

# Virtual Open Day 2022

11:55pm – 12:10pm



**IT** | SCHOOL OF IT

## An Invitation to IT and Computer Science

**Hussein Suleman** <[hussein@cs.uct.ac.za](mailto:hussein@cs.uct.ac.za)>

*Head of Department, Department of Computer Science  
School of IT  
University of Cape Town*

9 April 2022



*Last edited: 9 April 2022*

*Slide count: 16*

# Our Current Changing Society 1/2



Hisense 8 GB  
U605 Network...  
ZAR 499.00



# Our Current Changing Society 2/2

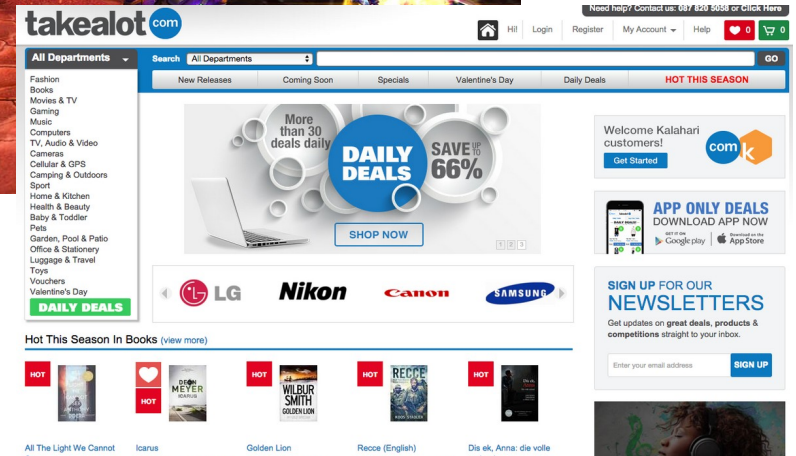


Google

Google Search

I'm Feeling Lucky

Google offered in: Afrikaans Sesotho isiZulu isiXhosa Setswana Northern Sotho

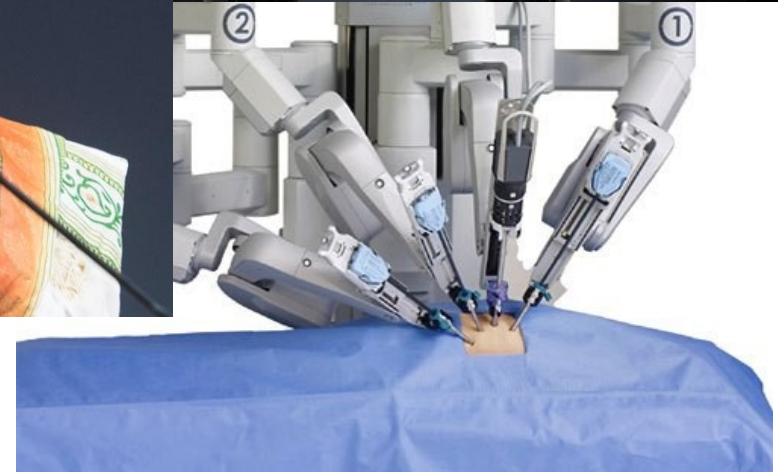


UNIVERSITY OF CAPE TOWN  
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

IT | SCHOOL OF IT



# IT in a Future World



# Why Study IT?

- ❑ Change the world!
- ❑ Be happy.
- ❑ Be excited.
- ❑ Stability/Job security.
- ❑ Lots of growth opportunities.
- ❑ Make money.
- ❑ Get famous.
- ❑ Study further or teach.
- ❑ Complement something else.
  - Something for fun;  
something for a career.

## THE BEST JOBS IN THE U.S. FOR 2020

RANK	JOB TITLE	MEDIAN BASE SALARY	JOB OPENINGS
1.	Front End Engineer	\$105,240	13,122
2.	Java Developer	\$83,589	16,136
3.	Data Scientist	\$107,801	6,542
4.	Product Manager	\$117,713	12,173
5.	Devops Engineer	\$107,310	6,603
6.	Data Engineer	\$102,472	6,941
7.	Software Engineer	\$105,563	50,438
8.	Speech Language Pathologist	\$71,867	29,167
9.	Strategy Manager	\$133,067	3,515
10.	Business Development Manager	\$78,480	6,560
11.	Nursing Manager	\$85,389	12,320
12.	HR Manager	\$83,190	3,966
13.	Operations Manager	\$70,189	19,198
14.	Salesforce Developer	\$81,175	3,639
15.	Finance Manager	\$120,644	4,091
16.	Accounting Manager	\$85,794	3,589
17.	Program Manager	\$87,005	19,280
18.	Applications Engineer	\$76,854	9,550
19.	Clinic Manager	\$70,000	5,768
20.	Physical Therapist	\$71,483	28,886

SOURCE: GLASSDOOR  
THE LIST IS BASED ON THREE FACTORS: MEDIAN BASE REPORTED SALARY,  
NUMBER OF JOB OPENINGS AND OVERALL JOB SATISFACTION RATING  
(ON A SCALE OF 1.0= BAD JOB TO 5.0= BEST JOB) OVER THE PAST YEAR.

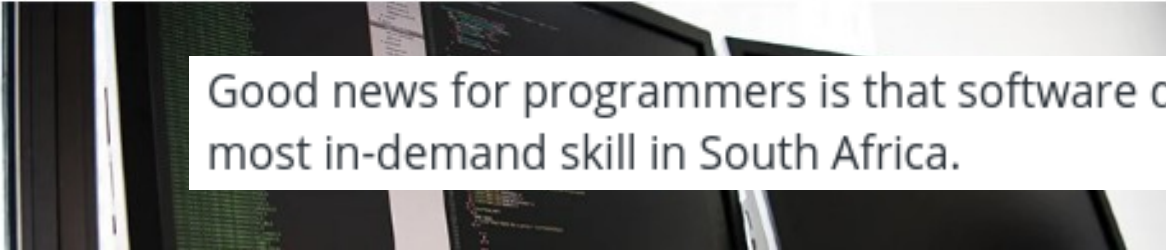
**yahoo!**  
finance



# What about jobs in South Africa?

## Software developer salaries in South Africa in 2021

Staff Writer 18 May 2021



Good news for programmers is that software development remains the most in-demand skill in South Africa.

Intermediate Software Development Salaries (CTC)		
Region	From	To
Gauteng	R48,442	R65,604
Western Cape	R45,012	R56,685
KwaZulu-Natal	R42,755	R55,882

<https://mybroadband.co.za/news/business/397239-software-developer-salaries-in-south-africa-in-2021.html>



# What does an IT graduate do?

---

- ❑ Not just sitting in a dark room by a terminal
- ❑ Learn by doing
- ❑ Variety
- ❑ Helping people
- ❑ Entrepreneurial
- ❑ No single career/degree



# 5 Branches of IT

---

- ❑ Computer Science
  - Foundations and principles (software/algorithms)
- ❑ Information Systems
  - Business processes and information-centric applications
- ❑ Software Engineering
  - Software development processes
- ❑ Information Technology
  - Applications of hardware and software
- ❑ Computer Engineering
  - Hardware and communications





# IT @ UCT

---

## □ School of IT

- Department of Computer Science
  - BSc/BBusSci/BA degrees in Computer Science
- Department of Information Systems
  - BCom/BBusSci/BA degrees in Information Systems

## □ Other departments

- Department of Electrical Engineering (Engineering Faculty)
  - BSc (Eng) in ElecEng or Computer Engineering



# What is Computer Science?

---

- ❑ Computer Science (CS) is the study of:
  - Computer software
  - Algorithms, abstractions and efficiency
  - Theoretical foundation for computation
- ❑ What you learn in a Computer Science degree:
  - Principles of computation
  - How to make machines perform complex tasks
  - How to program a computer
  - What current technology exists and how to use it
  - Problem solving



# Computer Science @UCT topics

---

## □ First year

- Problem solving and programming in Python
- Object-oriented design in Java

## □ Second year

- Data structures, databases, human-computer interaction, parallel computing, computer architecture, software engineering

## □ Third year

- Operating systems, networks, algorithms, advanced software engineering, (C++, machine learning)

## □ Honours

- Compilers, functional programming, research and innovation, AI, HCI, big data, games/graphics, network security, ...



# Why Study CS @ UCT

---

- ❑ Internationally recognised and aligned curriculum (benchmarked against ACM, previously accredited by British Computer Society).
- ❑ CS department ranked highest in country.
- ❑ Innovative teaching (research-led, constant curriculum revisions, etc.).
- ❑ Diverse staff interests.
- ❑ Enthusiastic staff and students!





# So what degrees are Computer Science?

---

- ❑ BSc with a major in Computer Science
- ❑ BBusSci with a specialization in CS
- ❑ BCom with a specialization in IS+CS
- ❑ BA with a major in Computer Science



# What do I need to get into CS?

---

- ❑ Meet points score for admissions.
- ❑ High school Mathematics!
  - 70% in NSC
- ❑ 60% in Physics or IT if you want a BSc
  - otherwise you can get a BBusSci, BCom (IS+CS) or BA (CS)
- ❑ Everything else we will teach you.
- ❑ No Matric IT needed!
  - Seriously, we can teach this stuff better :)



# What should I apply for (CS or IS)?

Focus on algorithms and software	Combined focus on algorithms + business	Focus on business and information systems	CS + Science/Math	IS + Humanities	CS + Humanities
1 <sup>st</sup> . BSc(CS)	BBusSci(CS/IS) BCom(IS+CS) BSc(CS+IS)	1 <sup>st</sup> . BCom(IS)	BSc	BA Informatics	BSc / BA
2 <sup>nd</sup> . BBusSci(CS)		2 <sup>nd</sup> . BBusSci(IS)			



Thank you for listening!



**IT** | SCHOOL OF IT

If you have questions:

*Attend the Science Q&A session*

*Visit the School of IT website:*

<http://www.sit.uct.ac.za/>