



HIGHER EDUCATION AND ARTIFICIAL INTELLIGENCE

by Phineas Dowling, PhD

Northeastern University Invests In the Future of AI

Northeastern University is looking to the future and investing in multiple institutes focused on artificial intelligence (AI) and machine learning. In January of this year, the Boston University announced a partnership with technology entrepreneur David Roux to launch a graduate education and research campus in Portland, Maine, at the Roux Institute, which is dedicated to AI and machine learning. This news comes on the heels of Northeastern's October 2019 launch of the Institute for Experiential Artificial Intelligence, a humanities-based research center also focused on artificial intelligence development.

Two Institutes Designed to Shape the Future of AI

The goal of the Institute for Experiential Artificial Intelligence, according to Northeastern's announcement, is to "place human skills and intelligence at the forefront of artificial intelligence development, from the earliest design steps to the final implementation." To achieve this goal, the university is investing \$50 million for the institute and will hire as many as 30 new faculty members. The Institute is intended to be an interdisciplinary research hub where faculty and researchers from the humanities, law, public policy, AI and machine learning, computing, digital humanities, health, security, materials science, and sustainability will collaborate to develop the future of AI.

Northeastern President Joseph E. Aoun declared in an announcement to the university's students, faculty, and staff, "This new institute, the first of its kind, will focus on enabling artificial intelligence and humans to collaborate interactively around solving problems in health, security, and sustainability. We believe that the true promise of AI lies not in its ability to replace humans, but to optimize what humans do best."

The Roux Institute at Northeastern University is a joint venture between the university and tech entrepreneur David Roux and his wife Barbara, who have invested \$100 million to support the Roux Institute's activities. The Roux Institute will provide graduate degree and certificate programs that focus on the practical application of AI and machine learning in the digital and life sciences. It will not offer undergraduate degrees, however.

The Roux institute's curriculum will be designed around research programs in three areas: Life sciences and medicine, engineering, and data visualization. The top priority set for the Roux Institute in the life sciences is to use artificial intelligence and machine learning to develop new advances in medicine, biology, and human health through the analysis of data. The same techniques will be used in engineering and design, focusing on the development of unique materials and designs in the advancement of new technology and devices. The institute will also focus research in the creation data visualization and user interface tools to enable non-experts in analyzing and using data and artificial intelligence.

The goal of the Institute for Experiential Artificial Intelligence is to "place human skills and intelligence at the forefront of artificial intelligence development, from the earliest design steps to the final implementation." The Institute is intended to be an interdisciplinary research hub where faculty and researchers from the humanities, law, public policy, AI and machine learning, computing, digital humanities, health, security, materials science, and sustainability will collaborate to develop the future of AI.

Northeastern most recently announced that the Roux Institute will open in the fall at a facility currently under construction in Portland, Maine. The new building is operated by one of the ten founding corporate partners of the institute, WEX Inc. Wex is an information management services and payment processing provider. The Roux Institute will have 26,500 square feet of dedicated space in the new facility separate from WEX, while a permanent location for the institute in Portland is selected and developed for 2024. Employees of WEX and

other corporate partners will be among the first students at the institute. Its curriculum and research programs are being developed in collaboration with corporate partners with the aim of meeting their talent needs.

The university's investment in artificial intelligence is a natural expansion of several other interdisciplinary efforts already ongoing at Northeastern, including the university's Institute for Experiential Robotics, the Ethics Institute, and the Institute for the Wireless Internet of Things. Both of the new institutes

Gaming Desks. Gaming Chairs. **GAME ON.**

Spectrum offers a complete line of innovative furniture to engage and integrate your esports arena



Esports Shadow Desk



Download Your
**FREE ESPORTS
GUIDEBOOK**
at shorturl.at/ewzB4

SPECTRUM
INDUSTRIES INC.
QUALITY SOLUTIONS by design

800-235-1262
info@spectrumfurniture.com
SPECTRUMFURNITURE.COM

“This new institute, the first of its kind, will focus on enabling artificial intelligence and humans to collaborate interactively around solving problems in health, security, and sustainability. We believe that the true promise of AI lies not in its ability to replace humans, but to optimize what humans do best.” — NORTHEASTERN PRESIDENT JOSEPH E. AOUN

are part of the university’s strategic plan, dubbed “Northeastern 2025.” This strategic plan is a blueprint for student learning and development based on the core metaphor of “networks.” These networks—between people, data, machines, experiences, etc.—are part of Northeastern’s vision for experiential learning to prepare students for what they call an “Age of Humanics.” Northeastern 2025 is aimed at understanding and harnessing the relationships between humans, data, artificial intelligence, and machines.

Why These Efforts Matter

It is not a question of whether artificial intelligence, automation, and machine learning will shape the future of medicine, engineering, and public life. AI is already a part of so much of the modern world. The real question is how that future will be shaped, both in a technical and ethical sense.

Artificial intelligence is already playing a major role in most fields, especially in medicine and human sciences. As Iris Berent, a professor of psychology at Northeastern University, points

out in a recent *LA Times* op-ed, “Artificial intelligence is everywhere. It helps drive your car, recognizes your face at the airport’s immigration checkpoint, interprets your CT scans, reads your resume, traces your interactions on social media, and even vacuums your carpet.” While the general fear about AI is more reminiscent of the *Terminator* or *Matrix* franchises, Berent points out, the actual dangers tend to be more hidden and less overtly apocalyptic.

The true dangers of AI are the same those posed by any technological advancement: who makes it, how they design it (and for whom), who controls it, and who benefits (or suffers) from it. While AI, automation, and algorithms can make life and work much easier, they reenact many of the same biases and problems of the human choices they are designed to replace. To adequately program an artificial intelligence system, even a so-called “learning” AI, requires vast amounts of forethought to anticipate the different scenarios and choices that AI may encounter.

As an example of the kinds of ethical choices AI may encounter, consider automated



NEW EVOLUTION SERIES
LITHIUM POWERED ELECTRIC
COMMERCIAL EVO-74"
PATENT US 10,130,037



- 74" Deck
- Up to 8 hours of runtime
- Touch Screen Display
- 13 mph
- Side Discharge or Rear Discharge Mulching Deck
- 37 HP Diesel Equivalent
- Michelin Tweels (front)
- 78 dB(a)
- Rapid Height Electronic Deck Lift System With Foot Pedal
- Custom Suspension Seat
- Dual Support Anti-Scalp Wheel Mounts
- 6000-9000 Mowing Hours of Battery Life

THE FUTURE IS GREEN

Find a Dealer at:
www.meangreenmowers.com

vehicles. When building an automated car, one must program how the car's AI will "respond" to different accident risks. Some choices are simple: if a pedestrian steps in front of the car, the car will apply its brakes to preserve the life of the pedestrian. But what if there is a car immediately behind the AI car when the pedestrian steps into the street? Braking suddenly could cause an accident that puts passengers in both cars at risk of injury or death. Do you program the car to swerve? What if there is oncoming traffic? The car must make a split-second decision about which potential deaths or injuries are most acceptable.

Other challenges that face AI are questions of bias. The belief is usually that a machine, using logic to make choices, will not be biased along lines of race, sex, gender, etc. These machines are made and designed by people, however, with their own implicit biases. As companies turn to AI tools to make job candidate selection more efficient, for example, they expose themselves to the risk of compounding potential biases embedded in their applicant filtering criteria. For example, as Paige Smith and Daniel R.



Enrollment Down?

Beautify with modern planters.

REQUEST A QUOTE

To get a free \$25
coffee gift card*

SHORT LEAD TIMES

To get what you want,
when you need it.

CUSTOM OPTIONS

To meet your exact
specifications.

DEDICATED SERVICE

One point of contact for the
duration of your project.

TRADE PROGRAM

20% - 40% discounts.

*Qualified projects only.

puremodern

www.puremodern.com | 866.481.0788 | sales@puremodern.com



Stoller recently pointed out in a Bloomberg Law article, even Amazon recently had to abandon their learning-AI recruitment program because it taught itself that male applicants were preferable to women applicants based on the company’s current hiring patterns. The AI, rather than selecting the “best” candidate, simply recreated the biases already inherent in the hiring process.

These are all ethical questions without easy answers. Northeastern’s two new institutes and their investment in the future of AI and the human element in its creation are efforts to figure out how to anticipate and answer such questions.



ABOUT THE AUTHOR: Dr. Phineas Dowling has a PhD in literature from Auburn University. His research focuses on Scottish identity and British literature of the long eighteenth century. In addition to his scholarship and teaching, Phineas has a strong interest in pedagogy and university administration

Measuring Moisture is our Expertise. Accuracy and Reliability is our Strength.



Lignomat Moisture Measurement
PO 30145, Portland OR 97230
Ph: 800-227-2105 FAX 503-256-3844

Email: sales@lignomat.com
www.lignomat.com

Moisture Intrusion is the number one concern keeping buildings structural safe and healthy.

We offer measuring and monitoring devices to find problems and monitor repairs.

Call 800-227-2105 for a recommendation.

Handheld meters for wood, drywall, concrete. We offer a wide selection.

Monitor moisture and humidity. For short and long-term monitoring.

Report measurements over the Internet.

For all remote applications and Building Surveillance.



PERFORMANCE MATTERS

YOUR ATHLETES COUNT ON YOU.

**YOU CAN COUNT
ON RAMUC**

SPECIALTY POOL COATINGS



**TOP-QUALITY, SPECIALTY COATINGS
FORMULATED FOR BEAUTIFYING
AND MAINTAINING POOLS,
AQUATIC FIXTURES AND
POOL DECKS.**