



# **Applied AI Knowledge, Skills, and Abilities 2026 Report**

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June 2026

# Executive Summary

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The **National Applied AI Consortium (NAAIC)** convenes its **AI Business & Industry Leadership Team (BILT)** three to four times a year to develop and update the educational roadmap of an associate degree in applied AI by identifying the **knowledge, skills, and abilities (KSA)** that AI technicians and specialists will need in the next 12–36 months.

This **Applied AI KSAs 2026 Report for Associate Degree**, completed in June 2026, contains an updated list of 64 knowledge items and 49 skills required from applied AI program graduates. The report covers the full list of updated knowledge and skills, the BILT members who voted on them, the process they followed, core insights and takeaways, and recommendations for community college educators, companies and hiring managers, AI professionals, and government and policymakers to leverage this report.



## About NAAIC

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The **National Applied AI Consortium (NAAIC)** is connecting higher education, industry, and learners to develop tomorrow's AI workforce. This collaborative effort is building a bold new model for AI education that ensures community colleges can deliver world-class, workforce-aligned programs in one of the fastest growing fields of our time.

With support from the **National Science Foundation's Advanced Technological Education** program (Award #2350120), NAAIC's mission is to bridge the gap between higher education and the evolving demands of the AI workforce. By aligning curriculum with industry needs, we empower faculty to teach the skills employers are actively seeking, while opening pathways for students from every background to pursue meaningful careers in applied AI.

**Mission:** Bridge the gap between higher education and the evolving demands of the AI workforce by aligning curriculum with industry needs and expanding pathways into applied AI careers.

## About BILT

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At the heart of this effort is NAAIC's **AI Business & Industry Leadership Team (BILT)**, a group of industry leaders, innovators, and educators who do more than advise. The BILT serves as a co-creator of the educational roadmap, identifying the **knowledge, skills, and abilities (KSAs)** that AI technicians and specialists will need in the next 12–36 months. This forward-looking approach ensures that students in community college programs are not simply learning today's practices but are being prepared for tomorrow's opportunities.

By working at the intersection of education, industry, and innovation, NAAIC is creating a national model that enables community colleges to keep pace with technological change, strengthen local economies, and build a diverse, highly skilled workforce ready to power the future of applied AI.



# NAAIC AI BILT Members – 2026

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- **Dr. Ann Beheler** – Founder of BILT
- **Dr. Marcus Comiter** – Director, Capability Delivery Directorate
- **Ashish Datta** – Principal Systems Engineer, Cloudflare
- **Dr. John Elder** – Founder/Chair, Elder Research
- **Neethu Elizabeth Simon** – IoT/ML Senior Software Engineer, Intel Corporation
- **Achille Ettore** – Managing Partner, Ettore & Associates Inc.
- **Brian Gonzalez** – Executive in Residence, Jobs for the Future
- **Dr. Mani Janakiram** – VP IT Integrated Supply Chain Honeywell, Aerospace Technologies
- **Sachin Koshy** – AI Evangelist & Practice Lead, World Wide Technology
- **Dr. Hernan Londono** – Chief Technology and Innovation Strategist, Lenovo
- **Dr. Robin Lougee** – AVP, Advanced Analytics & Data Science, KnitWell Group
- **Dr. Matthew McCarville** – Chief Information Officer, State of Nebraska
- **Josh New** – Director of Policy, SeedAI
- **Nissim Ozer** – Co-Founder & CTO, LiveCarta
- **Myra Roldan** – Chief AI Officer, UnDesto
- **Nima Schei** – Founder & Chief Guacamole Maker, Hummingbirds AI
- **Anshul Sonak** – Global Director Digital Readiness Programs, Intel Corporation
- **Armando Viteri** – CEO, Neubloc
- **Dr. Rachel Wortman** – Director, NextGen Learning Lab, Microsoft
- **Dr. Beverly Wright** – VP of Data Science & AI, Wavicle Data Solutions

*"AI is evolving at an unprecedented pace, which means workforce expectations are evolving just as quickly. The annual KSA review process helps community colleges have access to a list of essential knowledge and skills informed by current industry needs and emerging trends, allowing them to work with their own regional employers to create or modify curriculum to better prepare students for AI-enabled careers."*

**Dr. Ann Beheler, BILT Founder**



# What are KSAs

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Knowledge, Skills, and Abilities are the building blocks of workforce preparation.

<b>Knowledge</b> represents what students need to understand: the concepts, theories, and frameworks of applied AI.	<b>Skills</b> represent what students need to do: the hands-on tasks, processes, and problem-solving required on the job.	<b>Abilities</b> represent how students behave and adapt: the durable, employability traits that help graduates thrive in the workplace.
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## The Applied AI KSA Collaborative Process

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The Applied AI knowledge, skills, and abilities (KSAs) presented in this report are the result of a rigorous, multi-stage collaboration between academic institutions and industry experts. This methodology ensures the resulting baseline is both nationally relevant and locally adaptable for community colleges.

Phase	Action
<b>Foundational Research</b>	Curated core competencies from emerging AI applications and existing associate degree programs at community colleges.
<b>BILT Prioritization</b>	NAAIC BILT members evaluated the draft list, identified gaps, and reached consensus on the national baseline.
<b>Annual Refinement</b>	NAAIC BILT meets annually (e.g., Fall 2025/Spring 2026) to update, add, and re-prioritize competencies.
<b>Final Review</b>	Faculty and BILT members conduct a final review to approve the national baseline.



# Core Insights and Takeaways

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The structural velocity of AI advancement requires rapid institutional adaptation. The Applied AI KSAs 2026 Report for Associate Degrees bridges this gap by enabling community colleges to directly align localized curriculum with evolving employer demands. By standardizing critical, high-demand industry competencies, specifically expanding on generative AI applications, prompt engineering, and robust AI safety protocols, this report provides an actionable blueprint for institutions to rapidly scale high-impact, employer-validated workforce pathways.

## 1. THE 2026 TECHNICAL & CONCEPTUAL PIVOTS

### The "Human in the Loop" Imperative

Industry leaders strongly emphasized that at this stage of AI's evolution, technical competence is no longer just about deployment; it is about rigorous validation. Students must possess the critical thinking and analytical frameworks required to audit, verify, and sense-check AI outputs for continuous reasonableness and situational correctness.

### The Transition to Multimodal AI

While Generative AI (GenAI) established the baseline in the 2025 list, the 2026 report integrates granular GenAI sub-competencies and explicitly introduces **Multimodal AI** for the first time.

Curriculum must prepare students to process and integrate disparate data types simultaneously, including text, imagery, video, and active sensor streams.

## 2. SOLVING THE AGILITY DILEMMA

**Direct Feed from Industry Experts:** The primary challenge for community colleges is the sheer velocity of AI development, which traditional academic governance cycles cannot accommodate. The NAAIC National AI BILT serves as an invaluable, direct pipeline from top-tier industry minds, eliminating institutional guesswork on content.

By aligning community college AI programs with KSAs defined by employers, NAAIC created a shared language between education and industry. This alignment ensures that graduates are truly “workforce ready” and that companies can confidently hire from local talent pipelines.



# How to Leverage this Report

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## For Community Colleges

- **Curriculum Alignment:** Use the KSA list as a starting point to develop new applied AI programs or to update existing programs.
- **Industry Engagement:** Engage your own regional employers in a BILT process to localize the KSAs for your workforce.
- **Program Validation:** Leverage this resource to gain credibility with students, accreditation boards and local advisory councils that the curriculum meets current, evidence-based industry standards.

## For Companies and Hiring Managers

- **Talent Acquisition:** Update job descriptions and interview rubrics to reflect the precise, applied competencies outlined in the report, moving beyond generic AI skills.
- **Workforce Audits:** Conduct skill-gap analyses within existing teams to identify where current staff may need upskilling to safely and effectively deploy AI tools.
- **Training Development:** Design targeted, internal upskilling pathways and professional development programs that directly support the organization's AI adoption goals.

## For AI Professionals

- **Career Roadmap:** Perform a self-assessment against the listed KSAs to clearly identify personal strengths and areas for technical growth.
- **Value Articulation:** Use the standardized language from the report to better communicate your skill set to recruiters and potential employers during interviews.

## For Government and Policymakers

- **Evidence-Based Funding:** Direct workforce development grants and educational funding toward training programs that explicitly map to these industry standards.
- **Scalable Models:** The KSA report provides a scalable model standard for workforce preparation.
- **Strategic Collaboration:** Facilitate public-private partnerships by using these KSAs as a shared reference point to align academic output with the immediate needs of industry.



# KNOWLEDGE ITEMS – 2026

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## 1. Foundations of AI & Data

- K-1 • Big picture and history of AI including the transformational story of the building blocks and architecture
- K-2 • Principles of data literacy
- K-3 • Accurate representation of data
- K-4 • Knowledge and understanding of Data/AI Governance
- K-5 • Knowledge and understanding of Data/AI Security
- K-6 • Knowledge and understanding of Data/AI Accountability
- K-7 • Knowledge and understanding of Data/AI Resiliency
- K-8 • Knowledge and understanding of Data/AI Transparency
- K-9 • Knowledge and understanding of Data/AI Impartiality
- K-10 • Knowledge of Data Dictionaries
- K-11 • Knowledge of Authoritative Data Sources
- K-12 • Understanding of data readiness assessment
- K-13 • Knowledge of Agent Frameworks
- K-14 • Explain "Human in the Loop" supervision of AI models
- K-15 • Compare Agentic AI vs. traditional automation
- K-16 • Explain the purpose of Model Context Protocol

## 2. Data Management & Analytics

- K-17 • Knowledge of Data Wrangling
- K-18 • Knowledge of developing data strategy
- K-19 • Knowledge of designing and Implementing Hybrid Data Solutions
- K-20 • Explain fundamental concepts of Data Science
- K-21 • Explain how types of data, data sources, and BIG Data are used for business analytics
- K-22 • Differentiate between structured and unstructured data



### 3. Machine Learning and Deep Learning

- K-23 • Awareness of Support Vector Machines (SVM)
- K-24 • Awareness of Numerical Optimization Techniques
- K-25 • Explain how neural networks (deep learning concepts) can be modified to improve accuracy
- K-26 • Knowledge of how neural networks process information
- K-27 • Familiarity with using pre-built models for tasks such as image recognition or language processing
- K-28 • Knowledge of names and understanding of usefulness of the various machine learning models
- K-29 • Knowledge of Supervised Learning Applications
- K-30 • Knowledge of applications of Neural Networks
- K-31 • Knowledge of multiple linear regression
- K-32 • Knowledge of Naïve Bayes
- K-33 • Knowledge of types of Neural Networks
- K-34 • Knowledge of Bayesian Statistical Models
- K-35 • Knowledge of Models in Production
- K-36 • Knowledge of Risk Modeling
- K-37 • Knowledge of Monte Carlo / Risk Analysis Simulation
- K-38 • Knowledge of model evaluation and validation including training/validating/testing splits, cross-validating concepts, data leakage, metric selection, calibration basics and error analysis



## **4. Generative AI and Emerging Trends**

- K-39 • Explain general principles of GenAI
- K-40 • Describe the different emerging trends in technology.
- K-41 • Knowledge of Digital Twins and other Edge/IoT AI deployment considerations
- K-42 • Knowledge of Automation in AI
- K-43 • Knowledge of how to implement GenAI to address business cases
- K-44 • Knowledge of modern GenAI application patterns and safety including embeddings, retrieval/grounding, tool use, hallucination controls, prompt injection awareness, and data exfiltration risks
- K-45 • Explain Deepfakes including detection and watermarks
- K-46 • Explain how multimodal GenAI functions

## **5. Human Factors, Ethics, & Business Applications**

- K-47 • Knowledge of Human Factors and Human Computer Interaction
- K-48 • Knowledge of Human Centered Design
- K-49 • Awareness of Global Perspective on AI
- K-50 • Knowledge of an AI Maturity Model
- K-51 • Awareness of legal regulations/considerations
- K-52 • Knowledge of Applications and Precautions for Adversarial AI



## **6. Practical Tools, Applications, & Business Use Cases**

- K-53 • Knowledge of Public and Private Cloud Platforms
- K-54 • Knowledge of System Diagrams and Systems Dynamics
- K-55 • Knowledge of project management, especially as it applies to deployment of models
- K-56 • Understanding of product and process performance
- K-57 • Knowledge of designing experiments
- K-58 • Knowledge of AI's impact on jobs
- K-59 • Knowledge of how to use various AI Tools to learn coding skills

## **7. Natural Language Processing**

- K-60 • Knowledge of Natural Language Processing
- K-61 • Knowledge of Large Language Models (LLM)
- K-62 • Knowledge of sentiment analysis

## **8. Computer Vision**

- K-63 • Knowledge of Computer Vision
- K-64 • Knowledge of computer vision/biometrics with legal/ethical constraints



# SKILLS ITEMS - 2026

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## 1. Data Collection, Preparation, & Management

- S-1 • Identify and design a Data Collection Plan
- S-2 • Requirements Planning
- S-3 • Using various types of data and transformations
- S-4 • Performing Data Transformations with software such as Alteryx/Alpaca/AWS/Azure/GCP
- S-5 • Data access, cleansing, preprocessing and normalization
- S-6 • Assessing data readiness
- S-7 • Using SQL databases
- S-8 • Performing SQL Integrations with AWS/Azure/GCP
- S-9 • Processing and analyzing large datasets using software (e.g., AWS/Azure/GCP/Hadoop/Snowflake/Panda/NumPy)
- S-10 • Data and stream processing
- S-11 • Streaming and real-time processing with software such as Apache/AWS/Asure/GCP
- S-12 • Skill in using advanced methods to visualize data



## **2. Programming, Tools, & Frameworks**

- S-13 • Python programming
- S-14 • Developing models with Python/R
- S-15 • Using AI frameworks and libraries, especially with respect to Python
- S-16 • Effectively using AI coding assistants
- S-17 • Creating dashboards
- S-18 • Using several no-code or low-code platforms allowing AI model development through visual interfaces
- S-19 • Applying multimodal GenAI

## **3. Machine Learning & Statistical Modeling**

- S-20 • Understanding and applying linear regression
- S-21 • Designing Machine Learning Models
- S-22 • Feature selection and extraction
- S-23 • Using feature engineering
- S-24 • Understanding statistical summaries
- S-25 • Creating and using decision trees
- S-26 • Using K-Means Clustering
- S-27 • Developing and applying random forests
- S-28 • Developing and applying unsupervised learning applications
- S-29 • Applying Artificial Neural Networks (ANN)



## **4. Applied AI Domains (NLP, Vision, Sentiment, Automation)**

- S-30 • Sentiment analysis
- S-31 • Object detection and classification
- S-32 • Applying ML/NLP/CV to domain data sources (text, images, sensor streams, etc.) and communicate results
- S-33 • Analyzing how computers recognize images and represent them as matrices
- S-34 • Applying various computer vision models to achieve sustainable solutions
- S-35 • Applying basic techniques to solve computer vision related problems
- S-36 • Operationalizing Hybrid Systems

## **5. Business Applications & Strategy**

- S-37 • Defining use cases for problem-solving
- S-38 • Using ML algorithms and tools to analyze and predict business performance and provide insights for strategic business decisions
- S-39 • Evaluating legal and ethical issues in implementing AI for a business organization
- S-40 • Evaluating AI use cases for a range of business scenarios
- S-41 • Applying AI for a business solution
- S-42 • Visualization/communication for business impact
- S-43 • Storytelling with emphasis on articulating how things work and how to solve problems for a business
- S-44 • Using Business Process Automation (BPA)
- S-45 • End-to-end evaluation workflow including defining objectives and metrics, preparing splits, building baseline, running experiments, interpreting results, documenting findings, and recommending next steps



## 6. Professional and Emerging Skills

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- S-46 • Prompt engineering
- S-47 • Staying current and learning new concepts related to AI
- S-48 • Applying soft (aka durable, employability) skills
- S-49 • Collaborative software workflow for applied AI (e.g. Git-based version control, reproducible environments, basic testing/validation checks, and packaging/sharing notebooks or scripts for team use)



## Contact Us

To learn more or get involved, visit: [www.naaic.ai](http://www.naaic.ai) or email: [naaic@mdc.edu](mailto:naaic@mdc.edu)

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## NAAIC Leadership



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