Seneca POLYTECHNIC

EMBRACING AI IN EDUCATION & RESEARCH: A POLYTECHNIC APPROACH

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Seneca Polytechnic

Bespoke education

Where ambition meets flexibility

The best of university & college

Blend of theory & practice

Career-ready & world-ready graduates

Experiential learning & human skills

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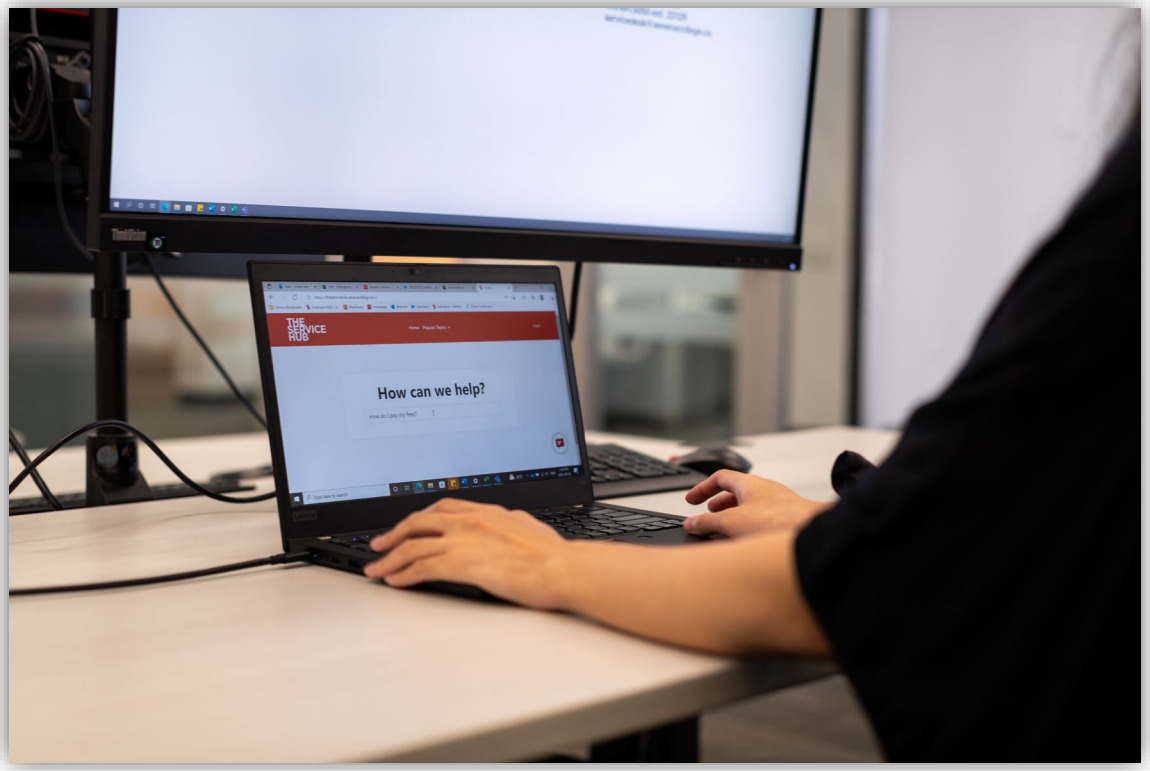
IN THE BEGINNING

TODAY



INNOVATION IS IN OUR CULTURE

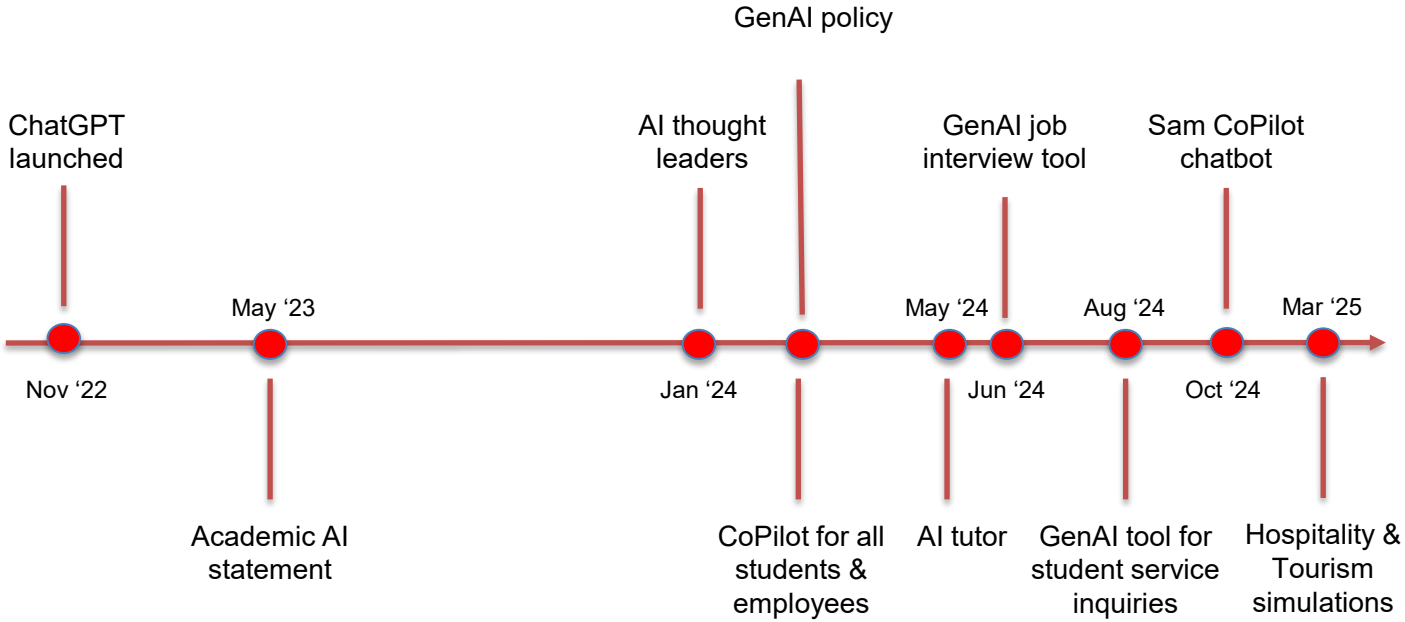
Institutional
Organizational change

Teaching and learning
Academic experiences

Graduate profile
Career readiness

Industry
Workforce leadership

SENECA'S AI TIMELINE



GENAI STATEMENT

"… all Seneca students will have the opportunity to critically engage with AI emerging technologies to prepare for their careers and life as engaged citizens."

- *Seneca Polytechnic GenAI Institutional Statement*

MICROSOFT COLLABORATION

GenAI POLICY

"Seneca is committed to leveraging available technologies to work smarter, better, and more efficiently. This includes using Generative Artificial Intelligence (GenAI) technologies …

… Given the rapid advances of GenAI technologies and tools, this policy serves as a general framework to ensure responsible and safe use of GenAI in academic and operational contexts."

- *Purpose statement, Seneca's GenAI Policy*

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ACADEMIC EXPERIENCES

Seneca Centre for Innovation in AI Technology

OVERVIEW OF CIAIT

- Strong alignment between academic programming and regional need
- Helps local SMEs to develop and adopt AI to enhance their businesses
- Supports include AI adoption and AI commercialization activities

Example of AI adoption:

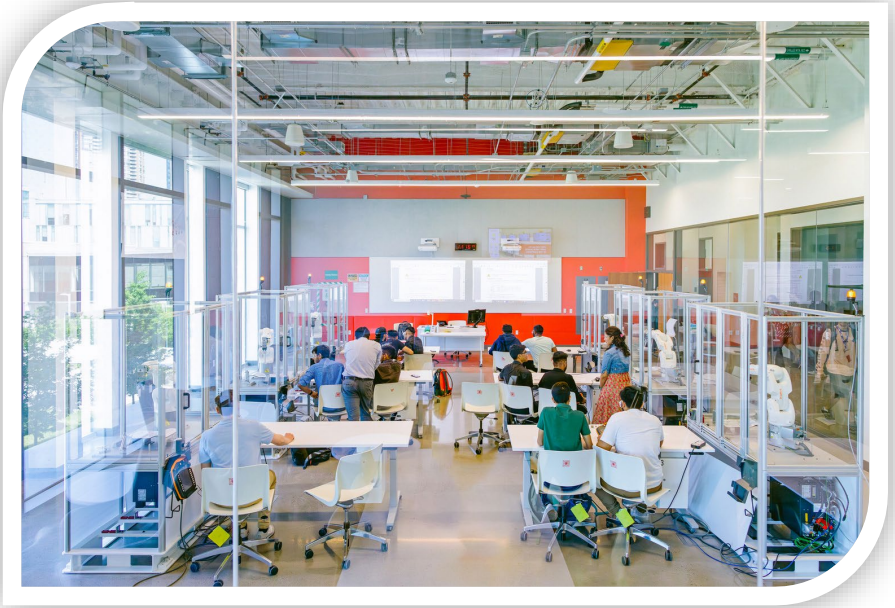
Recommendation engine for retail

Example of AI commercialization:

AI to improve debt recovery

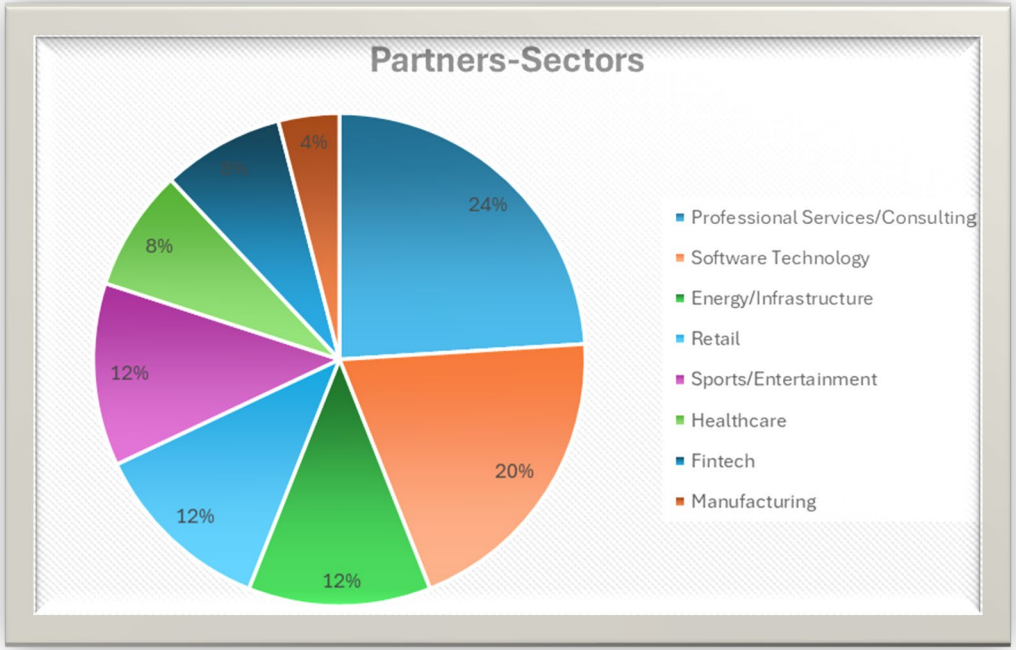
CIAIT SERVICES

- AI readiness planning
- AI solution development and integration
- AI testing and validation



BENEFITS TO BUSINESSES

- Enhanced AI knowledge within SMEs
- AI readiness
- Gains in productivity
- New business opportunities
- Workforce-ready AI skilled talent



HOW BUSINESSES CAN ENGAGE

- **Applied research partnerships**: Grant leveraged, reduced risk, innovation
- **Capstone courses**: Access to a pool of motivated and skilled students, who complete projects you help to inform
- **Work-integrated learning (e.g., co-ops/internships)**: a talent pipeline of prospective employees who gain industry experience during their studies

APPLIED RESEARCH AT CIAIT

16 APPLIED RESEARCH PROJECTS

14 FACULTY INVESTIGATORS

44 STUDENT RESEARCH ASSISTANTS

$1MILLION RESEARCH FUNDING

3Ps of applied research:

- **Practical** solutions to challenges
- **Partner** driven
- **Purpose** oriented with actionable, commercially relevant deliverables

Participation by:

- Industry/community collaborators
- Faculty research leaders
- Student research assistants

CAPSTONE COURSES

- A curriculum-based research project in the final semester of an academic program

- Offered in three degree programs and select graduate certificates

  (E.g., Bachelor's degrees in Software Engineering, Data Science and Analytics, and Computer Science and AI graduate certificate)

Capstone course example:

- Create a teachable machine model for plant growth

STEM MINDS

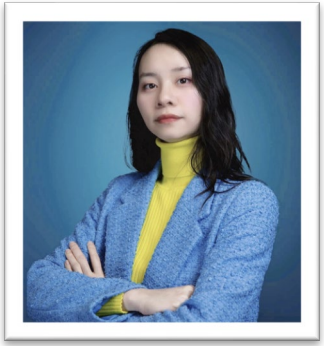
WORK-INTEGRATED LEARNING (WIL)

- WIL positions built into applied research projects
- MITACS-funded internship programs for AI research

Oak Valley Health

TRINETRA

STUDENT OUTCOMES



"Working on these projects has inspired me to further pursue AI research and development. This fall, I will be starting a master's degree in Computer Science at Toronto Metropolitan University, building upon the foundation and confidence I gained through applied research at Seneca."

- **Zubeka Dang**, graduate, Data Science and Analytics program and research assistant

"Applied research encouraged me to pursue more hands-on opportunities in AI and computer vision, and it strengthened my interest in working at the intersection of research and industry-driven innovation in my career. I am looking forward to starting at Acclaim Ability Management Inc. as a Data Science and AI Engineer."

- **Kannav Sethi**, graduate, Software Engineering program, and research assistant

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LEADING THE WORKFORCE

AI TOOL TO AUTOMATE JOB POSTINGS (WEBTACTICS)

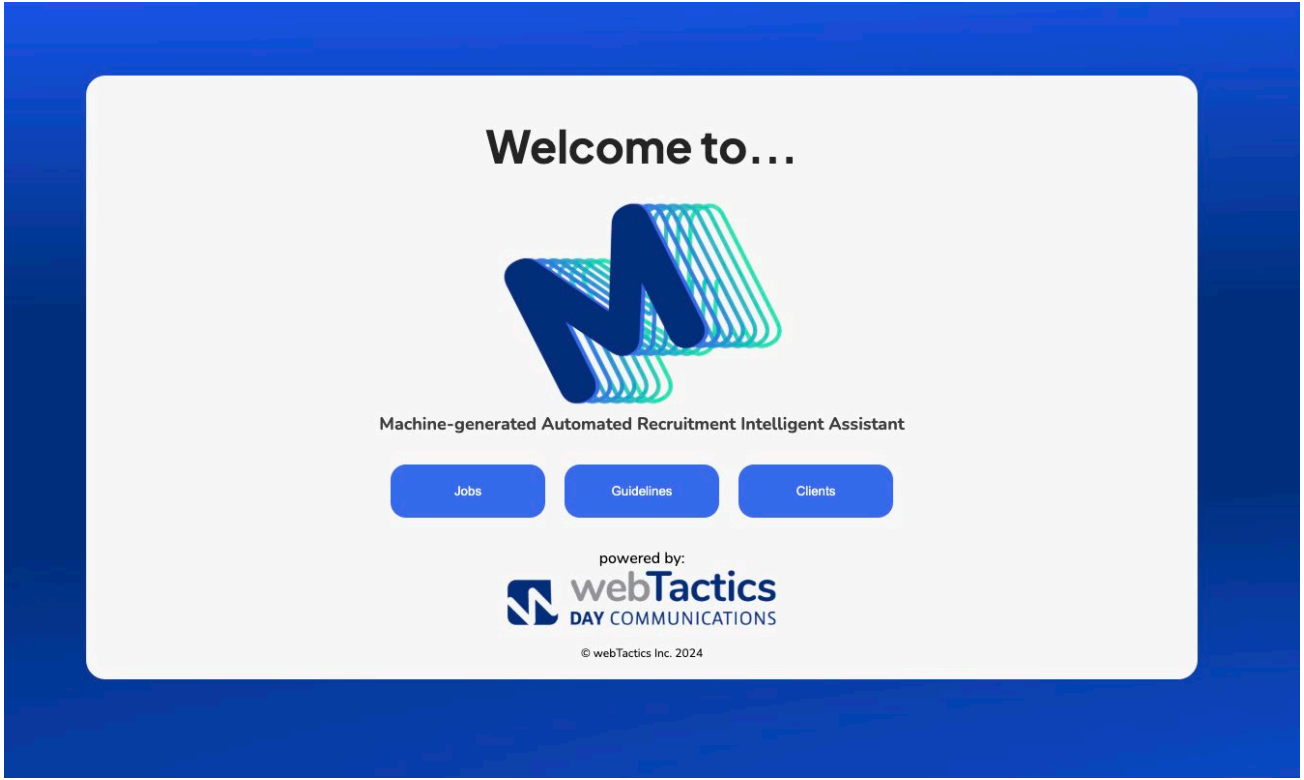
TACKLING REAL-WORLD CHALLENGES: AUTOMATING JOB POSTINGS

- **Problem:** Creating job descriptions is time-consuming for copywriters
- **Partner:** WebTactics, who identified inefficiencies in their job posting process
- **Opportunity:**
  - AI & Natural Language Processing offer potential for automation
  - A new tool could reduce a significant amount of time and friction for the company
  - A practical and impactful project for students to explore fundamental and novel NLP ideas

STUDENT LEARNING IN ACTION: BUILDING A NLP-POWERED WEB APP

- **The core mission was to develop an intelligent web application. Through this, our students gained hands-on experience by:**
  - Exploring and implementing language generation models
  - Designing for precision
  - Developing data insights
  - Mastering information extraction

THE STUDENT JOURNEY: FROM CONCEPT TO PRODUCTION



Generate Job Posting

Select a Client:

The Cheese Institute of Ontario T.C.I.O.

Select a Job:

Select a Job for The Cheese Institute of Ontario T.C.I.O.

Select a Guideline:

Standard Guideline

Job Description

Normal

Full-Time, 12-Month Contract
Location: Toronto, Ontario
Salary: $80,000 - $95,000/year
The Cheese Institute of Ontario (T.C.I.O.) is looking for an experienced Senior Research Scientist to lead groundbreaking research on cheese fermentation processes. This role is central to the institute's mission of advancing cheese technology and innovation.
Key Responsibilities:
- Design and execute experiments to improve cheese quality and flavor profiles.
- Collaborate with the quality assurance and product development teams.
- Analyze data and present findings at academic conferences.
- Supervise and mentor junior researchers and interns.

Qualifications:
- Ph.D. in Food Science, Microbiology, or a related field.
- 5+ years of experience in dairy or food research.
- Strong analytical and problem-solving skills.
- Ability to work both independently and in a team environment.

Style Override (for this generation only)

Normal

{Job Title}

{Position Type}, {Position Duration}

{Variable}
Location: {Job Location}
{Variable}
Salary:{Salary}

{Variable}
{Job Description}

{Long-List}
Key Responsibilities:
- {Insert Data here as Unordered List}

{Long-List}
Qualifications:
- {Insert Data here as Unordered List}

{Fixed}
The Cheese Institute of Ontario hold's it's cheese making standards in the highest regard. All applicants will be tested on their knowledge of hard and soft cheeses from a variety of regions. Applicants are required to have completed a base level course in cheese making such as this. While we respect and value the input of all those who apply, only successful applicants will be contacted.

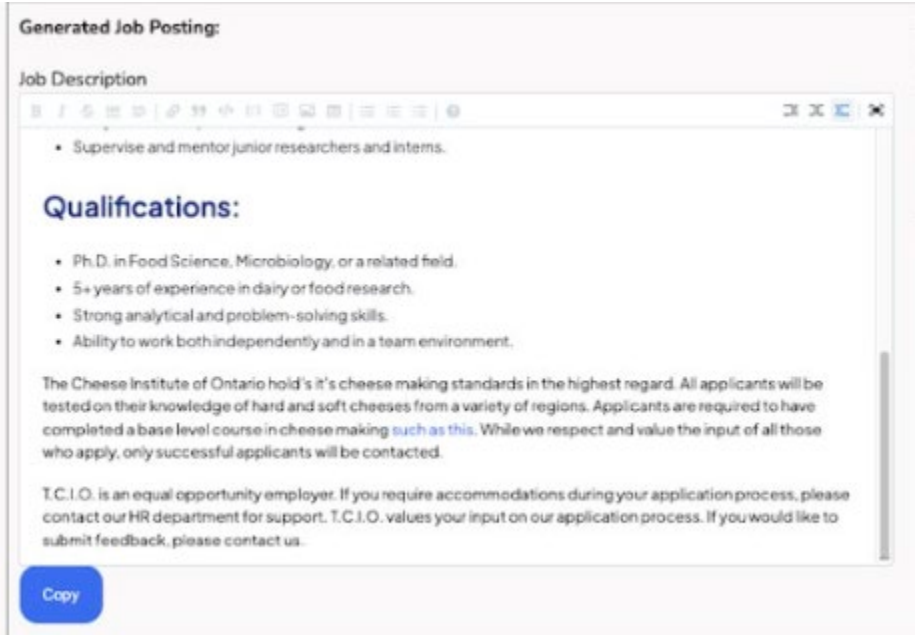
{Fixed}
T.C.I.O. is an equal opportunity employer. If you require accommodations during your application process, please contact our HR department for support. T.C.I.O. values your input on our application process. If you would like to submit feedback, please contact us.

Job Notes:
There are no notes for the selected Job.

Additional Information

Additional Information

Generate Posting


Generated Job Posting:
Job Description
• Supervise and mentor junior researchers and interns.
Qualifications:
• Ph.D. in Food Science, Microbiology, or a related field.
• 5+ years of experience in dairy or food research.
• Strong analytical and problem-solving skills.
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T.C.I.O. is an equal opportunity employer. If you require accommodations during your application process, please contact our HR department for support. T.C.I.O. values your input on our application process. If you would like to submit feedback, please contact us.
Copy


Generated Job Posting:
Job Description
Cheese Production Technician
Full-Time, Permanent
Join The Cheese Institute of Ontario (T.C.I.O.)
Location: Toronto, Ontario
Salary: $50,000 - $55,000/year
Join The Cheese Institute of Ontario (T.C.I.O.) as a Cheese Production Technician. You will work in the heart of our cheese-making facility, ensuring that all products meet the highest standards of quality and safety.
Responsibilities:
Copy

STUDENT EXPERIENCE

- **True immersion in industry**
- **Fundamental to advanced AI & NLP mastery**
- **Building the future: in-demand technical skills**

- "This project directly contributed to making students career-ready with tangible proof of their capabilities."

FUTURE CONSIDERATIONS

- **Advanced model exploration:** Continued comparison of models (GPT-4, newer versions) vs. fine-tuned options
- **Real-world cost-benefit analysis:** Ongoing evaluation of token usage, pricing models (e.g., pay-as-you-go vs. custom) and fine-tuning costs
- **Refinement:** Further training and improvement of the fine-tuned model