Call for Proposals

Research and Innovation Grant in Computer Science and Information Systems 2022/2023

KENET's Research and Innovation Grants Overview

KENET has as one of its mandates, the role of catalyzing collaboration in research and education among member universities and research institutions. KENET promotes collaboration through facilitation of Special Interest Groups (SIGs) in priority academic areas, discovery of active researchers/faculty, provision of research and innovation grants to researchers and member institutions, as well as travel grants for faculty and/or graduate students in SIG areas.

This Call for Proposals for the Computer Science and Information Systems (CS/IS) Research and Innovation Grants is intended to promote early-stage CS/IS research and development in current and emerging research areas, as well as strengthen the CS/IS SIG. The Research and Innovation grants target early-stage research, enabling researchers to undertake proof-of-concept work to support R&D ideas and concepts. It is envisioned that the Research and Innovation grants, which are ideally targeted at junior faculty, will position recipient researchers in good footing to further their research and expertise in these areas, and subsequently attract more research funding.

Through this round of funding, KENET hopes to not only support individual research teams, but to facilitate institutional collaboration and formation of communities of practice in the research areas of focus, leading to enhanced research capacity in member institutions.

CS/IS Research and Innovation Grant: Areas of Focus

The research areas of focus for this round of funding are:

i. **Machine Learning Applications in Education, Agriculture and Health domains** (ML) and
ii. **Design and Evaluation of AI-driven applications for maximal community impact** (DEvAI).

CS/IS Research and Innovation Grant: Technical Overview, Structure and Schedule

Areas of Focus: Technical Overview

1. Machine Learning Applications in Education, Agriculture and Health Domains

With increased adoption of digital technologies within the domains of Education, Agriculture and Health, the data scarcity problem that has hindered meaningful ML research and development within the local context is slowly being addressed. Smart agriculture can and has provided real-time farm-level data that has been hard to come by in the past. In the health sector, adoption of technology, from personal health monitoring devices and applications to sector-wide information systems for tracking health care and health outcomes within institutions, counties or nationally, has yielded a gold mine of local health data. Accelerated by the Covid pandemic, many institutions of learning adopted technology to help sustain teaching and learning for millions of learners, availing hitherto unavailable learning data from all levels of education. With this call, we seek proposals that leverage machine learning techniques to enable efficient and real-time data mining from local datasets to aid in the discovery of actionable insights that can be used to improve outcomes across the three domains.

2. Design and Evaluation of AI-driven Applications in Education, Agriculture and Health Domains

In the 1990s and the early 2000s, country governments and donor agencies spent billions of dollars supporting development, poverty reduction, and empowerment initiatives and interventions in developing country communities. The results of these initiatives were mixed and often there was little, if any impact in the communities. In the last few years, a lot has been said on the potential of the fourth industrial revolution technologies (4IRT) and innovations in empowering communities. To avoid the pitfalls of the ICT4D interventions, there is need for technologies, applications, and innovations to use models that can assure positive impact to the communities. In this theme, we are interested in research proposals that address the following questions:

- How can we design AI-driven ICT applications in health, agriculture and education that will have maximum impact for individuals, households, and communities in developing countries?

- In order to justify the continued investments and rollout of technology solutions in communities, how can we measure the outcomes and impacts of AI-driven ICT applications?

Grant Structure and Schedule

Research and Innovation Grant Structure

1. Three (3) Research and Innovation grants will be awarded for the 2022/2023 round of funding.
2. Each Research and Innovation grant will be for a maximum of KES. 1,500,000
3. The grant period is 12 months.

Schedule:

Following is the research and innovation grant's call timeline.

Activity	Dates
Call for proposals open for submissions	4th February 2022 to 4th March 2022
Review and evaluation of received proposals	7th – 25th March 2022
Face-to-face presentations of shortlisted applicants	29th March 2022
Finalists announced and research and innovation grants awarded	4th April 2022
Grantees on-boarding	11- 14th April 2022
Implementation period	15th April 2022 - 14th April 2023
Evaluation, reporting and close-out	E & M – quarterly and end term

CS/IS Research and Innovation Grant: Eligibility, Terms and Conditions

Eligibility

This call is open to computer science or information systems faculty (who are full-time) at any of the KENET member institutions. Applicants must be PhD holders, having received their PhD within the past 10 years, and must demonstrate active research interest.

Team Composition
The lead researcher(s) must be a PhD holder meeting the eligibility criteria above. The lead researcher is at liberty to incorporate other researchers into the team as needed. If other members are incorporated into the team, then the roles and extent of involvement of these team members must be clearly spelt out. A Letter of Commitment from each Team Member with support from respective Heads of Department or Deans, must be included as part of the team's submission documents. In this letter, each organization or individual must submit in writing, their commitment to participate in project activities, specifying their exact role in the project. Teams with multidisciplinary backgrounds are encouraged. The lead researcher will serve as the team leader and the primary point of contact for the team on all matters related to implementation of the grant.

Student Involvement
One of the main objectives of this research and innovation grant is to develop expertise and build capacity in the areas of focus, and to grow a community of practitioners. To this end, it is important for faculty to work closely with students with a view to furthering their knowledge and capacities in the various technologies and issues of interest, in the areas of focus. Incorporating students, and especially PhD students, as team members as well as designing student-level projects from the research activities to be undertaken is encouraged.

Collaboration and partnerships
To enhance research uptake and utilization, it is important for researchers to identify and seek out collaborations and partnerships with strategic persons and institutions. This not only opens pathways for moving research from the lab to the society, but also enhances visibility of researchers and their institutions, attracting even more funding and opportunities to further their research agenda. Given the identified areas of focus, it will be imperative for teams to identify strategic partnerships and collaborations with a view to modeling and planning for prototyping, testing, and scaling at later stages in the research cycle.

Intellectual Property
Intellectual property derived from the funded R&D activities will be appropriated and protected based on the lead researcher's institution's IP policy and procedures.

Post-Award Requirements
The successful grantees will be expected to:

1. Provide quarterly progress reports to the CS research associate at KENET
2. Participate and present project work at selected meetups organized by KENET
3. Grow a community of researchers in the area, by reaching out to other local researchers working in the area and other related multidisciplinary domains
4. Actively seek post research and innovation grant funding to further their research work by writing (joint) funding proposals
5. Prepare a final project report at the end of the grant period and submit to KENET. Prepare an abridged version of the project report for profiling on KENET's and institutional websites.
6. Publish paper(s) on their work in reputable journals.

CS/IS Research and Innovation Grant: Proposal Submission

Concept Note Format
1. The concept note should not exceed 6 pages (12pt, single spacing, excluding appendices)
2. The concept note should be submitted in PDF format

3. The research area should be clearly indicated in the title page i.e. ML or DEvAI
4. No personal identification (names) or institutional affiliation should be included in the concept note.

Concept Note structure

The concept note should have the following structure:

1. Title
2. Problem definition and justification
3. Proposed solution and justification
4. Methodology
5. Resources (human, hardware, software etc.)
6. Work plan (not exceeding 12 months in duration)
7. Detailed Budget (not exceeding 15,000 USD)
8. Appendices

Supporting Documents

The following documents should be included as part of the concept note submission:

1. Team profile document, indicating the names, institutional affiliation, and brief biographies of the lead researcher(s). Details of other team members and any collaborating institutions should also be included in the team profile.
2. CVs of the lead researcher(s), clearly profiling research activities undertaken to date as well as relevant publications.
3. Letters of Commitment from team members and any collaborating institutions.

Concept Note submission

Concept notes with all supporting documentation should be sent via email to grantsadmin@kenet.or.ke by 4th March 2022, 11.00PM EAT.

Enquiries and applicant support

All enquiries and requests for further information related to this call should be addressed to grantsadmin@kenet.or.ke

CS/IS Research and Innovation Grant: Proposal Evaluation

1. KENET will constitute a review panel of leading CS/IS experts. Members of the review panel will sign Non-Disclosure Agreements, as well as statements acknowledging that they will make no claim to the intellectual property developed by the grantees.
2. The reviewers will review all received applications as per the evaluation criteria provided in Table 2 below and select the top 3 proposals for each area of focus.
3. The top three (3) finalists in each area will be invited for a final face-to-face presentation. During the oral presentations, the applicants will respond to and clarify any questions from the panel that will have arisen out of their written submissions. They will also be required to respond to any ad-hoc questions arising from the oral presentation.
4. After the oral presentations, the reviewers will make their final decisions on which three proposals will receive the CS/IS Research and Innovation Grant. Three (3) teams will be selected.
5. Selected grantees will be notified formally and profiled on KENET's website.

Evaluation Criteria	Evaluation Aspects	Weighted Score
Relevance and justification of proposed research topic	Is the proposed topic and preferred solution aligned with Kenya's Big 4 agenda, Vision 2030, or SDGs? Is it an important problem to solve in a developing world context? Is there sufficient research uptake and utilization potential for the proposed research outputs?	10%
Technical Approach and Methodology	Is the research concept innovative and effective compared to existing alternatives? Does it have the potential to disrupt current practices and approaches? Does it have transformative potential? Is it feasible? Is it viable? Is it sustainable? Is the proposed implementation methodology technically sound, adheres to best practice and appropriate for the local context? Has it been optimized for efficiency? Is the proposed work doable given the time and budgetary constraints of the Research and Innovation Grant, considering the team's composition?	35%
Viability assessment and Scaling potential	Is Scale built into the solution? Can it be replicated in similar contexts? Is the solution viable given the operational context? Is there scope for furthering the research idea/prototype? Is there scope for future external research funding in order to scale-up the research?	20%
Human capacity	Does the team have the required expertise, experience, and necessary contacts to deliver? Do they have a local footprint?	10%
Awareness of and strategies to address/comply with policy and regulatory requirements	Does the team demonstrate sufficient actionable knowledge on the policy and regulatory environment that could impede or catapult utilization of research outputs? Have appropriate strategies to address policy or regulatory impediments been considered and/or designed?	5%
Student engagement	Are there concrete roles and responsibilities for student team members? Are there clearly defined student-level project ideas?	10%
Stakeholders buy-in	Have critical partnerships in the main domain of application been identified? Is there likelihood for collaboration during and after the grant period? Does lack of partnerships severely impede the research work during the grant period?	5%
Potential for publication in refereed journals and/or conferences	Are the results likely to be published in IEEE or equivalents journals / conferences that are indexed in Elsevier Scopus database?	5%

Table 2: Evaluation Criteria