A New Beginning

In October 2008, the former Department of Mathematics and Computer Science was separated into a Department of Mathematics and a Department of Computing. The moniker “Computing” was chosen to reflect that “Computer Science” has come to have a narrower connotation of subject matter than in the past, and that the Department is interested in offering other computing programmes, such as Information Technology, Software Engineering, and Computer Engineering.

Staffing

All the staff members of the former Section of Computer Science (in the joint Department) were appointed in the newly established Department of Computing; no new staff members were appointed. Mrs. Gunjan Mansingh successfully defended her PhD (Information Systems) thesis dissertation. Dr. Daniel Coore was promoted to Senior Lecturer in April, 2009 with effect retroactively from August, 2006.

Work of the Department

One of the aims of our curriculum strengthening exercises has been to provide the means for increased exposure of our students to industry professionals and practices. To that end, we have actively engaged with an increased number of companies to achieve this aim. In September, 2008, two recent graduates were selected to participate in a 6 week internship with a leading Costa Rican IT company, named Avantica. The feedback from both the students and from Avantica was very positive. We had planned to repeat the experience this year, unfortunately the global recession caused Avantica to place those plans...
The Department has also engaged with Jamaica National Building Society to provide consultative services and software to automate certain labour intensive processes; in June, 2009 we delivered the first version of a custom built tool for user acceptance testing. In December 2008, Mr. Curtis Busby-Earle, represented the Department at a sub-regional workshop on cyber security awareness, jointly hosted by the Inter-American Committee Against Terrorism (CICTE) and The Implementation Agency for Crime and Security. Out of that event, the Department, through Mr. Busby-Earle, was asked to provide input on a newly proposed Cyber Crimes Act in Jamaica. We also anticipate providing training and certification to professionals in cyber security, as a result of the eventual passing of the Act.

This year, for the first time ever, the Department offered both of its first year courses in both semesters; this provides some degree of flexibility to students from other programmes, as well as reduces the waiting time for a second sitting of a course, for those students who fail on their first attempt. A part of our strategy for improving research output is to encourage staff members to use the Summer period to push hard on their research agendas, or more generally to engage in useful activities – such as running a workshop or certificate course that is accessible to the wider community – that they would not normally be able to do while carrying their regular teaching loads. Unless there is strong demand for a specific course from eligible students, the Department no longer offers repeat courses in the Summer, which used to be primarily to facilitate students who had failed during the normal semester. Taken altogether: repeat core courses during the normal semesters, and encouragement for staff to use Summers primarily for research, we expect will lead to improved research output, without any significant change in student throughput. On other curricular matters, the Department also updated its MSc programme in December 2008, which is currently under review for final approval.

**Research Activities**

One of the most significant research projects that the Department has been involved with over the past year is the Cardiac Surgery Simulator project. The cardiac surgery simulator is to a cardiac surgeon what a flight simulator is to a pilot. Its central component is a pig’s heart that is made to beat by the computer-controlled action of a pump that rhythmically inflates and deflates balloons inserted inside the heart. Other components that add to its realism are a computer-controlled
monitor to display vital sign traces (e.g. ECG, blood pressures, temperature) that are synchronised with the beating of the heart, a mock chest cavity to house the heart, and circulating red fluid to emulate the flow of blood into, and around, the heart. The simulator was invented in 2002 by Dr. Paul Ramphal, Dr. Daniel Coore, and Dr. Michael Craven. At the start of 2008, it received strong interest from the American Board of Thoracic Surgery, through its chairman, Dr. Richard Feins, who has since, provided much exposure for the simulator among the professional societies relevant to cardiac surgery in the USA.

In August 2008, the Mona campus, through appropriate legal representation, made an initial attempt to find a licensee to commercialise the simulator; but the recession in the USA at the time, made it difficult to attract a suitable offer. In early 2009, a decision was taken to leverage the strong interest in the simulator from the professionals who had seen it, by replicating the simulator in limited numbers, and placing a unit in strategically prominent teaching hospitals across the USA that have a strong cardiac surgery training programme. In April 2009, negotiations with eight (8) teaching hospitals began; these include: Mass. General Hospital (Harvard Medical School), Johns Hopkins University, Mayo Clinic, Vanderbilt University, Rochester University, University of North Carolina (Chapel Hill), University of Washington, and Stanford University. Negotiations are still underway; and in the meantime, the Department, through Dr. Coore, has taken the lead role in the development of a second version of the simulator to expand its functionality and to improve its usability. The negotiations are expected to be completed by the end of 2009, and production and delivery of the units within 3 months of signing the agreements.

**Funding Awards**

Dr. Ashley Hamilton-Taylor was awarded J$1.5 million in response to an application to the Campus’s New Initiative Fund to establish the Web, Animation, Visualisation, and E-Learning (WAVE) Research Lab. Dr. Suresh Sankaranarayanan was awarded J$180,000 from the Research and Publications fund for a project investigating the performance of routing algorithms on wireless sensor-based mesh networks for health applications. The Department was awarded a UNESCO contract for US$39,500 to establish a Web based platform for the dissemination, exchange and application of science and technology.
PAPERS PRESENTED


- **Ezra K. Mugisa** and **Carl Beckford**: “Conversion and Delivery of Courses via a Course Management System”. In George


- A. G. Hamilton-Taylor, “Information and Communications Technology in Africa and the Diaspora: Development or

PUBLICATIONS

Books


Journal Articles


Student Throughput

A total of 54 students graduated from one of our two undergraduate programmes. This represented a decrease from 72 in academic year 2007-2008. There were 37 students from the Faculty of Pure and Applied Sciences and 12 students from the Faculty of Humanities and Education who completed the Computer Science major and 5 (in FPAS) who completed the Computer Studies Option (a programme that allows a combination of courses from Management Studies and Mathematics to be taken together with a particular selection from the Computer Science major). These numbers are further broken down by gender and class of degree as follows:

<table>
<thead>
<tr>
<th>Programme Faculty Gender</th>
<th>BA Computer Science</th>
<th>BSc Computer Science</th>
<th>BSc Computer Studies Option</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FHE</td>
<td>FPAS</td>
<td>FPAS</td>
</tr>
<tr>
<td></td>
<td>M       F       Total</td>
<td>M       F       Total</td>
<td>M       F       Total</td>
</tr>
<tr>
<td>1st Class</td>
<td>0       0       0</td>
<td>0       1       1</td>
<td>0       0       0</td>
</tr>
<tr>
<td>Upper 2nd</td>
<td>1       0       1</td>
<td>2       3       5</td>
<td>0       4       4</td>
</tr>
<tr>
<td>Lower 2nd</td>
<td>2       2       4</td>
<td>8       4       12</td>
<td>1       0       1</td>
</tr>
<tr>
<td>Pass</td>
<td>3       4       7</td>
<td>15      4       19</td>
<td>0       0       0</td>
</tr>
<tr>
<td>Total</td>
<td>6       6       12</td>
<td>25      12      37</td>
<td>1       4       5</td>
</tr>
</tbody>
</table>

288
Awards

Mr. Curtis Busby-Earle was recognised as an ACM¹ Senior Member. This award “recognises those ACM members with at least 10 years of professional experience and 5 years of continuous Professional Membership who have demonstrated performance that sets them apart from their peers.” [ACM Awards Web site²]. Dr. Daniel Coore received SRC national innovation awards (best in category, and overall runner-up) for the cardiac surgery simulator in October, 2008. The Department was pleased to grant the Dr. Karl Robinson Award, for the best performance in Computer Science courses up to Semester 1 of year 3 in the programme, jointly to Miss Kimberly Simon and Mr. Matthew Budram.