



DEPARTMENT OF COMPUTING

Departmental Report August 2020 - July 2021

Dr. Gunjan Mansingh · Head of Department

BSc (Bombay University, India), MPhil, PhD (UWI)

OVERVIEW

The Department of Computing (DoC) continues to offer multiple undergraduate and post-graduate programmes in Computer Science, Information Technology, Software Engineering and Data Science. We regularly revise our programmes to keep them in line with international curricula recommendations for Computing. Our graduates from the undergraduate and graduate programmes are highly sought after and can easily find employment both locally and internationally. Our student numbers continue to grow especially in the advanced years, which shows that we have good student retention. Our linkages with industry continue to grow as our students get internships with various local, regional, and international companies like National Commercial Bank (NCB) and Goldman Sachs (Hong Kong, UK). In the summer of 2020/21, we successfully completed training for the fourth cohort of the NCB-UWI Agile Laboratory Project with 15 students. For the third consecutive year, one of our students qualified for an internship with Goldman Sachs and has subsequently been offered a full-time position in their London office. The DoC continues to contribute towards society as various faculty members gave talks and participated in many workshops locally, regionally and internationally. The DoC hosted a Faculty of Science and Technology Science for Today public forum on Cybersecurity. As a result of the panel discussion at this forum, the DoC made a submission and presentation to the Joint Select Committee of Parliament on revisions to the Cybercrimes Act, 2015.

As a result of the pandemic, and with a view to automate certain manual processes on campus, the DoC along with Faculty of Science and Technology worked with Mona Information Technology Services (MITS) in implementing the Document Workflow on PeopleSoft. The DoC continues to operate in a fully virtual mode without disadvantaging students. We have created Virtual Walk-in Labs for peer-to-peer technical assistance with coursework. Finally, in the past year the DoC offered a course on mobile development for the first time at Mona. It is hoped that such courses will help make graduates even more attractive to employers.

PROGRAMMES and STUDENT NUMBERS

The department continues to offer many undergraduate and postgraduate programmes as shown below.

Undergraduate

- BSc General
 - Computer Science major (CS)
 - Software Engineering major (SE)
- BA (Computer Science major)
- BSc Information Technology (IT) – Offered at both Mona and the Western Jamaica Campus
- BSc Computer Systems Engineering – On hold
- BSc Software Engineering – Years 1 and 2 are offered at The UWI and years 3 and 4 in China at GIST.

Graduate/Postgraduate

- MSc – Applied Data Science
- MSc – Computer Science
- MSc – Information Systems (Computer Based Masters in Information Systems – CBMIS)
- Postgraduate Diploma in IT
- Postgraduate Diploma in Applied Data Science
- Postgraduate Certificate in Applied Data Science
- M.Phil. and PhD – Computer Science

The number of students registered in the various programmes in the 2020/21 academic year are displayed in Table 1. The data in Table 1 reflects the number of distinct students who register for courses at each level within the specified academic years. Our Advanced level student numbers continue to increase indicating that our student retention is good.

Table 2 shows our graduation numbers in various undergraduate majors and programmes. This year we graduated the first cohort of BSc Software Engineering – Mobile Application Technologies.

Table 1. Students registered in the Department of Computing in the last 5 (five) years.

LEVEL	2016/2017	2017/2018	2018/2019	2019/2020	
Introductory	626	724	624	557	
Advanced	352	375	432	444	
PG. Cert. Applied Data Science	-	-	-	2	1
PG. Diploma Information Tech.	3	13	5	-	1
PG. Diploma Applied Data Science	-	-	-	-	2
M.Sc. Comp. Science	36	30	27	22	29
M.Sc. CBMIS	69	70	76	67	57
M.Sc. Applied Data Science	-	-	-	8	23
M.Phil.	11	16	9	10	7
Ph.D.	4	6	6	5	5

Table 2: Undergraduate Students graduating across majors in 2020

Major	First Class M/F	Upper Second M/F	Lower Second M/F	Pass M/F	To- tal M/F
Computer Science (B.Sc.)	4/4	9/6	3/4	9/2	
Computer Science (B.A.)	0/0	1/0	1/0	0/0	2/0
Information Technology	0/0	2/1	6/1	2/0	
Software Engineering	0/1	0/0	1/0	0/0	1/1
Software Engineering – Mobile Application Technologies	1/1	10/5	1/0	0/0	
Total	5/6	22/12	12/5	11/2	

ACCESS

Teaching resumed online in the academic year 2020/21. Both undergraduate and post-graduate students used OurVLE course containers to gain access to their courses. We continued streaming courses to the WJC campus. To assist students to cope in a virtual environment we created Virtual Walk-in Labs for peer-to-peer technical assistance with coursework. These labs allow students to seek out their seniors in higher levels and get guidance as they often do in a face-to-face environment. Hence, students have become more accustomed to the virtual labs, tutorials, and lectures. The department continues to make Chromebooks available to needy students. The department has made recommendations to the faculty and to the library to ask organizations who wish to donate tablets, to donate laptops instead. This year the department added another award for computing students: The Ezra Mugisa Award. Dr. Ezra Mugisa served as Head of the Department for a number of years. He was instrumental in the conceptualization and formation of the Department of Computing.

Workshops and Seminars

Mr. Anthony Drummond was a member of the technical planning committee for the Caribbean Sustainable Cities Conference 2020, hosted by the UWI, Western Jamaica Campus at the Hilton Rose Hall Hotel in Montego Bay St James, November 4th – 6th, 2020. Mr. Drummond was responsible for planning and chairing the Technological Transformation session, which included presentations on various areas of sustainable development for the future. Dr. Carl Beckford was a speaker at the Jamaica Computer Society's 2020 BizTech Virtual Summit & Knowledge Forum titled, "Improving engagement in class with collaborative technologies", November 17th 2020. Dr. Gunjan Mansingh was a speaker at the Jamaica Computer Society's 2020 BizTech Virtual Summit & Knowledge Forum titled, "Building a Data Landscape", November 18th 2020. Dr. Gunjan Mansingh participated in a YouTube series "Grey Matters: Women in S.T.E.M." organized by UWI Mona FST Guild Committee on January 30th, 2021. Dr. Gunjan Mansingh was a speaker at the conference, Artificial Intelligence: Opportunities to accelerate human progress for sustainable development, a virtual conference organized by UNESCO and Broadcasting Commission on 18th -19th February 2021. She presented in the session AI and 21st Century Learning and title of her talk was "Landscape of AI in Education".

Dr. Gunjan Mansingh was a panelist on CITI LATAM – Digital forum 2021, Jamaica Digital Transformation: Fire side chat, March 9th, 2021.

Dr. Claudine Allen was a Reviewer and session chair at the 18th International Conference on Software Architecture (ICSA2021) held virtually March 22nd - 26th, 2021. She was Tech-

nical Track committee member and she participated in working groups on:

- Software Architecture in the next 5-10 years
- Sustainable Architecture

The department hosted a Science for Today panel on the topic: "Is there space for bug bounties and ethical hacking in Jamaica Law?" on March 24th, 2021. The panel was moderated by Prof Daniel Coore and the participants were:

- Lt. Col. (retd) Godphey Sterling - Head, Jamaica Cyber Incident Response Team at the Ministry of Science, Energy and Technology
- Mr. Jason Scott, Head of Digital Transformation at GK General Insurance Company Limited and Deputy President, Jamaica Computer Society
- Dr. Curtis Busby-Earle – Leader of CIPHER (Computer Intrusions, Forensics and Exploitations Research), Department of Computing, UWI, Mona
- Mr. Andre Sheckleford – Lecturer, Faculty of Law, UWI and Attorney-at-Law, Hart Muirhead and Fatta

The forum was well attended and a week later the recording had been viewed by over 400 persons. The panel focused on the Jamaican cybersecurity law and how it impedes best practices in security assurance. This conversation between technology professionals, government and lawyers was useful as everyone walked away with a better understanding of the landscape in terms of how the Cyber Crime Act might be amended to reduce the deterrent effect it currently has on good actors reporting cyber security incidents and vulnerabilities. Dr Ashley Hamilton-Taylor was a speaker on the 125th Adwa's Great African Victory programme held in South Africa by the AGAVA Association on March 2nd 2021. His talk was titled "An African Vision of Peace and Unity is Needed to Truly Honour the Victory of Adwa". Dr. Gunjan Mansingh, Dr. Maurice McNaughton and Dr Lila Rao were invited to present on the topic "Business Intelligence: Agile Roadmap Towards Business Sustainability" at an industry conference, TechCon 2021, organized by tTech Limited. The theme of the conference was "Enabling A Digital Society: Resilience in the Face of Change", May 18th-19th 2021, Jamaica. Dr. Claudine Allen was a guest speaker at the US and Jamaican Women in EdTech Webinar held virtually on Tuesday May 25th 2021 and hosted by the United States Embassy in Jamaica. Her talk was on the topic "Online Learning in Tertiary Education in Jamaica: The Role of The EdTEch Industry".

ICT Development

The DoC initiated the development of the Document Management Workflow on Peoplesoft through the Faculty of Science and Technology's ICT Steering Committee. The workflow is designed to solve the problem of managing the routing of the university's business documents through various business units in fulfilment of particular business processes, e.g., changes of grade and access to systems. The workflow was conceptualized, designed, and configured by the DoC in collaboration with the Office of the Campus Registrar and Mona Information Technology Services (MITS).

List of Publications

• Journal

1. Dr. Ricardo Anderson, "Exploring Strategies for Assuring the Integrity of Remote Online Assessments", The UWI Quality Education Forum, 25, 78-95, OBUS UWI, 2021. Available:

<https://journals.sta.uwi.edu/qef/index.asp?action=viewArticle&issueId=818&articleId=8130&galleyId=6923>

• Conference Presentation

1. D. T. Fokum, "Networking Education: A Caribbean Perspective," in ACM SIGCOMM Online Networking Education Community Discussion, Aug. 2020. [Online]. Available: http://gaia.cs.umass.edu/sigcomm_education_workshop_2020/papers/sigcommedu20-final17.pdf

Students

Huawei, partnered with The University of the West Indies, Mona for the 4th annual staging of the "Seeds for the Future" Programme. At the conclusion of the week Huawei awarded prizes to participating students to reward student engagement during the week. The first, second, and third place prizes were won by DoC students: Jheanel Brown, Swayne James, and Phillip Llewellyn, respectively.

http://www.jamaicaobserver.com/news/jamaicans-shine-at-huawei-seeds-for-the-future-2020-programme_208982

At the Faculty Awards ceremony, the Department recognized:

- Paul R. Smith with the Karl Robinson Award. This is given to the third-year student with the top GPA in Computing courses through the first semester of the third year.
- Matthew A. Palmer with the Ezra Mugisa Award. This is given to the student with

the top GPA in Computing courses through the first semester of the second year.

CAPE Workshop

The Department of Computing participated for the fourth time in the CAPE workshops put on by the Faculty of Science and Technology by hosting two online workshops for Computer Science on January 12, 2021 and January 14, 2021. These workshops were free for schools and students, and since they were virtual we got good participation. In the first workshop we covered topics in Unit 1: School-Based Assessment, C Programming: Functions, Arrays, Structures, Pointers, and File Manipulation. A total of 236 students and their teachers attended from 32 schools. In the second workshop we covered topics in Unit 2: School-Based Assessment and Abstract Data Types. A total of 282 students and their teachers attended from 30 schools. Both workshops were led by Dr. Ricardo Anderson. The workshops included hands-on sessions where the students were able to write and execute programs in the C programming language. The administrative components were handled by Dr. Phillipa Bennett. The workshops were deemed successful as both teachers and students reported that they benefited greatly from the materials presented.

Outreach Programme

Dr. Ricardo Anderson gave a talk titled "Data Science Aiding COVID-19 Management" on August 12th, 2020 at the virtual conference Fighting COVID-19: Science in Action - Series 2. The talk explored how various techniques and software tools have been used to harness Covid-19 data that was used to develop models for informing policies and practices in different jurisdictions. Dr. Carl Beckford, in collaboration with Jamaica Computer Society, made a presentation for the company CHOICE Career & Education Advice. It was attended by teachers and counsellors. The feedback from those in attendance was excellent. Dr. Phillipa Bennett was publicity chair for Central America for an international conference Models 2020 - Model Driven Engineering Languages and Systems, October 18th – 23rd 2020. Dr. Phillipa Bennett was Program Committee member for the EduSym workshop at an international conference Models 2020 - Model Driven Engineering Languages and Systems, October 18th – 23rd 2020. Dr. Gunjan Mansingh was the co-chair of the Jamaica Computer Society's 2020 BizTech Virtual Summit & Knowledge Forum titled "Advancing Digital Literacy and Culture". The conference was held virtually from November 17th-19th 2020. On February 12th, 2021, Drs. Mansingh, Fokum and Gaynor along with colleagues from Mona School for Business and Management met with representatives from Grace Kennedy Co. Ltd., to advise them on the various programs offered by the DoC. This was an exploratory meeting to discuss different arrangements how the company could be involved with the department

April 22nd, 2021, was celebrated as the International Girls in ICT Day. Youth Can Do IT (YCDI), an organization in Jamaica, organized two days of activities. At the event the UWI Computing Society organized a workshop for high school students to teach UX Design. UWI Computing Society students: Jordanne Dale, Jason Gayle, Jantae Leckie, Kalifa Wright, Lois-Anne Hall and Antoinette Brown organized this workshop using a tool called Figma. Dr. Gunjan Mansingh was member of the Steering Committee of CARICOM Girls in ICT Day. To commemorate International Girls in ICT day, a two day event was organized "Connecting CARICOM Girls, Creating Brighter Futures". At the end of the day one she participated in a session "What we heard?: session feedback, highlights – Interview style

Staff Matters

Drs. Daniel Fokum and Curtis Busby-Earle were promoted to Senior Lecturer on August 1, 2020. Dr. Kevin Miller gave his resignation in May 2021.

Examination Matters

Mr. Alton Bodley successfully upgraded from M.Phil. to Ph.D. on January 30th, 2021. Title of his thesis is "Intelligent Decision Support System for Resource Optimisation: An Application in Cricket Team Selection". His supervisors are Dr. Gunjan Mansingh and Prof. Kweku-Muata Osei-Bryson.

ALIGNMENT

Academic

The department continues to offer courses that are attractive to the industry. For the first year we offered an elective course on Android Mobile development at Mona. It is hoped that such courses will help make the graduates even more attractive to employers.

Internships

The department continues to build credible relationships with organizations to make the internship programme larger as the years progress. Recruitment continues via Zoom with our international associates. We have continued the NCB internship programme with a fourth cohort. Fifteen student interns were identified by the department and vetted by NCB. This year the programme was offered in a fully virtual mode and most of the interns have been offered full time contracts.

On November 12th, 2020, Goldman Sachs held a virtual Engineering Information Session to apprise students of the process of being interviewed for internships with the firm. About 27 students were present. The students also got a short guest talk from Nathan Downer, a 2020 graduate of the Department and a 2020 intern with Goldman Sachs. Nathan Downer started as a full-time employee of Goldman Sachs in January 2021. After a rigorous selection process, Ms Lateefah Smellie was selected as a 2021 Goldman Sachs intern. In the summer of 2021, she interned in their UK office. This is our third student intern with Goldman Sachs. In May 2021, a Zoom call was held between Goldman Sachs and Computing representatives from the UWI campuses in Mona, Cave Hill, and St. Augustine. Goldman Sachs. The purpose of the meeting was to indicate that Goldman Sachs was looking to expand their existing Jamaica and Africa recruiting initiatives across the Caribbean, using the UWI campuses. This is undoubtedly a result of Goldman Sach's good experience with the interns that they have hired from the Mona Campus.

Partnerships

Huawei, partnered with The University of the West Indies, Mona for the 4th annual staging of the "Seeds for the Future" Programme. The five-day programme which focuses on information communication technology and preparation for the local ICT sector, took place online over a one-week period that commenced November 16th, 2020, and ended on November 20th, 2020. Of the seven UWI, Mona students selected, six of them were from the DoC. The students from the Department were: Daniel Jennings, Cargill Seiveright, Jheanel Brown, Swayne James, Phillip Llewellyn and Malik Edwards.

Public Service

In response to an invitation from the Jamaica Parliament for submission of comments on revisions to the Cybercrimes Act 2015 the department made a written submission with recommendations. Subsequently Prof Daniel Coore, Dr. Curtis Busby-Earle and Dr. Gunjan Mansingh made a presentation on July 14, 2021 to the Joint Select Committee of parliament tasked with the review of the Act. The presentation was well received by the committee.

Boards

- Dr. Gunjan Mansingh was appointed Chairman of the Board of Directors of eGov Jamaica Limited for a period of two years with effect from November 16, 2020 to November 15, 2022.
- Dr. Gunjan Mansingh was appointed Deputy Chairman of the National Information and Communications Technology Advisory Council (NICTAC) to the Ministry of Science Energy

and Technology for a period of two years with effect from December 7, 2020 to December 6, 2022.

- Dr. Gunjan Mansingh was appointed to Global Services Skills Board in July 2020, she resigned from it effective November 2020.
- Dr. Gunjan Mansingh is a member of Information Systems for Health (IS4H) committee, Ministry of Health, Jamaica, 2019 – to present.
- Dr. Gunjan Mansingh is a Council member for Jamaica Technology and Digital Alliance (formerly Jamaica Computer Science), 2018 – to present.
- Dr. Gunjan Mansingh is a member of Information Systems for Health (IS4H) committee, Ministry of Health, 2019 – to present.
- Dr. Gunjan Mansingh is a Council member for Jamaica Technology and Digital Alliance (formerly Jamaica Computer Society), 2018 – to present.
- Prof. Daniel Coore was appointed to the Board of eLearning Jamaica Company Limited for a period of two years with effect, November 16, 2020 to November 15, 2022.
- Prof. Daniel Coore is a board member of Mona Informatix Ltd., Kingston, Jamaica.
- Dr. Curtis Busby-Earle was appointed to the Global Services Skills Board for a period of two years commencing November 2020.
- Dr. Daniel Fokum has been appointed to the Board of the University Council of Jamaica from March 1st 2021 to February 29th 2024.
- Dr. Paul Gaynor was nominated to the board of the Kingston YMCA in 2019, and has been serving as the second vice president since 2020.
- Dr. Claudine Allen is a member of the Academic advisory board of The School of Computing, UTech Jamaica 2018 to present.
- Dr. Claudine Allen is a member of the Academic Advisory Board of the School of Computing, Exed Community College 2017 to present
- Dr. Claudine Allen is Chair CXC CSEC IT Syllabus review panel 2017 to present.

Visits

The DoC hosted a virtual meeting with the Indian High Commissioner to Jamaica, H.E. Mr. R. Masakui. It was attended by Mr. Prathit Mishra - Second Secretary from the Indian High Commission, Mr. Mahidhara Davangere - Founder and Managing Director of Pramatha, Dr. Andre Coy - Associate Dean of External Engagement FST, Ms. Minna Israel - Special Advisor to the Vice-Chancellor on Resource Development, Prof. Daniel Coore and Dr. Gunjan Mansingh.

Several potential areas of collaboration were identified; they are:

- Internship opportunities in India
- Student exchange programmes
- Faculty research collaboration particularly in data analytics and climate risk modelling
- Collaboration between Pramatha Centre for Education and Research and FST Pre-incubation centre.

Unfortunately Mr. Davangere passed on due to COVID-19, hence these talks were stalled. In June 2021, a team from Huawei, comprising Courtney Hamilton, Director of Enterprise Business and Jiazhe Zhao Engineer Huawei Technologies, visited the DoC to discuss the potential for setting up an ICT Talent hub.

AGILITY

The department coordinates classes, labs, tutorials and office hours online. Team members are accessible via emails, WhatsApp and Zoom. The Department of Computing (DoC) continues to expand the internship programme even in the virtual mode, and students are encouraged to participate in local and international competitions to develop their knowledge. These competitions among other skills and experiences allow students to gain employment with local and international associates. All our taught postgraduate programmes, summer school and the NCB-UWI Agile Lab project are income generating for the department. Dr. Paul Gaynor and a team of four Computing post-graduates have received a grant from Universal Service Fund for JA\$8.3M. The grant is to support the development of a prototype of a smart, mobile video surveillance platform. The result of the project is expected to leverage multiple sub-disciplines of computing, and will apply computer vision, networking, and autonomous UAVs, as well as data science and user inter-

face design principles. The resulting prototype is expected to be delivered to a unit within the security forces, while maintaining infrastructure at the UWI to duplicate the product once input materials are available. Dr. Gunjan Mansingh, as part of a research group, has received a grant from Research England. The entity has allocated City, University of London funding as part of its Global Challenges Research Fund and consequently City has approved the award of £10,500 to The University of the West Indies for the project titled Creative Artificial Intelligence and Intellectual Property in the Caribbean: Exploring Challenges and Opportunities. Our team members continue to strive above the challenges of lock downs, and the interruption of the department business, by being accessible and cooperative with the changes implemented over the last year.

