

AFRICAN ENGINEERING AND TECHNOLOGY NETWORK (AFRETEC)

CALL FOR PROPOSALS – SEED GRANTS

INCLUSIVE DIGITAL TRANSFORMATION OF AFRICA

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Carnegie Mellon University Africa (CMU-Africa) in support of the African Engineering and Technology Network (Afretec) is launching a call for collaborative seed research proposals to build research capacity in the fields of engineering and technology to accelerate and support the inclusive digital transformation of Africa. This initiative is aligned to the Afretec goal to drive inclusive digital growth on the African continent. The seed grants will support research related to digital technologies such as artificial intelligence (AI), machine learning, information and communication technology, cyber security and so on. A special focus will be placed on research with the potential for impact in Africa in the Afretec knowledge creation clusters areas of

1. Health
2. Environment and Sustainability
3. Energy

As well, a focus is placed on early career researchers and projects that impact diversity, equity and inclusion.

Dates and Details

Start Date: June 1, 2024

Award Period: up to 12 months

Disciplines: Multi-institution collaborative Engineering and Technology research projects related to the inclusive digital transformation of Africa

Maximum Award: \$50,000

Estimated Awards: It is expected that a total of 11 grants; up to 3 grants will be awarded per research cluster and up to 3 in other research areas depending on the quality of submissions and availability of funds.

Submission Deadline: Friday, January 26, 2024 at 17:00 Central African Time

Submission Procedure: Proposals are to be submitted via this submission portal by the above Submission Deadline:

<https://cmu.infoready4.com/#viewApplicationForm/1925152>

Background and Context

Africa has some of the fastest-growing economies in the world, often driven by the digital transformation of these economies and societies. Africa is home to the fastest-growing workforce in the world. These transformations present novel opportunities for research and application of digital technologies such as AI, machine learning, information and communication technology, cyber security and so on.

To assist in driving the inclusive digital transformation of Africa, Afretec aims to build a digital knowledge creation ecosystem that expands technology development and job-creating innovation. This initiative was created to generate and expand innovative African-focused research that responds to critical challenges on the continent with the support of African and international researchers. This will be achieved by supporting multi-institutional research collaborations that work on uniquely African challenges and solutions in the fields of engineering and/or technology.

One of the primary objectives of the Digital Knowledge Creation Ecosystem is to create and encourage research collaborations that seed research and allow research teams to attract, enhance and develop further research and/or practical solutions for Africa. The knowledge creation ecosystem aims to provide a platform for researchers to engage in exciting and topical research, share best practices, enhance research capability, and encourage multi-institutional research collaboration that contributes towards driving the inclusive digital transformation of Africa.

The Opportunity

CMU-Africa, in support of Afretec, is offering research seed grants to promote the creation of multi-institution research teams that include researchers from at least two members of the Afretec network. These grants are available for research teams to form, identify and develop research projects in areas that drive inclusive digital growth in Africa and lead to job creation. The purpose of these teams is to support planning activities that aid prospective research teams in preparing for proposal submissions to external funding opportunities and build momentum toward a sustained research program. Proposed research projects must be cross-university collaborations that focus on innovative approaches and apply digital technologies to African challenges.

AREAS OF FOCUS

While the selected research projects should build on underlying engineering, technology, and science in areas such as artificial intelligence, machine learning, robotics, information technology, and cyber security, it needs to be firmly rooted in developing and preparing Africa for digital transformation, job creation, and socio-economic impact. Example impact areas include (with special emphasis on the three highlighted areas):

- ***Health**
- ***Environment and Sustainability**
- ***Energy**
- Agriculture
- Education
- Financial Inclusion

- Infrastructure
- Manufacturing
- Transportation
- Waste Systems
- Water Systems

Projects that focus on digital technologies in these areas that support gender inclusion, people with disabilities, refugees and internally displaced persons are especially encouraged. The above list is not exhaustive and other application areas (e.g., as suggested by the Sustainable Development Goals (<https://sdgs.un.org/>) related to inclusive digital transformation that can make a positive socio-economic impact in Africa as well as lead to job creation will be considered.

ELIGIBILITY

- Proposals must be submitted before the submission deadline (see page 1)
- Applicant teams must consist of Principal Investigator (PI) researchers from at least two Afretec member universities. The current list of Afretec Members are as follows (listed alphabetically):
 - The American University in Cairo
 - Carnegie Mellon University
 - University of Lagos
 - University of Nairobi
 - University of Rwanda
 - University of Witwatersrand
- Additional PIs from non-Afretec African universities¹ are eligible to be part of the application team and receive funding under this seed grant. Additional institutions that are not African universities can be engaged but cannot receive any resources through the seed grant.
- A researcher can serve as a lead PI for their university on only one Inclusive Digital Transformation Research Grant Seed Grant proposal. A person can be a PI or co-PI on only one active Afretec-funded research grant or seed grant at a time.

EVALUATION CRITERIA

A successful seed grant proposal must:

- Target a research problem that contributes to advancing the development or application of engineering or technology such as AI, machine learning, information and communication technology, cyber security, and so on.
- Connect the research to driving inclusive digital growth that will lead to socio-economic impact on the African continent in one or more of the areas of focus and identify possible opportunities for job creation on the African continent.
- Be a PI team with members from at least two different Afretec members.

¹ African universities include public or private institutions with headquarters in Africa and with a primary mission of education at the Bachelors, Masters, or Ph.D. level.

- At least one of the PI team members must be an Early Career Researcher. An ECR is a post doctoral fellow and/or faculty member at an Afretec partner university within the first ten years after their PhD.
- Articulate a sustainability plan including plans for future research and funding beyond the seed grants.
- Describe expected outcomes and the impact of the proposed research.

FUNDING DETAILS AND GUIDELINES

The maximum total funds that may be requested per project proposal and the maximum duration of the project are listed on page 1. Project funds may be used for the following purposes:

- Employee Salaries: Salary support for PI, post-doctoral fellows, graduate students, undergraduate students, and technicians. Salary amounts are commensurate with the proposed effort and according to each university's compensation policies. The positions and individuals holding them should be identified when possible.
- Employee Fringe Benefits: Personnel benefit rates may not exceed 25% of the salary for full and part-time employees. Each university must provide justification of their fringe benefit rates based on institutional accounting.
- Professional Fees: Professional and contractor services to carry out the project.
- Travel Costs: Transport and accommodation to carry out the project including fieldwork, student and faculty exchanges, and project meetings. These are actual costs and not per diems. Cost estimates should be detailed in the justification (e.g. "\$400 airfare, 3 days at \$100/day lodging, \$50 ground transportations, meals covered by the conference, total = \$750 per person").
- Project Specific Expenses: These include
 - Tuition: Student tuition support is capped at actual tuition or \$20K/student/year whichever is lower.
 - Organization of meetings, workshops, symposium.
 - Materials and supplies costs that are specifically required for this particular project and are required in the direct performance of the research. These expenses include applicable laboratory supplies and computers costing less than \$1000/unit.
 - Publication Costs/Documentation/Dissemination. Publication costs to Scopus categorized Q1 and Q2 journals can be charged to the project.
- Capital Assets over \$1000/unit: Capital equipment that must be acquired to conduct the proposed project. Capital equipment is defined as all nonexpendable, tangible property with a useful life of more than one year, and an acquisition cost of \$1,000 or more per unit. Such equipment must remain at the institution for the period of the award.
- Subawards: The PI organization (only) should list the cost of other institutions participating in the project.
- Other Costs: Include here any costs that do not fit in the above categories.

- Indirect costs. Indirect costs (also known as overhead) are limited to no more than 10% of total direct costs (exclusive of capital equipment and subawards). For CMU the indirect cost rate is 0%.

Direct costs may not be used for any of the following:

- Construction projects or laboratory renovations.
- Furniture, office equipment, and office supplies.
- Administrative support.

During the period of the grant, budget variations of more than 10% of the total budget in any budget category must be approved in advance. For proposals with Carnegie Mellon University as a partner, at least 70% of the project funds must be spent at African-based Universities. For the purposes of this call, Carnegie Mellon University-Africa is considered Africa based, but not other campuses of Carnegie Mellon University.

Application Process – Proposal Submission and Format

Applications should be prepared in 11pt minimum font on A4 or US Letter paper with at least 1 inch margins. It should be comprised of the following:

1. Cover Page (1 page) – detailing the research team, the title of the project, and an abstract of up to 200 words.
2. Project Narrative (2 pages) – Briefly summarize the rationale for the proposed area of research, the potential socio-economic impact of the project on the African continent, and the impact in terms of job creation. In addition, the project narrative should summarize the proposed activities and timeline.
3. Researcher Profiles (1 page total for all researchers) - The application should specify the expertise and experience of anticipated researchers and a brief description of how their expertise would contribute to the research project.
4. Future Plans (1 page) – Briefly summarize potential plans for future support, funding opportunities, and research questions to highlight the sustainability of the research project.
5. Project Budget – Project budgets are entered into the Afretec budget template that will be provided. The budget provides a space for justifying each budget line. One budget is submitted per team member.

REVIEW PROCESS

Proposals will be reviewed by a faculty panel which will make recommendations for the award. The Director of Afretec will make the final award decision in consultation with other key stakeholders.

For any additional questions, please contact the Director of Afretec – Prof. Tim Brown, director-afretec@andrew.cmu.edu