supervising students, if any; publishing research; and applying (or planning to apply) for external grant funding. The PI must also ensure that any required IRB and IACUC approvals are completed before the project begins. The PI’s department head is responsible for acknowledging the PI’s time commitments for this project and authorizing course releases, if any. The PI’s dean is responsible for covering all chargebacks to the PI’s department in the case of budget violations or other financial issues.

# CEACSE Grants Competition FY 2022: Application Cover Page

Project Information			
<b>Lead Principal Investigator:</b>			
<b>Collaborating Investigator(s):</b>			
<b>Title of Project:</b>			
<b>Research Area</b> (see list on p. 1 of RFP):			
<b>Abstract</b> (200-word limit, with no special symbols):			
<b>Funds Requested:</b> \$			
<b>Compliance Requirements</b> (if applicable):	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Human Subjects (IRB review needed)  <input type="checkbox"/> Export Control  <input type="checkbox"/> Intellectual Property                 </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Use of animals (IACUC review needed)  <input type="checkbox"/> Conflict of Interest*  <input type="checkbox"/> Additional Space or IT Resources Needed*                 </td> </tr> </table>	<input type="checkbox"/> Human Subjects (IRB review needed) <input type="checkbox"/> Export Control <input type="checkbox"/> Intellectual Property	<input type="checkbox"/> Use of animals (IACUC review needed) <input type="checkbox"/> Conflict of Interest* <input type="checkbox"/> Additional Space or IT Resources Needed*
<input type="checkbox"/> Human Subjects (IRB review needed) <input type="checkbox"/> Export Control <input type="checkbox"/> Intellectual Property	<input type="checkbox"/> Use of animals (IACUC review needed) <input type="checkbox"/> Conflict of Interest* <input type="checkbox"/> Additional Space or IT Resources Needed*		
<i>*Conflict of Interest and Space issues must be resolved prior to submitting the proposal.</i>			
<b>Approval Signature – Lead PI</b>			
<i>By signing here, the Lead PI agrees to provide technical/financial oversight and required reporting if the project is funded and also acknowledges that funding decisions, made under the Office of Vice Chancellor for Research, are final.</i>			
<b>Lead PI:</b> _____	_____		
<i>Signature</i>	<i>Date</i>		
<b>Approval Signature – Lead PI Department</b>			
<i>By signing here, the Lead PI's Department/Unit Head agrees to provide oversight/administrative support if the project is funded and acknowledges that funding decisions, made under the Office of Vice Chancellor for Research, are final.</i>			
<b>Lead PI Department/Unit Head:</b> _____	_____		
<i>Signature</i>	<i>Date</i>		