

Research Summary

This document details the training programs, employers and documents that we engaged over 2018 and 2019 for the joint DIAL-Dalberg Advisors *Building the Next Generation of Software Developers in sub-Saharan Africa* Insights series.

Programs Investigated

Number	Program	Carrier	URL	Overview
1	Masters in Computer Science	American University of Nigeria	https://www.aun.edu.ng/index.php/academics/graduate-studies/graduate-programs	One- to three-year, on-campus program in computer science designed to equip professionals with hands-on skills in advanced computing to enable them to function optimally in both industry and academia. Offered in Nigeria.
2	Team Leads - Technical Success Managers and Senior Technical Consultants	Andela	https://andela.com/fellowship/apply/	Paid, full-time opportunity over four years for people with basic coding experience to receive further software development training and mentorship in outsourced live projects. Available in Kenya, Nigeria, Rwanda and Uganda.
3	Online Learning Modules	Cisco Learning Network	https://learningnetwork.cisco.com/community/learning_center	Free online modules on topics such as specific programming languages, web security, and internet of things.
4	TenaCiti	Cape Innovation & Technology Initiative (CITI)	http://www.citi.org.za/	Support to South African software development SMEs in implementing skills development plans for their employed junior developers in both soft and hard skills
5	Masters in Information Technology	CMU	https://www.africa.engineering.cmu.edu/programs/msit.html	On-campus, 16- to 20-month, interdisciplinary course covering topics such as data science, cyber security and software engineering. Program also requires students to consult for a real business and undertake a corporate internship. Offered in Rwanda.
6	IT Project Management	Indian School of Business on Coursera	https://www.coursera.org/learn/it-project-management	Free online course provided by the Indian School of Business covering the management of an IT project over its life cycle.

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7	BSc (Honours) in Digital Technology, Design and Innovation	Digital Skills Academy	https://digitalskillsglobal.com/blog/digital-skills-academy-opens-first-international-office-in-johannesburg-a	One-year, part-time, blended learning degree course accredited by the Dublin Institute of Technology aimed at mid-career professionals. Has offices in South Africa but available to international students.
8	Mentors	EDACY	https://www.edacy.com/students	Nine-month, full-time, blended learning course combining online coursework during the first three months, with a six-month apprenticeship with supervision from the program. Targets local employers in Cote d'Ivoire, Nigeria and Senegal.
9	IT Management Online Short Course	Get Smarter/ University of Cape Town	https://www.getsmarter.com/courses/za/uc-t-it-management-short-course	Online course on corporate IT management covering topics such as project management, change management, and mobile and cloud computing.
10	Advanced Learning Path	Google	https://techdevguide.withgoogle.com/paths/advanced/	Online course for people with software engineering experience to develop advanced software engineering skills such as using open source materials, learning multiple programming languages, and running confidence tests on code.
11	Seeds for the Future	Huawei	https://www.huawei.com/en/about-huawei/sustainability/win-win-development/social-contribution/seeds-for-the-future/kenya	Huawei's global corporate social responsibility program offering 10 students in various countries an opportunity for a two-week training and cultural experience in China.
12	Research Hub	IBM	https://www.ibm.com/ibm/clientcenter/zurich/research/index.shtml	THINKLab incorporates cutting-edge computer engineering to host an innovation engine for clients. Projects range from eHealth systems to machine learning and AI. Bases are in Johannesburg and Nairobi.
13	Coachlab Engineering and ICT	Innovation Hub	http://www.theinnovationhub.com/skills-development/coachlab	Provides project-based learning to recent graduates of postgraduate degree programs, along with soft and business skill coaching. Offered in South Africa.

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14	Full Stack Coding Course	iXperience	https://ixperience.co/courses/full-stack	Six-week, full-time, on-campus, full-stack coding course and internship program for people with some coding experience. Offered in South Africa and Portugal.
15	Master's in Software Engineering	Jomo Kenyatta University of Agriculture and Technology	http://www.jkuat.ac.ke/postgraduate-courses/msc-software-engineering/	Two-year, full-time, on-campus coursework and thesis master's degree covering advanced topics in software engineering for people with undergraduate degrees in computer science, IT, computer technology and electronic engineering. Offered in Kenya.
16	Advanced Java Programming	Lynda.com	https://www.lynda.com/Java-tutorials/Java-Advanced-Training/107061-2.html	Online course for advanced applications of Java through platform- and framework-neutral tutorials for building web, mobile and desktop applications.
17	Master's in Computer Science	Makerere University	https://courses.mak.ac.ug/programmes/master-science-computer-science	Two-year, full-time, on-campus master's degree covering advanced topics in computer science for people with undergraduate degrees in computer science. Offered in Uganda.
18	Master's in Information Technology	Makerere University	https://courses.mak.ac.ug/programmes/master-information-technology-0	Two-year, full-time, on-campus master's degree covering advanced topics in enterprise IT management. Targeted to undergraduate degree or postgraduate diploma holders in IT, computer science and related fields. Offered in Uganda.
19	Master's in Information Systems	Makerere University	https://courses.mak.ac.ug/programmes/master-science-information-systems	Two-year, full-time, on-campus master's degree for graduates of any academic field. Topics covered include systems analysis and design, data warehousing, and information systems security. Offered in Uganda.
20	Master's in Data Communication	Makerere University	https://courses.mak.ac.ug/programmes/master-science-data-communication	Two-year, full-time, on-campus master's degree focused on wireless and multimedia networks. Covers analytical techniques used to describe the properties of signals and the latest techniques by which digital systems can

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	and Software Engineering		communication-software-eng	be applied to filter, compress and otherwise process these networks. Offered in Uganda.
21	Entrepreneurs in Training	MEST	https://meltwater.org/raining-program/	One-year, full-time, on-campus business and software development program designed to enable candidates to pitch a live business technology idea to MEST for seed funding by the end of the year. Offered in Ghana, open to entrepreneurs across Africa.
22	LEAP	Microsoft	http://www.industryexplorers.com/?utm_source=CourseReport&utm_medium=blog	Paid, 16-week, full-time development and project management classroom-based and apprenticeship program. Eligible to people with United States work authorization. Offered in Redmond, Washington.
23	Moringa Core	Moringa	https://moringaschool.com/programs/software-development/	Full-time, 15-week, blended learning software development course with 12 weeks of curriculum in full-stack web or mobile development, and three weeks of group projects and professional development. Offered in Kenya and Rwanda.
24	Various	N@TCOM	https://www.natcomservice.com/trainings-certifications/	Various part-time, on-campus IT management certifications for IT professionals, including in software for Microsoft, Oracle and IBM. Offered in Rwanda.
25	Master's in Computer Science and Information Systems	Nelson Mandela Metropolitan University	http://www.nelsonmandelauniversity.com/faculty_of_science/mcom-in-computer-science-and-information-systems-coursework-and-research/	One-year, full time, on-campus degree for honors degree holders in computer science or information systems. Offered in South Africa.
26	Advanced Engineer Program – Data Center	NIL Learning	https://learning.nil.com/technology-areas/data-center/advanced-engineer-program/	Online and on-campus continuous professional development classes for advanced IT professionals managing data centers, in partnership with companies such as Cisco and InSpace. On-campus classes are offered in South Africa, Slovenia and Saudi Arabia.

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27	Executive Master's in Information Technology	Obafemi Awolowo University	http://www.oaucdl.edu.ng/home/?q=pg-information-technology	One-year, part-time, on-campus master's degree for professionals with undergraduate majors in computer science or related subjects and three years' work experience. Offered in Nigeria.
28	Short certification courses	Oracle University	https://education.oracle.com/	Various certifications for Oracle-related products and applications, including Java and Oracle Cloud solutions. Offered through online courses and workplace trainings.
29	Master's in Information Security	Rhodes University	https://www.ru.ac.za/computerscience/studying/postgraduate/mastersbycoursework/#d.en.179938	Two-year, part-time or one-year, full-time on-campus course in information security designed for industry practitioners. Covers topics such as penetration testing, security metrics, threat modelling, and digital forensics. Offered in South Africa.
30	Various certificate and master's degrees	SANS	https://www.sans.edu/#why	Undergraduate, graduate certificate, and master's degree online/limited contact programs in cybersecurity. Contact offered in North America, Europe, Asia, and Australia, and online programs offered globally.
31	Young Professionals Development Programme	Square Kilometre Array (SKA) South Africa	http://www.ska.ac.za/students/young-professionals-development-programme/	Paid, three-year graduate program for recent computer science, engineering, astrophysics and related subjects.
32	Master's in Information Technology	Strathmore University	https://www.strathmore.edu/course/master-of-science-information-technology-msc-it/	Two-year, part-time, on-campus graduate degree intended for early- to mid-career IT professionals, offering three areas of specialization: business intelligence and data analytics, systems security and forensics, and telecommunication and computer networks. Offered in Kenya.
33	Work Integrated Learning Program (WILP) for Youth Development	Technobrain	https://www.technobraintraining.com/	Full-time, six- to 12-month training program for promising students within academic programs. Students in the program also receive on-project work, where candidates are treated as billable resources. Intended to address skills gaps early in careers. Offered in various countries where they have large business bases.

Number	Program	Carrier	URL	Overview
34	Master's Degree in Information Systems Technology	United States International University-Africa	https://www.usiu.ac.ke/144/master-science-in-information-systems-technology/	Two-year, part-time, on-campus graduate program for early- to mid-career IT professionals with computer science, IT, engineering, statistics or related fields. Offered in Kenya.
35	Postgraduate Diploma in Management in Information Systems	University of Cape Town	https://www.commerce.uct.ac.za/InformationSystems/Pages/Postgraduate-Programmes	Two-year, part-time, on-campus, post-graduate diploma offering specializations in information systems management, computer forensics, enterprise systems, and business and systems analysis. Students must complete a work-related project to qualify. Offered in South Africa.
36	Master of Science in Computer Sciences	University of Ilorin	http://www.unilorin.edu.ng/index.php/374-faculties/cis/5731-department-of-computer-science	On-campus program that seeks to prepare graduates for careers requiring advanced IT skills. Offered in Nigeria.
37	Master of Commerce in IT Management	University of Johannesburg	https://www.uj.ac.za/faculties/cbe/Applied-Information-Systems/PublishingImages/Pages/Courses-and-Programmes/MCom%20IT%20Management_Brochure.pdf	One-year, full-time or two-year, part-time graduate program designed for experienced IT professionals with an honors degree in IT or information systems. Students are required to complete coursework and submit a thesis. Offered in South Africa.
38	Master's in Informatics	University of Johannesburg	https://www.uj.ac.za/faculties/science/csweb/Pages/ACSSE-Postgraduate.aspx	Advanced academic degree in informatics with both a coursework and minor dissertation element. Seeks to provide students with specialized advanced education and training while engendering innovation, decision-making, strategic thinking, and organizational skills. Offered in South Africa.
39	Honours in Engineering and Technology Management	University of Pretoria	https://www.up.ac.za/graduate-school-of-technology-management/article/35537/motmtm	One-year, part-time, on-campus program aimed at engineers and scientists who have recently completed a bachelor's degree. Core modules include engineering techno-economics, project management, and technology and innovation management. Offered in South Africa.

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40	Master's/Master of Technology in Informatics	University of Pretoria	http://www.up.ac.za/en/informatics/article/45806/postgraduate-mcom-informatics-mit-information-systems	Two-year, on-campus graduate program designed for research-oriented individuals. Students are fully assessed through a 35,000- to 40,000-word thesis on a topic in one of five focus areas: IT management, IS and education, ICT for sustainable development, data science, and human-computer interaction. Offered in South Africa.
41	Programme in IT Project Management	University of Pretoria	http://www.ce.up.ac.za/Course?tabid=58&Course=5cdb80f9-b8f2-df11-9e88-0050569b0004	Online program on IT project management covering topics such as preparing a project budget, planning a project, assigning resources and crisis management.
42	Master of Science in Computing	University of South Africa	https://www.unisa.ac.za/sites/corporate/default/Apply-for-admission/Master%27s-&-doctoral-degrees/Qualifications/All-qualifications/Master-of-Science-in-Computing-(Full-Dissertation)-(98961)	Full dissertation distance-education program that can be taken over three years. Offered in South Africa.
43	Honours in Information Systems Management	University of Stellenbosch	http://suinformatics.com/postgraduate-programmes/bcomhons-information-systems-management/	One-year, full-time, on-campus degree program for information systems or informatics graduates intending to produce graduates capable of guiding organizations through processes of IT management and adoption. Offered in South Africa.
44	Continued Professional Development Programme	University of the Witwatersrand	https://www.jcse.org.za/continued-professional-development/	One-year, part-time, on-campus program designed for ICT professionals with at least five years' experience aiming to fill positions in ICT management, software architecture and design, or leadership roles on software project teams. Offered in South Africa.

Employers Interviewed

Number	Employer	URL	Overview
1	Africa's Talking	https://africastalking.com/	Software development company working with more than 25,000 developers, specializing in SMS, USSD, voice, airtime and payment API development. Operates in Kenya, Uganda, Nigeria, Rwanda, Tanzania, Malawi, Cote d'Ivoire, Ethiopia and The Gambia
2	Apposit LLC	http://www.apposit.com/	Enterprise software development and consulting company focused on human resources and payroll, data collection and management, and mobile payments. Based in Ethiopia and New York.
3	Clock Education	http://clock.education/	Education technology company producing solutions for workplaces and universities. Based in South Africa.
4	Dimagi	https://www.dimagi.com/	Mobile application development companies for enterprises. Current offering includes a mobile data collection application, mobile device management and usage tracking application, consulting on development-focused ICT projects. Has offices in the United States, India and South Africa.
5	eGA	http://www.ega.go.tz/	The e-Government Agency of Tanzania, a unit within the President's Office overseeing implementation and management of digital services throughout the Tanzanian public sector.
6	Fidalix	http://www.fidalix.com/	Consulting company specializing in solutions and services for the telecommunications industry. Based in Rwanda.
7	Health e-Net	http://www.health-e-net.org/	Health technology company that provides remote medical consultations for patients in communities with fragile health care systems. Based in Kenya.
8	iCog Labs	http://www.icog-labs.com/	Artificial Intelligence research and software development company specializing in machine learning topics such as computational linguistics, computer vision, mobile robots and cognitive robotics, and cognitive architectures. Based in Ethiopia.
9	Incentro	https://www.incentro.com/en/	Enterprise software and website development company. Based in Kenya, Spain and the Netherlands.

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10	Koko Networks	http://kokonetworks.com/	Software development, medical and product design company specializing in solutions for cities. Based in Kenya and India.
11	Praekelt.org	https://www.praekelt.org/	Social enterprise dedicated to leveraging mobile technology to address development challenges. Based in South Africa.
12	Rwanda Online	https://irembo.gov.rw/rolportal/en/home	Software development company that was founded to lead and manage Rwanda's integrated e-government platform, <i>irembo</i> .
13	SevenSeas	http://www.sstgroup.com/	ICT company providing diversified services in the health care, homeland security and social services sectors. Based in Kenya.
14	TechnoBrain, multiple countries	https://technobraingroup.com/	Diversified global ICT firm that provides strategic consulting and application and enterprise management solutions. Headquartered in Dubai, with offices in 15 African countries, including Kenya, Tanzania, Nigeria and South Africa.
15	Zoona	https://ilovezoona.com/	Financial technology company providing agent-based mobile money transfers. Offices in Zambia, Malawi and South Africa.

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