

Africa needs more women computer scientists. How to make it happen

By [Chao Charity Mbogo](#)

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In Africa, a continent grappling with many social ills, it's critical that universities produce more Computer Science graduates. It's also one that equips students with crucial skills.



Computer scientists can make important contributions to fixing societal ills. UNAMID/Flickr, [CC BY-NC-ND](#)

Computer Science graduates are problem solvers and logical thinkers who can apply their technical expertise in a range of ways – including to socioeconomic problems. For example, Dr [Christopher Chepken](#) used ICT tools to provide interventions for day labourers in a developing country's context. [Maletsabisa Molapo](#) worked on a project that designed a tool to help rural health trainers to create digital training content for low-literate community health workers (CHWs) in Lesotho.

But there's a problem: Computer Science is an especially male-dominated university course [all over the world](#).

For instance, I was the only girl in an undergraduate class of ten students. That's not unusual in Kenyan universities, even today. I teach 108 undergraduate computer programming students; just 19% of them are women. The same is true around the country. A 2015 [report](#) found that although 41% of students at a sample of Kenyan universities were women, just 17% of them were pursuing degrees in science and technology subjects.

Drawing from my own experiences, I have some ideas about how to throw open more doors for women computer scientists. Collaboration, inspiration and mentorship are key. And, in keeping with the tag line for [International Women's Day 2017](#) – “Be bold for change” – it will require bold, committed action.

My journey

I've always been fascinated by mathematics and other sciences. At school in Kenya I found there was something about maths in particular that tapped into my innate ability to think logically.

Once I'd finished high school I registered for a degree with majors in Mathematics and Computer Science at [Kenya Methodist University](#). The catch? I had never consistently used a computer before – my family, like [most in East Africa](#), didn't have one at home. I had visited cyber cafes to send emails or browse the internet, but that was all.

I excelled as an undergraduate and an Honours student, but craved a new challenge that would push my limits. So I applied to Oxford University in the UK. One lost application form, a new form and a gruelling scholarship interview later, I was admitted for an MS.c in Computer Science at Oxford's St Catherine's College.

I was on cloud nine for several months, but then reality hit: during orientation and the first weeks of class, I had to learn UNIX – a multiuser computer operating system – from scratch, complete practical lab assignments within short periods, and adapt to a faster and more dynamic learning process than I was accustomed to.

My interactions with other friends attending Oxford and similar institutions, who had completed undergraduate degrees in Kenya, revealed that most of us had to work twice as hard to bring ourselves on par with our classmates.

It was a big lesson. Many of Kenya's universities simply aren't preparing their Computer Science students for the wider world. To many people in Kenya, a computer scientist is someone who knows all the ins and outs of a computer and can fix their friends' mobile phones and laptops. To others, computer scientists are the people who build apps. This thinking suggests that computer science involves providing a technical solution to a technical problem.

Sadly, this means universities mainly produce technicians – not computer scientists who can solve real, complex socioeconomic problems.

This knowledge stayed with me while I pursued and completed a Ph.D in Computer Science at the University of Cape Town in South Africa. I was able to do this because of great mentorship and support, and came to realise how vital those elements will be to keep developing and producing computer scientists in Africa, particularly women.

Inspirational women

The good news is that there are many inspiring female computer scientists in and from Africa. As their public profiles grow, hopefully they'll be able to inspire young women who might otherwise avoid computer science courses or think the field is only suitable for men.



Some of the women who inspire me include [Mercy Orangi](#) of Google Kenya. She's got a stellar track record in mobile development and actively participates in initiatives that empower female computer science students. An amazing quartet of women established the [Women in Computer Science Society](#) at the University of Cape Town: [Imaculate Moshia](#), [Jorgina Paihama](#), [Maletsabisa Molapo](#) and [Omowumni Isafiade](#) are all inspirational.

Further afield, I've had the enviable chance to meet and listen to women at international platforms like the 2014 [Grace Hopper Convention](#). I was among 8000 women in technology who attended. Professor [Shafi Goldwasser](#), who delivered the keynote address, is one of the few women who has received the [ACM Turing Award](#). This is one of the highest honours in Computer Science and technology.

All of these women – and many others – do remarkable work to drive conversation, offer support and [mentorship](#) and get more women involved in computing. Their example should be followed by every woman who's travelled the often rocky path to a computer science degree. Now, more than ever, we must be bold and we must become the doorways for young women to pursue their passion and interest in science, technology, engineering and maths.

ABOUT THE AUTHOR

Chao Charity Mbogo is researcher and lecturer of computer science, mentor at Kenya Methodist University.

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