

DEPARTMENT OF COMPUTING



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Head of Department

OVERVIEW

The Department of Computing (DOC) continues to offer multiple undergraduate and postgraduate programmes. We regularly revise our undergraduate programmes to keep them in line with international curriculum recommendations for computing. This year we designed Preliminary level courses and an undergraduate advanced level course in Data Science. In 2017/2018 we started offering the revised Masters in Computer Science (M.Sc.) and the Masters in Computer Based Information Systems (CBMIS – offered jointly with Mona School of Business and Management).

The academic year 2017/2018 was a productive year as our undergraduate student numbers continue to grow despite infrastructural problems. The Department of Computing along with Mona School of Business and Management launched an *Agile Digital Lab* in collaboration with National Commercial Bank. Dr. Carl Beckford was awarded his PhD in summer of 2018 and the number of staff members with PhD continues to grow.

Programmes

The number of students registered in Computing Level 1 and Advanced levels in the academic year 2017/18 are approximately 569 and 316 respectively. The data in Table 1 reflects the number of distinct students who register for courses at each level within the specified academic years. The numbers have grown significantly across all levels of the undergraduate programme, while postgraduate programme numbers have either declined or remained relatively flat.

Table 1: Student numbers registered in Computing in last five years

Level	2013–2014 Sem 1/Sem 2	2014–2015 Sem 1/Sem 2	2015–2016 Sem 1/Sem 2	2016–2017 Sem 1/Sem 2	2017–2018 Sem 1/Sem 2
Undergraduate					
Introductory	387/355	463/433	528/433	521/470	599/538
Advanced	190/203	227/240	282/281	318/299	323/308
Postgraduate					
M.Sc. Comp.Sci	67	64	39	36	26
M.Sc. CBMIS	29	15	32	29	67
PGDIT	n/a	n/a	17	n/a	13
M.Phil.	12	15	12	9	16
PhD	4	4	6	5	6

Table 2: Students graduating across majors in 2017/2018

Major	First Class M/F	Upper Second M/F	Lower Second M/F	Pass M/F	Total M/F
Computer Science (BSc.)	6/8	28/12	19/5	15/3	68/28
Computer Science (BA.)	0/0	2/0	2/0	1/0	5/0
Computer Systems Engineering	2/0	3/1	0/0	0/0	5/1
Information Technology	0/1	3/7	4/2	0/01/2	8/12
Software Engineering	0/0	2/0	1/0	0/0	3/0
Total	8/9	38/20	26/7	17/5	89/41 = 130

Launch of UWI-NCB Internship – The Department of Computing together with Mona School of Business and Management (MSBM) has launched an Agile Lab Internship with National Commercial Bank (NCB). NCB is aggressively pursuing a Digital Agenda through the development of distinctive digital capabilities in the organization's infrastructure, operations and human resources towards the strategic objective of “Building a World-Class Digital Experience” for all stakeholders.

Visits

Mr. Peter Harrison, President of the Palisadoes Foundation made a presentation to the staff and to the student members of the Computing Society on how to improve engagement between the Computing students at Mona with international technology entities in Silicon Valley, USA.

Dr. Anthony Fisher, Executive Director of UWI-CIIT, and Dr. Che Corbin from Cave Hill Campus visited the Mona campus for three days. The purpose of their visit was to conduct meetings with students enrolled in the UWI-CIIT BSc SWEN programme, and in particular, the students who were to travel to China in August 2018. They made a presentation to the students and their parents/guardians on what life in China may be like.

The Department also hosted Professor Patrick Hosein from the Faculty of Science and Technology, St Augustine, UWI. Professor Hosein was a main presenter at a UWI Research Days event – “Bridging the Research and Innovation Gaps between Academia and Industry”.

In the summer, Professor Osei-Bryson, spent two weeks in the department. He spent his time meeting research postgraduate students and young faculty. The number of graduate students completing their degrees in recent years is attributed to his involvement.

STAFF UPDATES

Dr. Phillipa Bennett joined the DOC after completing her PhD at Colorado State University on August 1, 2017.

Additionally, two (2) instructor positions were approved for the department and Mr. Dean Jones joined the Department on January 15th, 2018 as an Instructor.

Dr. Claudine Allen completed all the requirements for a professional certificate in Software Architecture and received her certification in January 2018 from the Software Engineering Institute at Carnegie Mellon University. She is the first in Jamaica to have received this certification. Dr. Allen also resigned from the University for personal reasons with effect from August 1, 2018.

OUTREACH AND PUBLIC SERVICE

CAPE Workshop

For the first time, the Department joined other departments in the Faculty of Science & Technology in offering workshops for CAPE Computer Science. Two workshops were held; one at the Mona Campus and the other at the Mona-Western Jamaica Campus. The workshop at Mona had 25 students from two all-girls high schools – St. Hugh's and Immaculate Conception, while the workshop at the Mona-Western Jamaica Campus had 16 students, with students from two high schools (Cornwall College and Mount Alvernia).

The workshop was designed to give students an in-depth examination of the following topics from the syllabus:

1. Internal Assessment for both units 1 and 2,
2. C programming for Unit 1, and
3. Abstract Data Types (ADTs) for Unit 2.

We also included a practical lab component where we used the C Programming language to implement and test the ADT's that were discussed. The workshops were conducted by Mr. Ricardo Anderson, while the arrangements were handled by Dr. Phillipa Bennett, who is the Department's representative on the Faculty's Outreach Committee. By all accounts, the workshops were successful.

Caribbean Examination Council – CAPE Curriculum

The curriculum committee along with other academic staff in the department provided extensive feedback on CAPE Computer Science curriculum.

JCS Meeting

The department hosted a meeting of the Jamaica Computer Society (JCS) on March 20th, 2018 and a special presentation on the Internet of Things (IOT) by Mr. Layard Terrero, Managing Systems Engineer, Fortinet.

Hackathon – Caribbean #HackAgainstHunger

On February 17th & 18th, 2018 the DOC at The UWI, Mona in partnership with the Department of Computing and Information Technology at The UWI, St. Augustine and the Mona School of Business and Management organized the #HackAgainstHunger/Caribbean Hackathon. This hackathon, which was also being run in Trinidad and Tobago, was designed to select a Jamaican representative for the #HackAgainstHunger event in Geneva, Switzerland from March 19th-23rd. Teams were asked to develop ICT solutions that address food security, decrease malnutrition or prevent famine. In preparation for the hackathon the Permanent Secretary of the Ministry of Industry, Commerce, Agriculture & Fisheries (MICAF) was engaged. His staff suggested several possible problems that could be explored during the hackathon, including scheduling what to plant, when to plant, and where to plant, and enabling data collection by farmers with preliminary data analysis. The winning team was called YCDI and their entry was the A-Grow application. YCDI was composed of Joshua Thompson, Juleen Gentles, Odain Brown, and Chinelle Miller. The first three students from UTech, while the fourth was a medical student at The UWI.

While no UWI Computing students advanced to the hackathon in Switzerland, one of the winning teams in Geneva was a team from

Jamaica. Credit should be given to the local judges Prof. Daniel Coore and Dr. Ashley Hamilton-Taylor, of the Department of Computing, and Dr. Dwight Robinson, of the Department of Life Sciences for choosing a strong team.

Income Generation

We continued to run a number of income-generating activities. Except the certification programme CISCO Networking Academy, we continue to be financially viable.

ACHIEVEMENTS BY STAFF AND STUDENTS

Programming Competitions:

The ACM's (Association for Computing Machinery) International Collegiate Programming Competition (ICPC) is the "premiere global programming competition conducted by and for the world's universities" (<https://icpc.baylor.edu/worldfinals/pdf/Factsheet.pdf>). The ACM is the world's largest educational and scientific Computing Society.

On September 23, 2017, our Department fielded three teams in the ACM ICPC local level contest. This is a multi-tiered annual programming contest organized by the ACM that starts from a local level and culminates in the world finals in April. Although other teams in Jamaica were registered, those three teams were the only ones to participate from Jamaica. These preliminary rounds of the contest are centrally administered at a regional level, so our students were also competing with teams from universities in Cuba, Dominican Republic, Trinidad and Puerto Rico. Out of a total of about 170 participating teams, our UWI teams ranked 58, 93 and 104. All three of them were promoted to the National level contest, which was held on Saturday, October 7, 2017.

The team of three (3) students earned the right to represent Jamaica at the regional finals of the International ACM-ICPC Programming Competition. They won the national contest and progressed to the regional level which was held in Dominican Republic on November 11,

2017. The UWI team was composed of Ms. Jhanelle Thomas, Ms. Komoy Haye, and Mr. Brandon Hinds, and their coach was Professor Daniel Coore.

Many of our students and alumni also took part in HackerRank's University Code Sprint, which lasted 48 hours from September 29 to October 1, 2017. This was a global contest, and had over 9,500 participants including students and professionals, representing over 169 universities from around the world. UWI, Mona placed 97th in the university rankings (finishing higher than some well recognized US universities such as Georgia Tech – 112, Arizona State U – 121, Ohio State – 124, Purdue – 131, Yale – 132, SUNY Binghamton – 145).

Huawei's Seeds for the future programme-

Ms. Loya Haughton, a final year student was selected to be part of a Jamaican team for Huawei's global Corporate Social Responsibility flagship program. The program seeks to develop local ICT talent, enhance knowledge transfer, promote a greater understanding of and interest in the telecommunications sector, and improve and encourage regional building and participation in the digital community. It is an international programme which offers 'scholarships' to final year students in disciplines related to the ICT industry to spend two weeks on a study tour of China (including at their headquarters).

IEEEExtreme Programming Competition – A team of three students, Ms. Jhanelle Thomas, Ms. Komoy Haye, and Mr. Brandon Hinds participated in the IEEEExtreme 11.0 programming competition between October 13th and 14th. The students solved a battery of programming problems over a 24-hour period. The students ultimately placed 488th in a field of 3,900 teams from across the world. During the competition the students were proctored by Professor Daniel Coore, Dr. Daniel Fokum and Mr. Dane Miller.

International Girls in ICT (GICT) Day- is held on the fourth Thursday in April every year. Jamaica's GICT Day was designated as an official event of the 11th Conference of the Faculty of Science and Technology.

As part of the GICT Day, a hackathon was organized by SheLeadsIt Consulting and Changemakers Development Ltd. A team of our female undergraduate students participated in the hackathon and placed third. The team members were Kimberly Simmonds, Stephanie Ramsay, Komoy Haye and Jhanelle Thomas. They created a game which showcased different types of abuse in the society, especially those faced by young girls.

Inter-Departmental Championship, FST – The Department of Computing students won the Inter-Department Championship, Faculty of Science and Technology. The students came first in Chess; second in Table-Tennis (Male), Basketball and Football; and third in Dominoes (Female).

Best Paper Award at DESRIST-2018 – Mr. Dean Jones and Dr. Gunjan Mansingh won the best student paper award for a student paper that was presented at the 13th International Conference on Design Science Research in Information Systems and Technology. The conference was held in June at the Indian Institute of Technology – IIT, Chennai, India.

GRADUATION

- Ms. Careene Rodney was awarded her M.Phil. degree in Computer Science.
- Mr. Carl Beckford was awarded his PhD degree in Computer Science.
- Ms. Nadine Maitland and Mr. Sean Miller successfully upgraded to the PhD in Computer Science.
- Ms. Chinazunwa Uwaoma successfully defended her PhD thesis in August 2017.

AWARDS

The Karl Robinson Award was won by Jhanelle Thomas. The award is given to the student with the highest average in the first year, second year and semester I of the third year Computer Science courses.

PARTNERSHIPS AND DONATIONS

Internship Relationships

The Department of Computing continues to build relationships with organizations to include them in our internship course. Currently we have a list of 29 companies where we place our interns.

A graduate student, Mr. Seaford Bacchas, participated in the IDB internship programme in the summer of 2018. His primary responsibilities revolved around creating an open source text analytics tool using natural language processing techniques. This tool can enhance the automation and efficiency of the literature review process by sorting through text data to identify key arguments and themes a reader may have otherwise missed.

Gift from Palisadoes Foundation

The Palisadoes Foundation, LLC based in Silicon Valley, California USA made a gift of network equipment with an approximate value of JA\$12 million to The UWI and UTech, Jamaica. This donation was facilitated by the Jamaica Computer Society (JCS). The Palisadoes Foundation was established by ICT professionals in the Jamaican Diaspora's Technology Taskforce. The president of the Palisadoes Foundation, Mr. Peter Harrison, handed over the equipment to UTech and UWI at the joint ceremony held at UTech on January 19th, 2018.

Extra-Curricular

Faculty of Science and Technology 11th Conference

The department actively participated in the faculty conference. Dr. Daniel Fokum, a lecturer in the department, was co-chair of the conference organizing committee. Several postgraduate and undergraduate students, and staff members actively participated by presenting papers and posters. One of the conference keynote speakers, Dr. Tyrone Grandison, was an alumnus of the department.

An undergraduate student team from the department participated in the Undergraduate forum at the conference. The team members were: Saran Wilson, Shawna-Kay Vacianna, Jonathan South, and Aundre Edwards and their project was titled “OnTheGo – Providing taxi services using a customer centric approach.”

Two postgraduate students, Mr. Anthony Drummond and Ms. Dominique Delahaye, participated in the Grand Innovation challenge and were placed third. For the challenge they developed an app called “De-tour It!” that would route persons around crime hotspots.

Research days

The Department had various posters and displays by academic staff members and postgraduate research students. Dr. Ashley Hamilton-Taylor had a successful display showing his documentary on the ancient architecture and heritage of Ethiopia filmed using 3D technology in Ethiopia. The department actively participated in the research day event “Bridging the Research and Innovation Gaps between Academia and Industry”.

MIT Media Labs

MIT Media labs presented their research on May 8th and 9th to various stakeholders including the Inter-American Development Bank (IDB). With IDB support, the presentations were streamed live to the department for both staff and graduate students to see MIT research on display.

PUBLICATIONS AND PRESENTATIONS

Peer Reviewed Conference Proceedings

- **Ewedafe, S.** (2017). Implementing Active Thermal Control Process (ATCP) with MPI using Input File Affinity Measure, the 3rd International Conference on Computing, Mathematics and Statistics (iCMS2017) & the 5th Joint International Conference on New

Challenges for Statistical Software: The Use of R in Official Statistics (UROS2017) – Asia Pacific. Nov. 7–8, 2017, Kuala Lumpur, Malaysia.

- **Ewedafe, S.** (2017). Implementing Active Thermal control Process (ATCP) with PVM using Input File Affinity Measure, in the proceedings of the 6th International Conference on Computer Engineering and Mathematical Sciences (ICCEMS 2017), Dec. 6–7, 2017, Langkawi, Malaysia.
- **Ormsby, M.** and **Busby-Earle, C.** (2017). A Standardized Procedure to Conceptualizing and Completing User Stories, in the proceedings of the International Conference on Computational Science and Computational Intelligence (CSCI'17): Symposium on Software Engineering: Dec. 14–16, 2017, Las Vegas, USA.
- **Miller, S.** and **Busby-Earle, C.** (2017). Multi-perspective Machine Learning (MPML) – A machine learning model for multi-faceted learning problems, in the proceedings of the International Conference on Computational Science and Computational Intelligence (CSCI'17): Symposium on Computational Intelligence: Dec. 14–16, 2017, Las Vegas, USA.
- **Uwaoma, C.** and **Mansingh, G.** (2018). Certainty Modeling of a Decision Support system for Mobile Monitoring of Exercise-Induced Respiratory Conditions, in the Proceeding of the 51st Hawaii International Conference of System Sciences (HICSS-51), Jan. 3–6, 2018, Hawaii, U.S.A., pp. 2957-2966, URI/DOI: <http://hdl.handle.net/10125/50263>.
- **Ildephonce I., Mugisa, M.** and **Allen C.** (2018). Serious games: A practical guide for analysis and design, in Proceedings of The IEEE Technically Sponsored Computing Conference 2018. 10–12 July 2018 - London, United Kingdom (accepted).
- **Ewedafe S.** (2018), Domain Decomposition for 2-D Active Thermal Control Process with Two Different Iterative Alternating Techniques of PVM, 8th IC-SCCE, Athens, Greece, July 4th–7th, 2018.

Journals

- **Ewedafe, S.** and Rior Hirowati Shariffudin (2018). Discretization of 2-D Active Thermal Control Problem on Parallel Virtual Machine (PVM) with Stationary Iterative Methods, *International Journal of Emerging Trends & Technology in Computer Science (IJETTCS)*, Volume 7, Issue 1.

Book and Book Chapters

- **Jones D. J.** and **Mansingh G.**, (2018), An Argument for Post-Hoc Collective Intelligence, Lecture Notes in Computer Science 2018, *Designing for a Digital and Globalized World*, Volume 10844 Publisher Springer.
- **Anderson, R.**, and **Mansingh, G.**, (2018). “CoMIS-KMS – An Elaborated Process Model for Transitioning MIS to KMS.” In *Effective Knowledge Management Systems in Modern Society*. IGI Global, 2018.

Conference Presentations

- **Jones, D. J** and **Mansingh, G.** (2018). *Witness Statement Processing with Post-Hoc Collective Intelligence*, 13th International Conference on Design Science Research in Information Systems and Technology (DESRIST), India, June 3rd–6th, 2018 (Won the Best Student Paper Award).
- **Drummonds, A.** and **Fokum, D.** (2018), *An Ontology Model for Mobile Agents towards Reducing Malware Activity in the Internet of Things*, 11th Faculty of Science and Technology Conference 2018, UWI, Mona, Apr. 25–27, 2018

Posters/Display

- **Gaynor, P.** (2018). Collaborative Multi-View Video to Symbol Coding, CVPR 2018 Language And Vision workshop, Salt Lake City, Utah, June 18, 2018.

- **Anderson, R.** and **Mansingh, G.**, “Data Science Approach to Improving Educational Outcomes and Resource Allocation”, UWI Research Days 2018, Feb. 7–9, 2018, Kingston, Jamaica.
- **Bleary, A.** and **Hamilton-Taylor, A.** *Interactive Animation as a Learning Aid: An Observational Study*, 11th Faculty of Science & Technology Conference, UWI, Mona, Apr. 2018.
- **Delahaye, D. S.** and **Fokum, D. T.** (2017). A Short Study of Public WiFi Network Usage in a Developing Country. CARISCIENCE Regional Conference, Kingston, Jamaica, Nov. 9–10. Poster

PROFESSIONAL AND SCHOLARLY ACTIVITIES

Allen, Claudine

- Panel Chair for CSEC IT Syllabus Review 2017–2022.

Anderson, Ricardo

- Attended: 15th SEI Software Engineering Workshop for Educators, July 31–August 2, 2018 at the Software Engineering Institute, Carnegie Mellon University and completed 2 certificate courses: 1. DevOps in Practice and 2) Managing Technical Debt in Software.
- Reviewer: Journal – Expert Systems with Applications, Elsevier.

Busby-Earle, Curtis

- Reviewer: IET Software, Institution of Engineering and Technology.
- 10th International Conference on Emerging Security Information, Systems and Technologies, Nice, France.

Coore, Daniel

- Reviewer: Annual workshop “Engineering Complex Adaptive Systems (eCAS)”
- Chair, UCJ Standards Committee for Computing
- Co-Chair, UWI-PSOJ Innovation Committee
- Coach, competitive programming teams participating from UWI.

Drummonds, Anthony

- Reviewer: IEEE SoutheastCon 2018

Ewedafe, Simon

- Reviewer: Editorial Board Member for *International Journal of Modern Computer Networks* (IJMCN).
jmcn.science/index.php/jmcn/about/editorialTeam
- International Scientific Committee and Editorial Review Board on Computer and Information Engineering.
<http://www.waset.org/Committees/computer-andinformation-engineering>
- International Advisory Board for International Journal of Computer Application & Applied Sciences (IJCAAS).
<http://ijcaas.com/Advisory#>
- Editorial Board Member for Science Research Association (SCIREA) *Journal of Information Science and Systems Science*.
- Editor for Informatics Engineering and Information Science
https://books.google.com.jm/books?id=zWarCAAAQBAJ&pg=PR13&lpg=PR13&dq=simon+ewedafe&source=bl&ots=Izngr9q9q2&sig=9Mo9K9B4JtNqO_WS2MHFrTyZjQc&chl=en&sa=X&ved=0ahUKEwibgYuAvZbUAhUNySYKHaimBxk4ChDoAQgnMAU#v=onepage&q=simon%20ewedafe&cf=false

Fokum, Daniel

- External assessor for the University Council of Jamaica (UCJ). Examined a B.Sc. Information Technology programme, 2017.
- Provided comments on CAPE Computer Science Units 1 & 2 Syllabi
- Proctor for IEEEExtreme Programming Competition, Oct. 2017.
- Coach for ACM Intercollegiate Programming Competition, Sep.–Oct. 2017.
- Conference Reviewer: ACM Technical Symposium on Computing Science Education, SIGCSE (2018)
- 11th Conference of the Faculty of Science and Technology

Gaynor, Paul

- Chief Examiner CAPE Computer Science 2016–2018.

Hamilton-Taylor, Ashley George

- Advisor on Hear the Children's Cry IT systems
- Judge on #HackAgainstHunger/Caribbean (Feb. 2018)
- Provided comments to the Caribbean Examinations Council on revisions to the syllabus for CAPE Computer Science Units 1 & 2, 2018 and CAPE Information Technology Units 1 & 2, 2018.
- Presentation of 3D documentary on Ethiopia and animation for International Girls in ICT (GICT) Day at WAVE lab, UWI, Mona, April 2018.

Mansingh, Gunjan

- Council Member – Jamaica Computer Society.
- Reviewer: *International Journal of Knowledge Management*, IGI Publishing.
- European Conference on Information Systems (ECIS), AIS Conference
- International Conference on Design Science Research in Information Systems and Technology (DESRIST 2018).
- Journal – *Decision Support Systems*, Elsevier.
- Journal – *Expert Systems with Applications*, Elsevier.