

# Report of the Summer Institute in Computational Social Science, Cape Town, 17-28 June 2019

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The second edition of the Summer Institute in Computational Social Science (SICSS) was held from June 17 to June 28, 2019 at the University of Cape Town. It was organized by Dr. Vissého Adjiwanou, Associate Professor of computational and quantitative methods at the Université du Québec à Montréal ([UQAM](#)) and Adjunct Senior Lecturer at the Centre for Actuarial Research (CARE) at the University of Cape Town (UCT). He is also the chair of the Scientific Panel on Computational Social Science at the Union for African Population Studies (UAPS). The 2019 Summer Institute, like [the first one in 2018](#), was organized in collaboration with Princeton University and benefited from funding from the International Union for the Scientific Study of Population ([IUSSP](#)) to support the participation of scholars from outside Cape Town. The Summer Institute also received support from the Russell Sage Foundation and the Alfred P. Sloan Foundation. Of the nearly one hundred applications received, we were able to support the participation of 22 participants (12 from outside South Africa, 5 from other regions in South Africa and the rest from the Cape Town area).

While following the same agenda as the last year (with the first week dedicated to teaching and the second week to the projects), this year's Summer Institutes innovated by incorporating new materials and adopting new approaches to collaboration. The teaching from Princeton included topics on ethics, surveys and experiments in the digital age, by Matthew Salganik, and on digital trace data collection and analysis (text analysis, topic modelling and network analysis) by Chris Bail. On-site training by Nick Feamster, Neubauer Professor of Computer Science and the Director of Center for Data and Computation (CDAC) at the University of Chicago provided an introduction to machine learning to the participants. In the opening session, Vissého Adjiwanou highlighted the importance of the Summer Institute for African scholars and led discussions on the issue of causality in Social Science and considered how new methods and data can contribute to a better understanding of social phenomena in sub-Saharan Africa. The first week also included several talks by experts on the field: Kyle Finlay presented his work on mapping conversations on Twitter in South Africa; Hussein Suleman spoke about data management; Marshini presented her work on detecting endorsements in social media; Megan Bruwer presented data visualization techniques in transportation; and Vukosi Marivate presented various projects on data science and development. Finally, Aldu Cornelissen, a teaching assistant and one of last year's alumni, talked about his experience and how the SICSS shaped his career. The variety and highly quality presentations contributed to making the Summer Institute one of its kind in sub-Saharan Africa, where participants were able to learn from specialists from Africa and around the world.

During the second week, participants worked in four small groups on various applied projects, which were presented on the last day. The first group developed a machine-learning approach to predict child mortality in South Africa. This project will be transformed into a grant proposal and the techniques developed will be applied to various other databases such as the demographic surveillance sites in Africa. The second project borrows from the Afrobarometer and called itself the Afro-Twitter-Barometer, with the aim to develop a new tool (in shiny apps) to present sentiment analysis about twitter data from various countries in sub-Saharan Africa. The future extension of this project is also very broad: it can be used to monitor epidemic outbreaks on the continent. How to detect predatory job ads in the web is the focus of the third group, which used various techniques and machine-learning approaches to solve this problem using data from Gumtree, an online advertising website in South Africa. One of last year's groups had developed a project to measure depression and stress-related issues by analyzing twitter data. This year, the fourth group further developed the project with the application of machine learning to identify markers of suicidal behaviours among Twitter users in Africa. What all these projects tell us is that new areas of research are becoming available to Social Science researchers and how they can think differently and develop new research agendas that can have an impact on people's lives. It is well summarized in this [blog](#) by Fidelia Dake, a researcher at the Regional Institute for Population Studies at the University of Ghana, and one of the participants in this year's Summer Institute: "SICSS taught me to think differently about what data are, the different ways in which data for social science research can be obtained" Many of these projects will be presented at the forthcoming VII African Population Conference, which will take place in November in Entebbe (Uganda).

Running this year's Summer Institute was not without challenges. Some of the challenges were related to the timing, which conflicts with the South African academic calendar. Because of this, many prominent PhD students that had been accepted had to cancel their participation at the last minute. A second challenge was the difficulty to coordinate the Summer Institute from Canada, without a local organizer on site. As a consequence, Vissého Adjiwanou was overstretched and it will become difficult to sustain this activity in the future. Third, despite his success in securing funding from outside the SICSS community to support the participation of scholars from outside South Africa, this source of funding is becoming difficult to get, while at the same time, the interest across the African continent for the Summer Institute is growing (as evidenced by the surge in applications). The importance of digital trace data and computational techniques to renew research in sub-Saharan Africa is high, as it will bring new ideas and approaches to deal with various issues facing the continent. It is therefore critical to continue to develop training activities such as this one. It has allowed talented PhD students, mostly from sub-Saharan Africa to conduct new research at the intersection of computational science, health and social science, and provided training that will hone the capabilities of researchers from the continent. A new initiative is the centre on computational and quantitative approach to social and health issues that Vissého Adjiwanou is currently developing within his department at the Université du Québec à Montréal and which will focus especially on sub-Saharan Africa.

Some pictures of the event are shown below:



*Livestream from Princeton University by Matthew Salganik.*



*Group photo with speaker Kile Finlay.*





*Group project 1.*



*Group project 2.*



*Group project 3.*



*Group project 4.*





*Group photo.*



*Group photo with the organizer Vissého Adjiwanou.*