

2023 EXPLORATORY FUNDS COMPETITION TO SUPPORT INTEGRATIVE RESEARCH ACTIVITIES

CALL SYNOPSIS AND RESEARCH PRIORITY

The Center for the Advancement of Wearable Technologies (CAWT) is calling for research project proposals that foster integration of research accomplishments from all CAWT Interdisciplinary Research Groups (IRGs). A maximum of 2 projects are expected to be funded for 1 year, pending on the level of competitiveness of the proposed activities (i.e., intellectual merit) and the availability of funding. Funds could be used for procurement of materials, publications, small instrumentation (less than \$5k),* and student stipends. This call is aimed at projects that integrate all WT components: sensor, power, and artificial intelligence (AI)/machine learning (ML). In addition, priority for funding will be given to projects aligned to the use-case of cardiorespiratory disease care identified by the CAWT under the advice of the CAWT's Network of Physicians (NP).

* NSF does not allow for procurement of major pieces of instrumentation from federal funding and not specified in the original Track 1 Grant Cooperative Agreement.

SUBMISSIONS AND ABSOLUTE DEADLINE

Proposals and the associated documentation should be submitted as a single PDF file to the attention of Mrs. Yeiza Hernández via email: yeiza.hernandez@upr.edu. The absolute deadline for submissions is **Wednesday, January 10, 2024, at 5:00 PM or earlier**. No submissions will be accepted after this deadline.

ELIGIBILITY

The team of proposers must include researchers from all three CAWT IRGs. Also, the principal (PI) and any co-principal investigators (Co-PIs) must be active members of the CAWT at the moment of submission.

INTRODUCTION

Overall Goal: To build the research infrastructure for the engineering of technologies for wearable devices. This will be accomplished through a \$150K integrative WT research grant that could be used for:

- 1) recruitment of graduate students and to foster collaborations with faculty members, and
- 2) support integrative research activities that involve all three CAWT IRGs, with priority for the area of cardiorespiratory care

The objective of the exploratory research grants within CAWT is to provide “seed” funding for the development of novel and innovative ideas that will provide the means to obtain preliminary results for collaborative proposals between CAWT members. Specifically, exploratory research grants are intended to:

- 1) Leverage integrative collaborations within the CAWT/IRGs and use of CAWT facilities.
- 2) Be catalytic in seeking competitive (federal) funding.
- 3) Translate to high-risk/high-payoff research work.

- 4) Be within the scope of the NSF CAWT cooperative agreement, strategic plan and recommendations of the NSF Reverse Site Visit panel.
- 5) Lead to tangible outcomes.
- 6) Capitalize on existing CAWT resources.

The participation and inclusion of members from all three CAWT IRGs are mandatory in this competition. Evaluation priority will be given to those proposals that also contain at least one junior faculty (defined as a faculty member that does not possess a rank of full professor).

The exploratory seed funds will be used to foster integrative research activities in sensing, power and AI/ML, and use-cases identified by the CAWT per advice from its NP (see above). A total of 1-2 projects are expected to be funded per year. Funds can be used for materials, publications, small instrumentation (less than \$5k)*, travel to conferences, and student research stipends.

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PROPOSAL CONTENT

FORMAT:

The proposal should not exceed 15 pages. The document should be formatted using margins in all the directions that are at least 1 in and font Arial with at least size 11. The 15 pages should only include the project description, innovation, summary of products from previous CAWT Exploratory Funds (any member among the team of proposers who was involved in any previous CAWT Exploratory Grant must provide this information), relevancy statement, group description, research plan, outcomes, and budget/justification.

COVER LETTER (1 PAGE MAX, NOT INCLUDED WITHIN THE 15 PAGE LIMIT)

Each proposal must contain a cover letter, addressed to the CAWT Project Director, highlighting the important aspects of the proposal.

1.TITLE

Should be located at the top of the first page of the proposal. Below the title the names of the faculty members, each along with corresponding IRGs and organizations names. Make sure that you distinguish which faculty member will serve as PI of the proposal.

2.PROJECT DESCRIPTION

This should be a description of the project, the challenge(s) related to **integration** it intends to address, and the preliminary hypothesis of the proposed work. It should also include the **intellectual merit** (encompasses the potential to advance knowledge) and the **broader impact** (encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes).

3.INNOVATION

This section intends to briefly describe the innovative aspect of the integrative project. Some questions that can be used to guide the discussion are, but not limited to: (i) Does the application challenge and seek to shift current research paradigms by utilizing novel theoretical concepts,

approaches or methodologies, instrumentation, or interventions? (ii) To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts? (iii) Does the project address an important problem or a critical barrier to progress in the field? (iv) Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense?

4. SUMMARY OF WORK FROM PREVIOUS EXPLORATORY FUNDS (IF APPLICABLE; MAX 0.75 PAGE)

Provide a brief summary of the main outcomes and products of any previous CAWT Exploratory Grants. Any member among the team of proposers who was involved in any previous CAWT Exploratory Grant must provide this information.

5. CAWT RELEVANCY STATEMENT

The proposal must address:

- How this project catalyzes the CAWT efforts for the integration of all the three relevant areas: sensor, power and AI/ML?
- How will this project capitalize on existing CAWT resources?

6. RESEARCH PLAN

Provide a brief summary of how the proposed research will be conducted, which can include methodologies, etc. Make sure that the proposed research activities can be conducted within the time scale of the proposal (i.e., 1 year).

7. PROJECT OUTCOMES

Provide both scientific outcomes, as well as which agency/programs will the results of this project be submitted for full funding and in what time frame.

OTHER REQUIRED DOCUMENTS (EXCLUDED FROM THE 15 PAGE LIMIT):

8. REFERENCES

Provide all necessary references in any appropriate format.

9. BUDGET AND BUDGET JUSTIFICATION NARRATIVE

The proposal can request up to \$150,000 in funds that should be used for students, domestic travel to conferences, materials, publications, or any small equipment (<\$5,001 including shipping and handling, and commissioning / installation)* that is fully justified. **Proposers must use the budget form included with this call.** In addition, proposers must provide a budget justification narrative justification for all the budget lines requested. **Indirect costs are not allowed in budgets for CAWT Exploratory Funds proposals.** All procurement activities will be handled at UPR Central Administration.

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10. MANAGEMENT PLAN (1 PAGE MAX)

This section must include a Gantt chart, which should include only the proposed milestones, tasks, and outcomes, the time frame for each task and outcome, and the person responsible for it. Also, it should include a paragraph providing an explanation of the roles, expertise, and responsibilities of each member of the team. The proposal must address how well qualified the team is to conduct the proposed integrative research activities. If a junior faculty member is part of the team a brief description of his/her development plan should be included.

11. REVIEWERS LIST

Provide a list of 3-4 potential reviewers. Please ensure that there are no conflicts of interest with the proposed reviewers as defined by NSF.

Incomplete applications will be disqualified and will not be considered for funding.

AWARD REQUIREMENTS

Awardees will be required to submit mid-term (at 6-month mark) and final progress (12-month) reports that will be evaluated by the CAWT executive team. Awardees will need to also submit any other information related to the proposed work whenever required by the PD. CAWT reserves the right to terminate an award at any time if no progress in procurement and/or in the obtention of research products is made.