



APPLIED RESEARCH ACCOLADE



Alem Alemayehu

Computer Programming Research Assistant

Niagara Research wishes Alem Alemayehu a fond farewell after working two years with us. He is moving to Alberta to begin working full time.

Alem, an Ethiopian from Addis Ababa, came to Canada in 2007 with a degree from the Africa Nazarene University in Nairobi, Kenya. While at Niagara College, Alem studied computer engineering.

Alem says he was “always interested in computers, mathematics and physics since high school.” During his time at Niagara Research, he specialized in web-based applications. He helped create noiseinniagara.com with a group of web design students. Alem says the site is “kind of like MySpace, but dedicated to this region.”

Noise in Niagara is a place for people in the music industry—

promoters, musicians and fans—to connect and stay informed about upcoming shows. The website is dynamic, meaning it contains databases of information about the bands, when and where they’re performing, etc., and allows website administrators much easier site maintenance. The Noise in Niagara website, says Alem, “has its own content management system built-in.”

A similar project, the Students in Applied Research Training (START) website, also required Alem to do some intricate programming. “START is basically a student portal; it has six different modules like blogging, bios, news and events. It’s targeting students in research; they can upload their bios, project profiles and resumes.”

The website will be distributed to 10 Ontario colleges in fall,

2009, and he says projects like this helped him get a job.

Alem says he’s very grateful to Niagara Research “for giving me exciting opportunities to work on different projects with different partners. I learned a lot about how to communicate with clients and business people.” He says he’s also grateful for the presentation skills he learned; he feels much more confident when speaking about his work.

He enjoyed working with the web design students at Niagara Research, he says, and hopes his advice will help them in their own careers. His new job will be challenging and he knows there’ll be “lots to learn.”

Is he worried about life in Alberta? “I heard it’s very cold,” he says smiling, then added, “I heard the winter will be eight months up there.”

Grimsby Secondary School Liaison



Milk Snake

On March 30, a group of grade 11 students from Grimsby Secondary School (GSS) arrived at Niagara College as part of a science class field trip. They got a first-hand look at some of Ontario’s reptiles and amphibians, and went on a campus tour. They had a chance to see what student life is like after high school.

The class had just completed units on cell biology and the trip provided them with a hands-on lesson for their next unit. Dave Wyatt, head of the Science department at GSS, says “This trip is the perfect segue into our next unit: biodiversity. This is a nice way to introduce it.”

Students spent the morning with Jeff Hathaway, operator of Scensational Ssnakes!, learning what threats we pose to the survival of Ontario’s

snakes, turtles and amphibians. Hathaway’s company strives to exhibit “conservation through education.” After speaking to the students, Hathaway gave the youth a chance to handle the snakes.

“I learned a lot about the snakes,” says Rhys Coletto, who handled a two-foot milk snake, “I kind of got over my fear—it was a little strange at first handling them, but all of a sudden you warmed up to them.”

Nicole Chino, who assisted in a Niagara Research project last year by planting a native species in the garden at GSS says, “I don’t really like snakes, but I at least touched one.” The tour, says Wyatt, serves to “show them [students] that colleges are a good alternative to university; to give them an idea of what they offer.” Wyatt says students don’t necessarily have a

clear picture of what college is like and added, “I think colleges offer a lot more than universities. Over the last two to three years we’ve had a lot of dialogue between Grimsby and Niagara College.”

As the tour drew to a close Coletto says he “learned that the campus is really interesting and that there’s a lot more to college than meets the eye. It’s a lot more hands-on.”



Grimsby Secondary School students on a campus tour.



Teanne Teeft holding a six-foot Rat Snake.

ANNOUNCEMENTS

Second Place Finishers

Congratulations to Mike Taras and Jeff Brown on their second place overall finish in the 2008/09 Unmanned Vehicle Systems Canada Student UAV competition. They had previously won Phase I of the competition with the submission of their design papers. Team RAGNAROK competed in Gagetown, New Brunswick along with eight other teams.

OMAFRA Grant

Niagara Research is pleased to announce a new 2 year research project funded by the Agricultural Research Institute of Ontario for \$192,000. The “Real-Time Web-based Data Management System for Agricultural Solutions” will help growers improve their operation by providing them with real-time information derived from remote-sensed data specific to their field and crop. The research team is led by Dr. Mike Duncan.

Frog Fest

On May 2 the NEC attended Frog Fest, a day dedicated to “connect people with nature.” They had a booth for participants where they could fold origami frogs from recycled paper. The next NEC event will be the Lafarge open house on June 27 from 10 a.m. until 3 p.m.

## Biogas Innovation Cafe

On March 25, at Brock University, Niagara Research personnel attended an Innovation Café about making products for a sustainable future. The production and use of biogas developed as the main topic of discussion.

Currently agriculture and landfill sites represent a relatively untapped source of energy. But not for Claire Riepma, president of PlanET Biogas Solutions and Darren Fry of Integrated Gas Recovery Service, both of whom have biogas projects underway.

Riepma's company first began operations in 2006, generating electricity for Bayview Flowers in Jordan Station, Ontario, and has recently completed a second project at Vandermeer Greenhouses in Niagara-on-the-Lake. The digester at Bayview, says Riepma, runs "on pet food; it's the dog-kibble you feed your puppy-dog every day." The company that provides the kibble, says Riepma, used to spend about \$250,000 a year on taking their waste material to the dump. Now it's being put to better use.

What is biogas? When organic matter decomposes it releases various compounds, but methane and carbon dioxide (CO<sub>2</sub>) are two key components. The process takes place anaerobically (without oxygen) where millions of microorganisms are hard at work breaking organic material down.

During the decomposition, whether buried in landfill or in tanks at the greenhouse, typically 50 to 65 per cent of the end result is methane, with the remainder being CO<sub>2</sub>. The remainder also includes trace amounts of other (stinky) gases.

Organic matter is put into a digester—basically an industrial sized composter—and the resulting gas runs an engine to make electricity.

At the greenhouse a typical rate of production has the plant using 100 cubic meters of gas each hour.

Material to be digested comes from different sources, but in the case of landfill sites, the gas is simply an intrinsic part of the mounds of garbage we're so fond of collecting.

Fry shared an ominous statistic stating, "Twenty-five percent of Canada's greenhouse gas emissions come from landfill sites."

Walker Industries has developed ways to harvest gases coming from landfill and put them to better use. Even "retired" dumps that lay dormant can become active biogas producers again, says Fry. By adding moisture back into the equation, the biological engines can be fired back up again.

The biogas industry and technology offer us exciting options for a greener, more sustainable future. Research will continue to play a key role in paving the way for wider application.



Biogas digesters at Bayview Flowers.

## Student Research Assistant Training

Summer work placements began at Niagara Research as students assembled for their official orientation week in early May.

Two groups of students, Research 101 and Research 102, attended various workshops throughout the week and became familiar with fellow researchers and the practices of Niagara Research.

Research 102 included students who either returned to Niagara Research for the summer, or who were here last year during orientation and are continuing their projects. Beyond the "meet and greet" portions of the week they learned how to put together an effective business plan and attended a workshop that helped them understand business fundamentals.

Some of the research 101 group activities were: a workshop held by librarians Ralph Laird and Karen McGrath where students were introduced to databases such as Ebsco Host and ProQuest Direct; a Myers Briggs typology test; and a day-long first aid course.

During the week other presenters included: Neil Thornton, business strategist and coach; Marti Jurmain, director, research and innovation division; Holly Catalfamo, Niagara College human resources coordinator; Charlie Bell, Ministry of Labour; and Larry Bitner, certified business consultant.

In his crisp, Irish tone Charlie Bell's repeating of, "according to the book" (the Workplace Health and Safety Act) hammered home the importance of understanding the rights and responsibilities of workers.

One of the humorous moments during the week? "When Scott was the Queen," said Mackenzie Brisbois as she recalled the first day.

Among the many ice-breaking activities students underwent, one involved each student having a well-known person's name stuck to his or her back. The race was on to guess the identity by asking pertinent questions of the other students.

Becky Fitzgerald enjoyed Thornton's portion about introducing an individual to a group. "He definitely brought us all out of our shell," she said. Thornton, with his powerful voice and commanding presence, was a tough act to follow.

Students made use of his "punch-pause-punch" approach. They had to announce someone's first name loudly and clearly, pausing for a moment to ensure audience attention, then stated their surname in the same manner. If Thornton felt it was too weak, or eye contact wasn't maintained with the audience, they got to try it again from the top.

Dave Ykema said he "had a lot of fun during the final presentation," where students had a limited amount of time to put together a group presentation. Dave's group chose a theme of persistence and related how important it is to continue on, even when met by difficulties or challenges.

### Student Feedback

"The group presentations were excellent! Great to see how much of our research we have in common."

"... the immense interdisciplinary collaboration that goes on here and the friendly, open-minded, informal attitude the division has, while still striving for excellence."

"Learning about practical skills in the work place and developing a business."

"I enjoyed getting to know all the researchers from different departments and their projects. I enjoyed learning from Neil Thornton, I felt it was essential for researchers to learn these skills when dealing with community partners."



Should you have any questions regarding how to get started with a research project, please contact us.

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