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“At the Université de Moncton, there’s a bot for that”

By Jim Meek

I have seen the future, and it is a lobster-processing robot at the Université de Moncton (UMoncton).

Moulay Akhloufi, a computer science professor and superstar of the Artificial Intelligence (AI) world, leads the team that designed the brains and central nervous system of the robot, which both shells lobster and gently removes the yummy parts.

It sounds as if the lobster-bot could replace real humans in the workplace, except that it’s hard to find people willing to work in the lobster processing business in Atlantic Canada.

So Akhloufi’s robot – let’s nickname it ‘Helen’ not ‘Hal’ - can safeguard the future of the region’s most valuable seafood industry by alleviating a serious labour shortage.

Here’s how the lobster-bot works. Its eyes (high tech cameras) scan every lobster to determine its size and shape. Its metallic arms and hands are engaged to shell the lobster and remove the meat.

The mechanical parts of the robot are almost standard issue – you can’t buy them at Canada Tire yet, but they’ll soon be shelved next to the WD40.

The lobster bot’s brain is another matter. It was custom designed at UMoncton. Akhloufi and his team wrote the algorithms that transfer information and instructions from the eyes to the hands, equipping the bot with extraordinary hand-eye coordination. “Delicate fingers for the canners, stronger hands for the two pounders. Mind you don’t get carried away and crush a crustacean.”

The bot, being developed with industry partner Pathway to Innovation Inc., can be programmed for speed – it should have the capacity to process hundreds of lobsters per minute. Right now, though, the goal is making sure it operates to specifications at the Alpha-testing phase.

Helen, the lobster-bot, can also discriminate between dead lobsters (good only for the compost bin), and live lobster (good for everything from the restaurant trade to the frozen food bin at your grocer’s). And it can keep a valuable industry prosperous that might otherwise decline along with the supply of labour.

Francis LeBlanc, the university's Associate Vice-President (research), says Helen is an example of the kind of valuable AI 'product' a small university like UMoncton can help design based on the brain power of its people.

As LeBlanc explains it, the university's AI team doesn't have the capacity to engineer or manufacture robotic hardware components – that's sort of a one-off job, in many ways. But it can design and incorporate the AI software (the brains) that make a single robot work in multiple applications for a number of companies. That's the sweet spot, as far as growth is concerned.

UMoncton has also targeted tech savvy in other areas, from robotics to machine intelligence to data mining to voice recognition. In February, it announced a new AI and robotics hub at its Shippagan campus. Last year, an Atlantic Centre of Excellence in Artificial Intelligence and Data Management was established at the main campus.

Gilles Roy, UMoncton's Vice-President (Academic and Research) said the university is actively recruiting staff and AI graduate students to build a foundation for further growth. The university AI team has partnered in every sector from big data mining to health.

Today, companies with massive data banks to mine (think resource industries) can work with the UMoncton team to condense thousands of pages of text into a one- or two-page 'brief' summarizing salient information.

The university also worked with Ottawa's Hôpital Monfort on an AI application that detected early signs of COVID. Other UMoncton 'vision projects' enhance the health sector's ability to detect cancer, eye disease and cardiovascular disease.

Moulay Akhloufi, the AI guru with almost 200 publications to his name, knows the sector has its critics, and as the technology of the future advances at warp speed, the cautionary tales about its application will redouble. (ChatGPT, an AI chatbot, already writes essays for college kids.)

Akhloufi, who takes the critics seriously, tells his students in an AI ethics course that all technology can be used for good or ill. For its part, UMoncton is determined to stay on the side of the angels, and if AI is all about improving health care, distilling massive data banks to their essence, and shelling lobsters in a labour-short market, its future looks promising at UMoncton.

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