THE SECURITY BENCH

2025

ARTIFICIAL INTELLIGENCE ERA

TRENDS, SKILLS AND OPPORTUNITIES

White paper

Prepared By
The Security Bench

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SUMMARY

This white paper takes you into the fascinating world of artificial intelligence and its rapidly expanding career opportunities. You will discover how AI is transforming industries, the most in-demand jobs, and the essential skills needed for success. From technical roles to strategic positions, this guide provides a comprehensive overview of the most promising careers and market trends.

Whether you are a beginner looking to enter the field or a professional seeking specialization, this book will offer valuable insights to navigate this ever-evolving landscape and seize the opportunities of tomorrow.

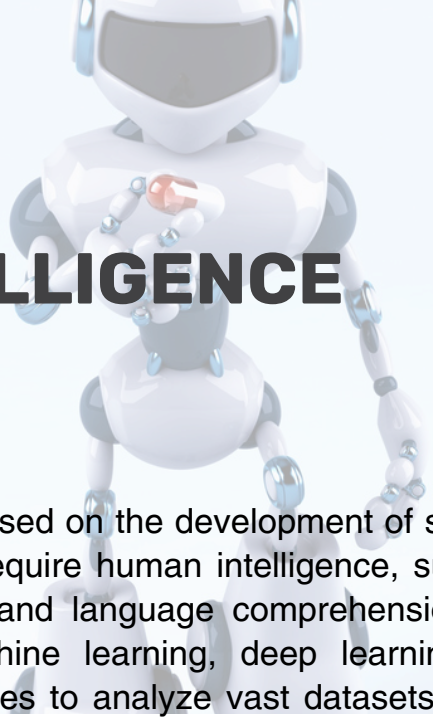
INTRODUCTION

The exponential growth of digital infrastructure has catalyzed artificial intelligence (AI) as a pivotal driver of innovation and economic transformation. From nascent tech startups to established multinational corporations, public sector institutions, and non-governmental organizations, AI is fundamentally reshaping the paradigms of work, communication, and decision-making. Through advancements in machine learning, deep learning, and natural language processing, AI empowers the automation of complex processes, enhances predictive accuracy, and delivers tailored user experiences.

The scope of AI's impact transcends the boundaries of the technology sector. In healthcare, it is revolutionizing diagnostic protocols and predictive medicine. Within financial services, AI optimizes risk management and fraud detection. In the realm of marketing, it enables the personalization of customer engagements. This widespread adoption has triggered an acute surge in the demand for specialized talent. According to data released by the Bureau of Labor Statistics (BLS, 2023), AI-related occupations are among the fastest-expanding segments of the labor market, characterized by robust employment rates for recent graduates.

However, this period of rapid expansion is accompanied by salient challenges. The acquisition of technical proficiency remains a core prerequisite, complemented by a nuanced understanding of ethical and regulatory considerations. The proliferation of AI raises critical questions regarding transparency, accountability, and the potential displacement of traditional employment. A comprehensive AI education extends beyond the acquisition of coding skills; it necessitates the development of a holistic perspective encompassing both the potential and limitations of the technology.

This white paper is designed to serve as a strategic guide for professionals navigating the dynamic AI job market. It provides insights into high-demand roles, prevailing market trends, and essential competencies for career advancement. Whether facilitating career transitions, supporting recent graduates, or enabling professional development, this document aims to provide the tools necessary to effectively position oneself in the evolving landscape of AI-driven employment.



ARTIFICIAL INTELLIGENCE IN BRIEF

Artificial intelligence is a discipline focused on the development of systems capable of performing tasks that traditionally require human intelligence, such as learning, pattern recognition, decision-making, and language comprehension. It leverages advanced techniques, including machine learning, deep learning, and natural language processing, enabling machines to analyze vast datasets, adapt to novel situations, and enhance performance over time.

AI has become pervasive in everyday life, manifesting in applications such as voice assistants, recommendation algorithms, and autonomous vehicles. Its impact spans numerous sectors: in healthcare, it facilitates more precise diagnostics; in finance, it automates fraud detection; and in manufacturing, it optimizes production and predictive maintenance.

Healthcare

AI accelerates drug discovery by analyzing large amounts of genomic and molecular data (Deloitte, 2024).

Industrie

AI is used to optimize production processes, improving efficiency and reducing costs (L.E.K. Consulting, 2024).

This radical transformation of the job market is creating a growing demand for skilled professionals to design, develop and manage these technologies.

A fundamental comprehension of artificial intelligence and its core disciplines is essential for individuals seeking to advance within this field. Machine learning, for instance, empowers machines to learn from data and generate predictive insights, while deep learning utilizes artificial neural networks to process complex information structures. Natural language processing, in turn, underpins the functionality of chatbots and intelligent assistants.

These technologies, when synergized with the analysis of large-scale datasets, form the nucleus of the digital revolution and engender a wealth of professional opportunities.

THE AI JOB MARKET: CANADA, UNITED STATES, UNITED KINGDOM

The pervasive influence of artificial intelligence is fundamentally transforming the global employment market. To elucidate this dynamic, our analysis concentrates on three pivotal markets: the United States, the United Kingdom, and Canada. These nations, as leaders in AI innovation and research, offer unique perspectives on emergent trends.

The United States, the crucible of Silicon Valley, continues to spearhead technological innovation. The concentration of industry giants such as Google, Amazon, and Apple fuels a sustained demand for specialized talent (Stanford AI Index, 2023). Robust public and private sector investments, coupled with the presence of globally renowned universities (MIT, Stanford), solidify this leadership position (McKinsey Global Institute, 2023).

Concurrently, the United Kingdom is establishing itself as a European hub for AI research. London, in particular, attracts burgeoning startups and financial technology enterprises, supported by cutting-edge institutions like DeepMind (Deloitte, 2023). Proactive governmental strategies and a vibrant startup ecosystem contribute to the sector's continued growth.

Finally, Canada distinguishes itself through its centers of excellence in deep learning (Montreal, Toronto, Edmonton) and immigration policies that actively attract international talent (Deloitte, 2023). The Vector Institute, Mila, and Amii, alongside sustained public investments, position Canada as a key actor in the global AI landscape (Institut Vecteur de l'Intelligence Artificielle, 2023).

TOP 10

IA JOBS MARKET OVERVIEW: CANADA, UNITED STATES & UNITED KINGDOM

Job Openings on Glassdoor & Dice

Rank	Job Title	Description	Job Titles Aliases US/CA	Job Titles Aliases UK
1	AI Engineer	Builds AI solutions with cloud, ML, and software engineering.	• AI Solutions Engineer • AI Software Engineer • Cloud AI Developer	• Applied AI Engineer • AI Systems Developer • AI Cloud Engineer
2	Data Scientist	Applies advanced analytics and machine learning to solve complex problems.	• Computational Analyst • Predictive Modelling Expert	• Applied Data Scientist • Quantitative Data Modeller • Research Data Scientist
3	Machine Learning Engineer	Builds and deploys scalable machine learning models, optimizing algorithms for performance and efficiency.	• ML Engineer • Predictive Analytics Engineer • AI Software Developer	• Applied ML Engineer • Intelligent Systems Engineer • Computational Learning Engineer
4	AI/ML Researcher	Conducts research on artificial intelligence and machine learning, developing new algorithms and advancing the field.	• AI Research Scientist • ML Researcher • Computational AI Specialist	• Research AI Scientist • Theoretical ML Researcher • AI Algorithm Researcher

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IA JOBS MARKET OVERVIEW: CANADA, UNITED STATES & UNITED KINGDOM

Job Openings on Glassdoor & Dice

Rank	Job Title	Description	Job Titles Aliases US/CA	Job Titles Aliases UK
5	AI/ML Architect	Designs high-level AI/ML solutions, ensuring scalable architecture and integration with cloud technologies.	• AI Solutions Architect • ML Systems Architect • Cloud AI Architect	• AI Infrastructure Architect • Intelligent Systems Architect • ML Enterprise Architect
6	AI Product Manager	Oversees AI product development, aligning AI strategies with business objectives.	• AI Solutions Manager • AI Product Strategist • Intelligent Systems PM	• AI Innovation Manager • Machine Learning Product Lead • AI Systems Product Manager
7	AI developer	Designs and develops AI-powered applications, integrating machine learning models into software solutions.	• AI Software Developer • ML Application Engineer • Intelligent Systems Developer	• AI Application Engineer • ML Software Specialist • Cognitive Systems Developer

TOP 10

IA JOBS MARKET OVERVIEW: CANADA, UNITED STATES & UNITED KINGDOM

Job Openings on Glassdoor & Dice

Rank	Job Title	Description	Job Titles Aliases US/CA	Job Titles Aliases UK
8	Deep Learning Engineer	Focuses on deep learning techniques, working with frameworks like TensorFlow and PyTorch to build AI solutions.	• Neural Network Engineer • AI Deep Learning Specialist • Vision AI Engineer	• Deep Learning Scientist, • AI Model Developer • Neural Computing Engineer
9	Director of AI	Leads AI strategy, research, and implementation within an organization, overseeing AI teams and projects.	• Head of AI • VP of AI • Chief AI Officer	• AI Director • Head of Machine Learning • AI Innovation Lead
10	AI Strategy Consultant	Advises businesses on AI adoption, helping define AI strategies and optimize AI-driven initiatives.	• AI Business Consultant • AI Transformation Advisor • Machine Learning Strategy Consultant	• AI Adoption Consultant • Intelligent Systems Advisor • AI Implementation Specialist

KEY TECHNICAL SKILLS FOR DATA ROLES BY COUNTRY

Based on glassdoor website

AI ENGINEER

CANADA

Azure 58%, TensorFlow 53%, Google Cloud Platform 27%, AWS 22%, Kubernetes 20%

USA

TensorFlow 35%, Azure 27%, Machine Learning 23%, Google Cloud Platform 22%, AI 21%

UK

Machine Learning 41%, TensorFlow 34%, Azure 31%, AI 24%, Python 21%

DATA SCIENTIST

CANADA

Azure 43%, SQL 32%, TensorFlow 27%, Machine Learning 23%, Data Mining 21%

USA

Machine Learning 38%, R 38%, TensorFlow 32%, SQL 30%, AI 24%

UK

Machine Learning 65%, SQL 57%, R 30%, Natural Language Processing 22%, AI 22%

AI/ML RESEARCHER

CANADA

TensorFlow 56%, Machine Learning 50%, Research 44%, English 25%, Python 25%

USA

Research 49%, Machine Learning 42%, AI 42%, Computer Science 32%, TensorFlow 29%

UK

Machine Learning 72%, Deep Learning 32%, TensorFlow 24%, Natural Language Processing 24%, AI 24%

MACHINE LEARNING ENGINEER

CANADA

TensorFlow 36%, Machine Learning 33%, Kubernetes 30%, Azure 24%, Go 18%

USA

TensorFlow 53%, Computer Science 30%, Machine Learning 28%, AI 23%, Java 18%

UK

Machine Learning 64%, TensorFlow 44%, AI 28%, Communication Skills 24%, AWS 20%

AI/ML ARCHITECT

CANADA

AWS 67%, Enterprise Software 33%, SQL 33%, Analysis Skills 33%, Natural Language Processing 33%

USA

Azure 40%, AI 27%, DevOps 27%, Cloud Architecture 27%, TensorFlow 27%

UK

DevOps 100%, AWS 100%, Machine Learning 100%, AI 100%, Communication Skills 100%

AI PRODUCT MANAGER

CANADA

Product Management 100%, AI 67%, Azure 33%, Customer Service 33%, DevOps 33%

USA

Product Management 71%, AI 57%, Software Development 43%, Machine Learning 43%, User Research 29%

UK

Product Management 67%, Big Data 33%, Product Development 33%, AI 33%, Leadership 33%

AI SPECIALIST

USA

AI 60%, Machine Learning 40%, Analysis Skills 40%, TensorFlow 20%, Computer Vision 20%

UK

Machine Learning 56%, AI 44%, R 33%, Natural Language Processing 22%, SQL 22%

DIRECTOR OF AI

CANADA

Product Development 33%, Machine Learning 33%, Product Management 33%, Agile 33%, AI 33%

USA

Machine Learning 62%, AI 54%, Leadership 46%, Management 23%, Big Data 15%

- ***THE PERCENTAGES ARE CALCULATED BASED ON THE FREQUENCY OF EACH SKILL'S OCCURRENCE ACROSS VARIOUS SOURCES, DIVIDED BY THE TOTAL NUMBER OF ENTRIES, AND THEN MULTIPLIED BY 100. A QUALITATIVE ADJUSTMENT WAS SUBSEQUENTLY APPLIED TO REFLECT THEIR RELATIVE IMPORTANCE. IT IS IMPORTANT TO NOTE THAT CERTAIN SKILLS FOR SPECIFIC POSITIONS AND COUNTRIES ARE MISSING DUE TO INSUFFICIENT INFORMATION AVAILABLE TO ESTABLISH THEM.***

THE SECURITY BENCH

THE AI JOB MARKET: TRENDS TO KNOW

The artificial intelligence job market is experiencing unprecedented growth, with particularly strong demand in North America's leading tech hubs. Our analysis of job postings reveals clear trends shaping this dynamic professional landscape.

The Emerging Hierarchy of AI Roles

The current AI job landscape exhibits a well-defined stratification of sought-after profiles:

- Data Scientists and AI Engineers dominate the market, accounting for 24% and 21% of job postings, respectively. This dominance reflects the fundamental need for professionals who can both extract insights from data and develop operational AI solutions.
- Machine Learning Engineers rank as the third most in-demand profile (14% of postings), underscoring the growing importance of AI model industrialization.
- AI/ML Researchers (9% of postings) and AI/ML Architects (6%) round out the top five, highlighting the critical role of innovation and the design of robust AI solutions.

Regional Specificities: A Contrasting Market

Our comparative analysis of the United States, Canada, and the United Kingdom reveals significant differences:

- United States: The focus is on innovation, with strong demand for AI Engineers (31% of postings) and AI/ML Researchers (16%). Companies such as Tesla, Apple, and Amazon lead the hiring efforts.
- Canada: The market leans more toward technical implementation, with AI Engineers representing 52% of postings and notable demand for neural network specialists (7%), a role nearly absent in other markets.
- United Kingdom: The market is more balanced, with AI Engineers (33%) and Machine Learning Engineers (25%) playing key roles, particularly within the financial sector (e.g., BlackRock, Barclays).
-

KEY SKILLS TO START A CAREER IN ARTIFICIAL INTELLIGENCE

Mastering TensorFlow is essential for starting in AI. Between 24% and 67% of job postings require this skill, with high demand for Machine Learning Engineers (43% of job offers in the UK) and Computer Vision Engineers (67% in the US).

Knowledge of cloud platforms like Azure and AWS is also crucial. Azure is particularly sought after in Canada, where 43% of AI Engineer job offers require it, while AWS dominates in the UK with 58% of AI/ML Architect job offers.

The industrialization of AI models requires familiarity with Kubernetes, mentioned in 27% of job postings for ML Engineers. This skill is becoming a major asset for technical professionals working on large-scale deployments.

Soft skills are equally important. Communication skills are required in 20% to 50% of job postings and are particularly critical for AI Product Managers, where 60% of job offers mention product management. In Canada, French bilingualism is a competitive advantage, cited in 45% of job postings. For leadership positions, management skills are essential, with 100% of Director of AI job postings mentioning leadership as a requirement.

Market trends indicate evolving expectations. The demand for MLOps is rising, with 40% of ML Engineer job postings requiring CI/CD skills. AI ethics is becoming a key concern, particularly for leadership roles. Finally, specialization in fields such as computer vision, natural language processing (NLP), or robotics can help professionals stand out in the job market.

ETHICAL AND REGULATORY CHALLENGES

AI is transforming the job market, but its development raises crucial ethical concerns. For job seekers, understanding these issues is a valuable asset.

- Bias and Transparency: AI models can unintentionally reproduce discrimination. Professionals must master bias mitigation techniques and promote explainable algorithms.
- Data Protection: AI relies on massive data processing. Compliance with regulations such as GDPR and the AI Act is essential, especially for data and cybersecurity specialists.
- Impact on Employment: Automation is reshaping existing jobs while creating new roles like AI Ethics Specialist and AI Governance Consultant. Continuous learning is key to staying relevant.
- Responsibility and Regulation: More companies are integrating ethics and compliance into their processes. A solid understanding of regulatory challenges is a strong advantage for candidates.

💡 Job Seeker Tip: Highlighting a course or project related to AI ethics on your resume or in an interview can be a real differentiator!

CONCLUSION

Artificial intelligence is emerging as a key driver of change in the job market. New roles are being created, while existing ones evolve under the growing influence of AI-driven technologies. The demand for data science experts, machine learning engineers, and AI ethics governance specialists continues to rise.
However, adapting to this revolution goes beyond mastering technical skills. Understanding economic, social, and ethical challenges is just as crucial. Companies seek professionals who can innovate, collaborate with multidisciplinary teams, and anticipate AI's impact on their industry.

Continuous learning is essential. In a rapidly evolving field, regularly updating skills on new technologies and trends is a strategic advantage. Training programs, certifications, and hands-on experience help professionals gain sought-after expertise and advance in promising careers.

Ultimately, those who combine technical expertise, strategic vision, and ethical awareness will play a central role in shaping AI's development and integration into society. The future of work is being redefined—it's up to each individual to prepare for it and seize new opportunities.

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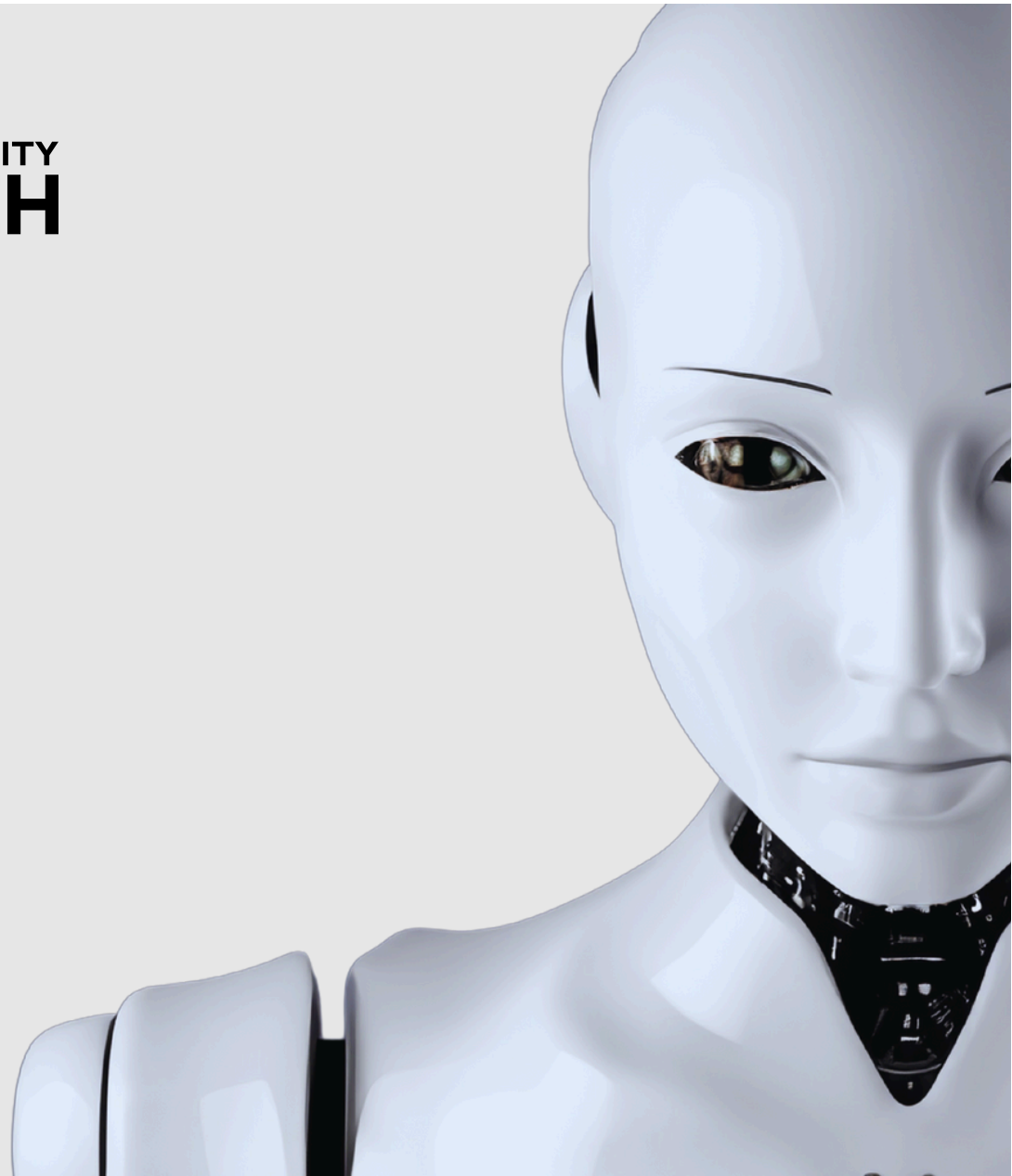

Appendix 1

Top 10 IA-Related Job Openings in Canada - Ranked by Total Number of Positions (Based on Glassdoor)

RANK	JOB TITLE	TOTAL OPENINGS	TOP COMPANIES
1	AI Engineer	112	Synopsys, EvenUp, Cresta
2	Machine Learning Engineer	77	Google, Amazon Development Centre Canada, Agiloft
3	Data Scientist	67	Deloitte, Intact, TD Bank
4	AI/ML Researcher	33	Amazon Development Centre Canada, TD Bank, CIBC
5	AI/ML Architect	12	PwC Canada, Foilcon, Roche
6	AI Product Manager	7	Global Relay, Sunia Technology, Comm100 Network Corporation
7	Computer Vision Engineer	3	SafelyYou, Apera AI, 4AG Robotics
8	AI Programmer	2	Save On Stitch, Puneet Immigration Services
9	Jr Programmer Artificial Intelligence	1	Airlab Inc.
10	Artificial Intelligence Tutor	1	Educify Inc.

Appendix 2

Top 10 IA-Related Job Openings in United States - Ranked by Total Number of Positions (Based on Glassdoor)

RANK	JOB TITLE	TOTAL OPENINGS	TOP COMPANIES
1	AI Engineer	216	Tesla, Booz Allen, Apple
2	AI/ML Researcher	111	Amazon.com Services, Meta, Apple
3	Machine Learning Engineer	85	Apple, Google, Adobe
4	Data Scientist	50	Google, Salesforce, AstraZeneca
5	AI/ML Architect	32	Logical Leap, Volto Consulting, ActioNet
6	AI Product Manager	19	Meta, The Washington Post, Cotiviti
7	AI Specialist	6	Virtual Assist, ESC of Central Ohio, Advizex
8	AI Program Manager	3	Holland & Hart LLP, Steneral Consulting, AMD
9	Director of AI	2	Walden Creek Investments, Inkitt
10	AI Strategy Consultant	2	VaaridaTech, Tech Intellectuals

Appendix 3

Top 10 Data-Related Job Openings in United Kingdom - Ranked by Total Number of Positions (Based on Glassdoor)

RANK	JOB TITLE	TOTAL OPENINGS	TOP COMPANIES
1	AI Engineer	57	BlackRock Investments, Arm, Reqiva Ltd
2	Machine Learning Engineer	44	Apple, PlayStation Global, Meta
3	AI/ML Researcher	39	Meta, Microsoft, University of Cambridge
4	Data Scientist	28	William Hill, Northern Care Alliance NHS Foundation Trust, NPL
5	AI/ML Architect	5	Mars, RemoteStar, Arm
6	AI Product Manager	5	Barclays, Liberty Global, SymphonyAI
7	AI Specialist	2	Medpace, Inc., Synapri
8	AI/ML Intern	2	Sohamtech UK, European Bank for Reconstruction and Development
9	Director of AI	2	Integrated Care 24 Ltd, GE Vernova
10	AI Consultant	1	EY

Appendix 4

Top 10 Data-Related Job Openings in Canada - Ranked by Total Number of Positions (Based on Dice)

RANK	JOB TITLE	TOTAL OPENINGS
1	AI Engineer	76
2	AI/ML Architect	12
3	Neural Network Engineer	10
4	AI Developer	8
5	Data Scientist	7
6	Deep Learning Engineer	6
7	ML Engineer	4
8	Senior Technical Product Manager - AI	1
9	Product UX Designer - AI-Focused	1
10	Applied AI Research Scientist	1

Appendix 5

Top 10 Data-Related Job Openings in United States - Ranked by Total Number of Positions (Based on Dice)

RANK	JOB TITLE	TOTAL OPENINGS
1	Data Scientist	142
2	AI Engineer	59
3	ML Researcher	57
4	AI/ML Instructor or Specialist	21
5	ML Engineer	20
6	AI/ML Architect	16
7	AI Developer	7
8	Deep Learning Engineer	2
9	Mathematics Expertise Sought for AI Training	1
10	AI Math Analyst	1