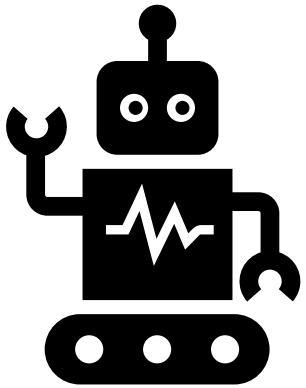
Neil Squire



Empowering Accessibility and Productivity with AI

Charles Levasseur, Regional Director, Technology Specialist

2025

Why did the AI get a job in supported employment?

Because it always assists with a positive attitude and never takes a coffee break!

How many Assistive Technology sppecialists does it take to change a lightbulb

- None—if the environment is accessible, the lightbulb changes itself!

Neil Squire

Neil Squire was a 21-year-old university student who was injured in a car accident in 1980. He sustained a C1/brainstem injury, leaving him paralyzed from the neck down, unable to move his arms or legs and unable to breath independently or speak.

After the Accident

Neil's family, along with some dedicated professionals, created a ground-breaking device which enabled him to speak through a computer.

After Neil passed, the small but mighty group formed the Neil Squire Society in 1984 in his name, to keep improving the lives of people with disabilities through technology.

Neil Squire Society

We are a Canadian national not-for-profit organization. Our work is focused on four distinct areas: Innovation, Digital Literacy, Employment, and Assistive Technology.

Through our collaborations, we can do more to empower people with disabilities.

Neil Squire

Innovation

Digital Literacy

Employment

Assistive Technology

Collaboration

What is the Promise of AI?

- Having more time for yourself?

- Ultimately, AI's greatest promise is **augmenting human potential**, helping us **solve problems faster**, **live healthier lives**, and **explore new frontiers** in science, space, and beyond.

Promise 1 - Enhanced Efficiency & Productivity

- AI can automate repetitive tasks, freeing humans to focus on creative and strategic work.
- Industries like manufacturing, logistics, and customer service can optimize operations with AI-driven automation.

Promise 2 - Smarter Decision-Making

- AI can analyze complex data to provide insights for businesses, governments, and individuals.
- Predictive analytics helps in finance, weather forecasting, and risk management.

Promise 3 - Improved Education & Learning

- Personalized tutoring systems adapt to individual student needs.
- AI can make education more accessible through language translation and assistive technologies.

Promise 4 - Solving Global Challenges

- Climate change: AI can optimize energy use, improve climate modeling, and enhance renewable energy systems.
- Food security: AI-powered agriculture can increase crop yields and reduce waste.
- Disaster response: AI can predict natural disasters and assist in rescue operations.

Promise 5 - Enhanced Creativity & Innovation

- AI tools assist in art, music, writing, and design, expanding human creativity.
- Generative AI can help brainstorm ideas and prototype solutions faster.

Promise 6 - Ethical & Societal Improvements

- AI can help reduce human bias in hiring, policing, and lending (if designed responsibly).
- AI governance frameworks could ensure fairness, transparency, and accountability.

Promise - Other

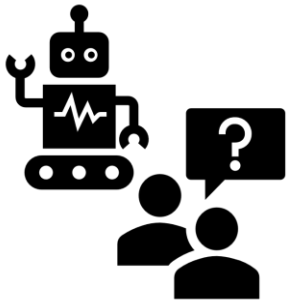
- Breakthroughs in Science & Medicine
- Economic Growth & Job Creation
- Better Human-Machine Interaction
- Democratization of Knowledge & Services

Information is Power

- Empowers Individuals and Communities
- Democratizes Access to Information
- Ensures Accuracy and Reliability
- Enhances Informed Decision-Making
- Promotes Trust in Technology

Will AI Replace Humans

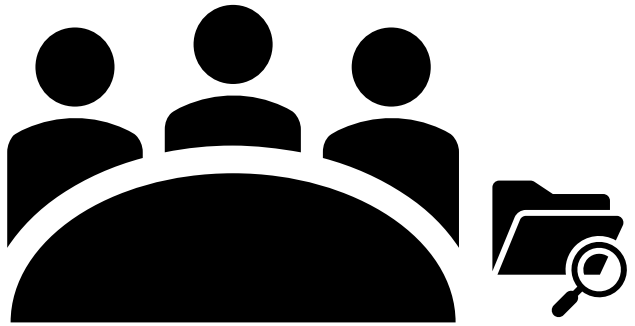
- While AI holds immense promise, it also comes with risks:
  - job displacement, ethical concerns, misinformation, and security threats.
- Collaboration between humans and AI will redefine work and productivity
- AI will augment human performance
- Humans will need to evolve their skills
- Humans with AI will replace humans without AI



Privacy & Ethics

- When using AI tools—especially in employment or support settings—we must protect the dignity, rights, and personal information of the individuals we serve.

Be Careful out there, play safe.



Privacy Considerations

- **Data Sensitivity**: AI tools may process personal or health-related information. Always ensure consent is obtained and data is handled securely.
- **Tool Selection**: Use AI platforms that comply with Canadian privacy laws like **PIPEDA**, and international standards like **GDPR**.
- **Local Storage**: Avoid uploading sensitive documents to cloud-based AI tools unless they are approved and secure.

Ethical Use

- **Transparency**: Let individuals know when AI is being used and how it supports them.
- **Bias Awareness**: AI can reflect societal biases. Always review outputs critically and ensure fairness.
- **Empowerment, Not Replacement**: AI should enhance human support—not replace it. The goal is to **augment human care**, not automate it away.

Best Practices

- Use AI as a **co-pilot**, not an **autopilot**.
- Regularly review AI-generated content for accuracy and appropriateness.
- Choose tools with **clear privacy policies** and **ethical AI commitments**.

Today's Reality

Becoming efficient with technology requires experimentation!

Charles Levasseur

Summary

collaboration between humans and AI
will redefine work and productivity.

Humans using AI in the workplace
will replace humans not using AI.

We are only just starting.

Current Categories of AI

Capabilities	Functionality	Techniques	Application
• Narrow • General • Super Intelligent	• Reactive • Limited Memory • Theory of Mind • Self-Aware	• Machine Learning • Deep Learning • Natural Language Processing • Robotics	• Computer Vision • Speech • Autonomous • Generative AI

The future - Agentic AI

Artificial intelligence systems that can operate autonomously, make decisions, and take actions to achieve goals with minimal human intervention. These systems are designed to be proactive rather than just reactive.

Key characteristics: Autonomy, Goal-Oriented Behavior, Decision-Making, Adaptability, Action Execution

What’s new in 2025

- AI agents are becoming a key trend in 2025, especially with the rise of tools like AutoGPT, Devin, and personal AI assistants that can:
  - Autonomously plan and execute tasks
  - Interact with multiple tools and APIs
  - Adapt to user goals over time

What Are AI Agents?

- AI agents are systems that can autonomously perform tasks by perceiving their environment, making decisions, and taking actions—often across multiple steps—without constant human input.

Key Features of AI Agents

- **Autonomy**: Operate independently once given a goal
- **Goal-Oriented**: Work toward specific outcomes
- **Tool Use**: Can use web browsers, APIs, or software tools
- **Memory**: Retain context across tasks or sessions
- **Adaptability**: Learn from feedback and adjust behavior

Examples of AI Agents

- **AutoGPT**: Plans and executes multi-step tasks like market research
- **Devin** (by Cognition): An AI software engineer that can write, debug, and deploy code
- **Personal AI Assistants**: Agents that manage your calendar, emails, and reminders

AI Agents in Supported Employment

AI agents can:

- Help users with disabilities automate complex workflows
- Act as virtual assistants for education or job coaching
- Reduce cognitive load by handling repetitive or multi-step tasks

Job Coaching Agents

AI-powered virtual job coaches can:

- Help individuals prepare for interviews through mock Q&A sessions
- Provide reminders and guidance for daily work tasks
- Offer real-time feedback on communication or workplace behavior

Example: Some organizations are piloting LLM-based agents that simulate workplace scenarios to help neurodiverse individuals practice social interactions and task management.

Task Automation Agents

For individuals with physical or cognitive disabilities, AI agents can:

- Automate repetitive digital tasks (e.g., data entry, scheduling)
- Integrate with assistive tech like eye-tracking or voice control
- Help manage workflows using tools like Microsoft Copilot or custom GPTs

Example: AI agents embedded in Microsoft 365 Copilot can assist with writing emails, summarizing meetings, and organizing tasks—especially helpful for users with executive functioning challenges.

Personalized Learning & Upskilling Agents

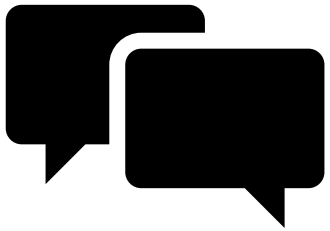
AI tutors and learning agents can:

- Adapt training content to individual learning styles
- Provide real-time feedback and encouragement
- Help users build digital literacy and job-specific skills

Example: Tools like Khanmigo and AI-powered LMS platforms are being adapted for accessibility, offering personalized learning paths for people with disabilities.

Large Language Model (LLM) AKA Chatbot

- Artificial intelligence system built using deep learning techniques, designed to understand and generate human-like text.
- How it works in conversation
  - Learning from Tons of Text (Training)
  - How It Predicts Words (Like a Word Game)
  - The Magic Trick: The Transformer Brain NEW
  - Talking Back (Generating Responses)
  - Fine-Tuning (Making It Useful & Safe) Extremely Important



Popular Conversation Based AI

01

DeepSeek.com

02

ChatpGPT.com

HamGPT

Python (Application API, Code, etc.)

03

Gemini.google.com

04

Copilot.microsoft.com

Don’t forget about your Digital Assistants

Microsoft Cortana

Amazon Alexa

Google Assistant / Gemini

Apple Siri

Samsung Bixby

Context Awareness and Memory

In AI conversations, AI remembers and builds on previous exchanges to maintain continuity and relevance. This allows the user to continue prompting the chatbot to refine the answers.

When the AI Chatbot uses memory features certain key details can persist across different sessions or conversation.

Ask the Chatbot the following question: ***What do you know about me?***

Multimodal approach

- Text – The most common approach. (Prompt Engineering)
- Images – Can be very useful for describing an image, analysing a blueprint, etc.
- Audio – Not with traditional Chatbot.
- Video – Not with traditional Chatbot.

Additional tools

- https://www.google.ca/alerts#
- https://scholar.google.ca/
- https://www.researchgate.net/
- Claude.ai
- https://www.chatpdf.com/
- https://notebooklm.google/
- Perplexity
- Elicit
- Otter.ai

Organizational Tools

OneNote	OneDrive	Google Drive
https://mymind.com/	https://obsidian.md/	https://xtiles.app/

Paid vs Unpaid AI Tools

Free AI Tools:

Ideal for beginners, hobbyists, or those with tight budgets. They allow users to explore AI without financial commitment.

Paid AI Tools:

While they require an investment, they often deliver significant ROI through enhanced productivity, quality, and support. They are suitable for businesses and power users who need advanced capabilities.

Feature Comparison June 2025 (Free AI)

Feature	**ChatGPT Free** (GPT-4.1 mini)	**Gemini Free** (2.5 Flash)	**Claude Free** (Sonnet 4)	**DeepSeek Free** (R1)	**Copilot Free**
Max Context Window	32K tokens	128K tokens	200K tokens	128K tokens	4K–32K tokens
Multimodal (Text + Images)	Yes (basic image input)	Yes (images + diagrams)	No	Text only	Yes (DALL·E)
File Uploads	Limited (no PDF parsing)	Yes (PDF, Docs)	Yes	Yes	Yes (Office files)
Web Search Access	No	Yes (Google Search)	No	Manual only	Bing-based
Coding Support	Strong	Moderate	Moderate	Excellent	Specialized
Best For	General use, creativity	Research, real-time info	Long-form, deep analysis	Technical tasks	Office productivity
Limitations	No real-time data	Limited model access	Slower response times	UI less polished	Not general-purpose

Why Some AI "Forgets" Long Conversations

- Tokens = Chunks of Words
  - Example: "ChatGPT" = 2 tokens ("Chat" + "GPT")
- Context Window:
  - ChatGPT4: 8,000 tokens
  - DeepSeek: 128,000 tokens (great for long documents)
- Implications:
  - After the limit, AI "forgets" earlier parts of the conversation.

Key Characteristics of AI Free Tiers:

- Limited Usage
- Feature Restriction
- Capacity Limits
- Always Free VS Free Trail
- Watermarks or Branding

Conversation Driven (Prompts)

- Example 1
  - What technology can I use for note taking in school?
  - I have Dyslexia and Dysgraphia. What Assistive Technology can I use for note taking in school?

- Remember GIGO --> Garbage In, Garbage Out

Prompt Engineering Tips:

- Be Clear and Specific
- Use Context
- Ask Open-Ended Questions
- Iterate and Refine
- Set Constraints
- Use Examples
- Be Polite and Courteous
- Leverage AI's Strengths
- Feedback Loop

Increase Accuracy Feature with Thinking features

- DeepThink - DeepSeek
- Reason - ChatGPT
- Deep Research - Gemini

AI as Assistive Technology for education

- Speech-to-Text & Text-to-Speech (TTS)
- AI-Powered Reading Assistance
- AI Chatbots & Virtual Assistants
- Predictive Text & AI Writing Assistants
- Real-Time Captioning & Translation
- Eye-Gaze & Voice-Controlled Interfaces
- Personalized Learning & AI Tutoring

AI as Assistive Technology for the workplace

- AI-Powered Accessibility Tools
- AI-Powered Communication Assistants
- AI-Driven Workplace Assistants
- AI for Physical Accessibility
- AI-Powered Cognitive Support Tools
- AI in Hiring & HR Support

Text Enhancement (1 of 2)

- **Original**: Becoming efficient with technology requires experimentation!
- **Make it Formal**: Improving proficiency with technology necessitates a process of experimentation.
- **Make it Easier to Read**: Experimenting with different tools and techniques can help you find what works best for you.

Text Enhancement (2 of 2)

- **Make it Passionate**: Unlocking the power of technology is a journey filled with endless possibilities and boundless opportunities waiting to be discovered. Embracing the unknown and fearlessly diving into the realm of experimentation is the key to becoming truly efficient with technology. With each trial and error, we grow closer to unraveling the mysteries and harnessing the full potential of these innovative tools. Let your curiosity guide you and your passion fuel your determination as you embark on this exhilarating quest towards technological mastery. The future is in your hands, so dare to explore, dare to try, and dare to become the tech-savvy individual you were always meant to be.

Product Comparison

- Compare the Radioddity GD-88 and the Anytone AT-D168UV.

VS

- Compare the Radioddity GD-88 and the Anytone AT-D168UV by listing the relevant features in a table format and include the price in Canada dollars.

Other Ways to use AI

- Personal Assistants
- Healthcare
  Including Mental Health
- Finance
- Customer Service
- Learning and Research
- Entertainment
- Coding
- Transportation
- Retail
- Content Creation
- Language Translation
- Etc.

We are reluctant to adopt new technology

- Fear of the Unknown
- Cost Concerns
- Lack of Technical Expertise
- Disruption of Routine
- Previous Negative Experiences
- Cultural Resistance
- Perceived Lack of Value
- Compatibility Issues
- Security and Privacy Concerns
- Time Constraints

Becoming efficient with technology requires experimentation!

Issues with AI Chats

- Accuracy & Reliability
- Context Retention & Understanding
- Bias & Ethical Concerns
- Privacy & Security
- Lack of Emotional Intelligence
- Dependence & Over-Reliance
- Ethical Use & Manipulation
- Limited Creativity & Adaptability

Hallucination in Chatbots

- In 2023, a lawyer in the U.S. used ChatGPT to help write a legal brief. The AI confidently cited several court cases—but they were entirely fictional. The judge discovered that the cases didn’t exist, leading to professional embarrassment and legal consequences for the lawyer.
- Lesson: AI can generate convincing but false information. Always verify critical outputs, especially in legal, medical, or academic contexts.

Bias in Hiring Algorithms

- Amazon developed an AI hiring tool that was trained on resumes submitted over a 10-year period. The system learned to downgrade resumes that included the word “women’s” (e.g., “women’s chess club captain”) because most past applicants were men.
- Lesson: AI can inherit and amplify societal biases present in training data, leading to unfair or discriminatory outcomes.

Misinformation Generation

- Generative AI tools have been used to create fake news articles, deepfake videos, and synthetic social media posts that appear credible but are entirely fabricated. These have been used in disinformation campaigns and scams.
- Lesson: AI can be misused to spread misinformation at scale, making it harder to distinguish truth from fiction.

Remember, AI may Forget Long Conversations

- Tokens = Chunks of Words
  - Example: "ChatGPT" = 2 tokens ("Chat" + "GPT")
- Context Window:
  - ChatGPT4: 8,000 tokens
  - DeepSeek: 128,000 tokens (great for long documents)
- Implications:
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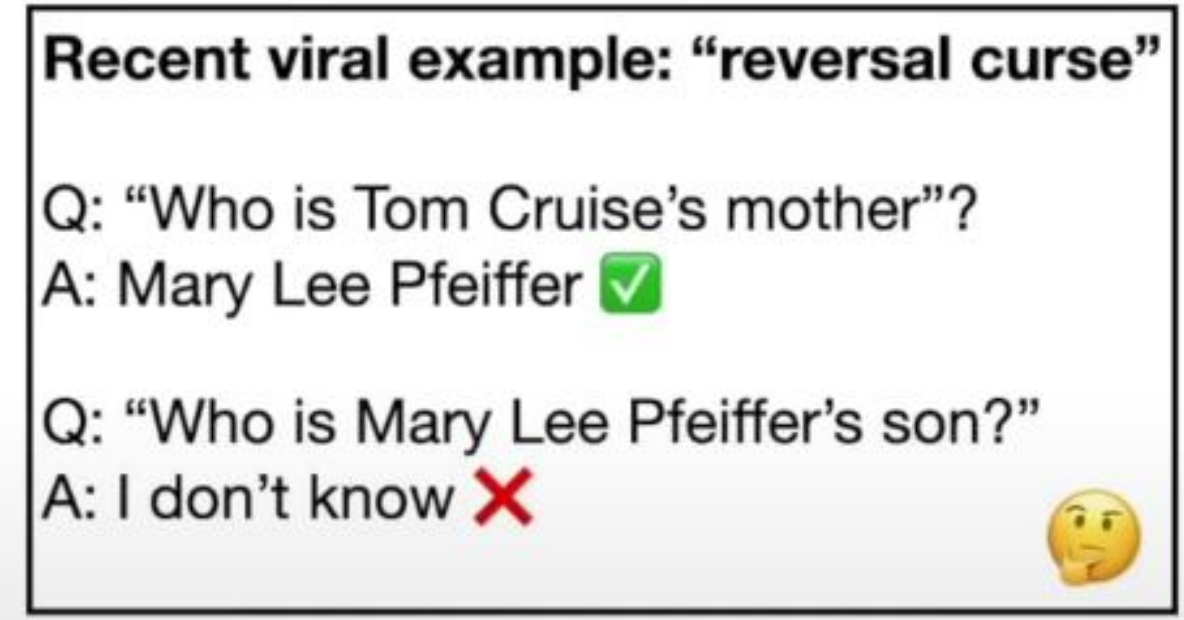
Reversal Curse in LLM Neural Network



Source Andrej Karpathy - Intro to Large Language Models

Choose your next step

- Adopt a Digital Mindset
- Explore the use of Conversational AI for works, study and play
- Promote effective and productive use of technology

Becoming efficient with technology requires experimentation!

Charles Levasseur

Questions?

Thank you