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National Research and Education Networks are a platform for data science capacity development in Low- and Middle-Income Countries

Two significant obstacles facing the training and development of data scientists and bioinformaticians in low- and middle-income countries such as those in Africa is the reliability and availability of internet access. The recent movement to expand and improve the capacity of the National Research and Education Networks in this region and others provides an opportunity to provide access to these essential tools of education and research. The National Institute of Allergy and Infectious Diseases (NIAID) at the NIH is establishing a public-private partnership with private industry, the Research and Education Network of Uganda (RENU), Makerere University and the Infectious Diseases Institute of Uganda to build the second African Center of Excellence in Bioinformatics in Kampala, Uganda (ACE). RENU has built a 1 Gigabit backbone that connects many of the R&E institutions in Uganda to one another and to other regional and national RENs around the world such as Géant in Europe and Internet2 in the United States. But access to resources on remote RENS and the internet can still be a bottleneck. The ACE partnership and center will work to provide reference databases and compute infrastructure across the RENU backbone without needing to use internet gateways. The combination of local infrastructure, local connectivity, reference databases, and local support services for data science will improve the educational and analytical capacity of researchers in Uganda (by UbuntuNet throughout East Africa) and improve the quality of their collaborations with scientists in the United States and elsewhere

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