

Cross-Sector Regional Workforce Advisory Meeting: Automation / AI in Agriculture and Manufacturing

April 30, 2021

10:00 AM - 12:00 PM



Housekeeping

- **Enable your video (optional)**
- **Please stay on mute unless you are called on to ask a question**
- **Submit all questions, technical difficulties, or other commentary to the Chatbox; or raise your virtual hand to be called upon**
- **This meeting will be recorded and will be provided as part of the post meeting materials**

Welcome and Introduction



Trish Kelly
Managing Director
Valley Vision

Supported By



Agenda

- 10:00 AM** Welcome & Introduction
- 10:15 AM** What's Happening Now - Employer Panel Discussion
- 10:45 AM** Q & A to Panel
- 10:55 AM** Labor Projections & Scope of Occupations
- 11:15 AM** Industry Direction in Automation and AI - Employer Panel Discussion
- 11:40 AM** Q & A to Panel
- 11:50 AM** AI and Machine Learning Programs with Community Colleges

Meet the Community College Regional Directors: North Far North



Carrie Peterson
Agriculture, Water, &
Environmental
Technology



Cornelius Brown
Information &
Communication
Technologies /
Digital Media



Jeff Briggs
Advanced
Manufacturing

Collaboration with K-12



Jared Amalong
Director of Computer Science and
Distance Learning,
Sacramento County Office of
Education

Employer Panel Discussion: What's Happening Now



Trish Kelly
Managing Director
Valley Vision

What's Happening Now



Greg Ahart,
VP of Operations,
Superior Farms



Raf Peeters,
CEO and Founder,
Qcify, Inc.



Patrick Andersen,
President and Chief Financial Officer,
Andersen & Sons Shelling Inc.



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**CENTERS OF EXCELLENCE
FOR LABOR MARKET RESEARCH**

North Far North Center of Excellence: Labor Projections & Scope of Occupations

Aaron Wilcher
Director

Ebony Benzing
Research Manager

Workforce Implications of Automation and AI in the Greater Sacramento region



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Ebony Benzing, Research Manager
Aaron Wilcher, Director
COE, Greater Sacramento (North)
April 30, 2021

COE Presentation Overview

- Capital Region Automation Risk Report
 - Findings and regional strategies
- AI workforce research
 - Definitions and concepts
 - Architects and Translators
 - Jobs postings findings

Capital Region Automation Risk Report

March 2020



**Capital Region Jobs at risk from automation:
32% High Risk Jobs + 29% Medium Risk Jobs**

Work Tasks

- Routine physical
- Routine cognitive
- Non-routine physical

Industries

- Hospitality
- Manufacturing
- Agriculture
- Transportation & Warehousing
- Retail
- Construction

Occupations

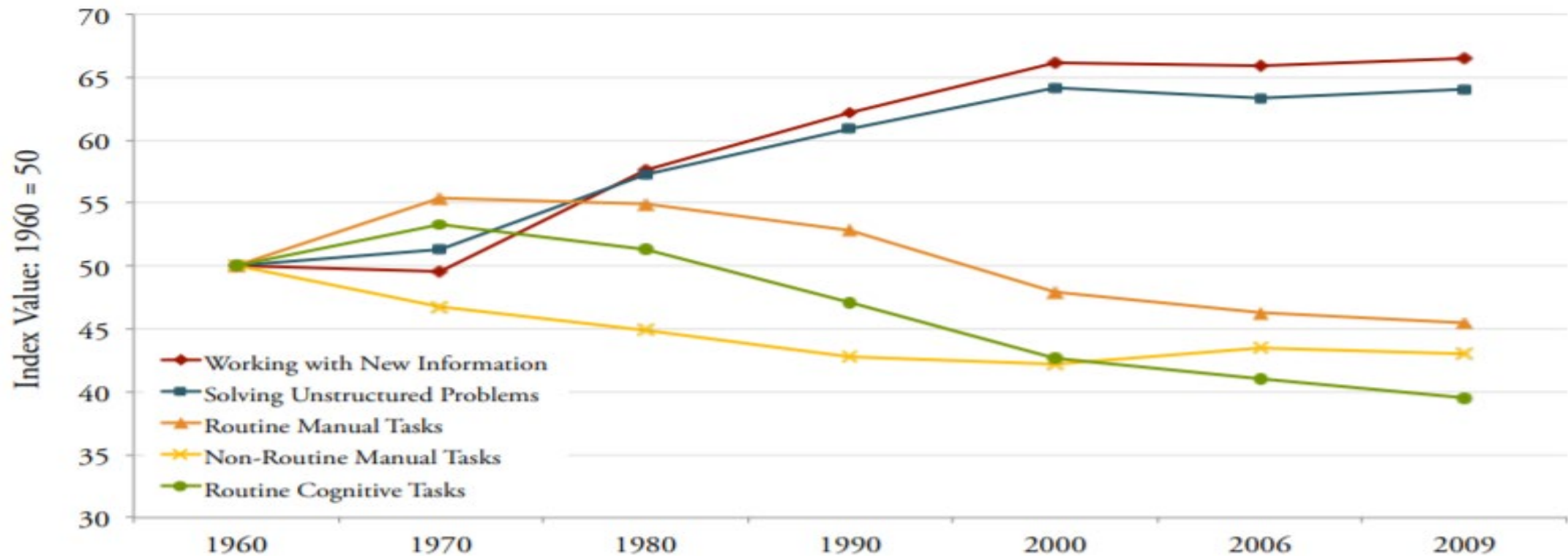
- Office and admin support
- Retail sales and cashiers
- Restaurant workers

People

- Low-Paid Jobs
- Low-Ed Jobs
- Women
- BIPOC Communities

Anything routine – physical or mental – can and will probably be automated

Figure 3: Index of Changing Work Tasks in the U.S. Economy 1960-2009²¹

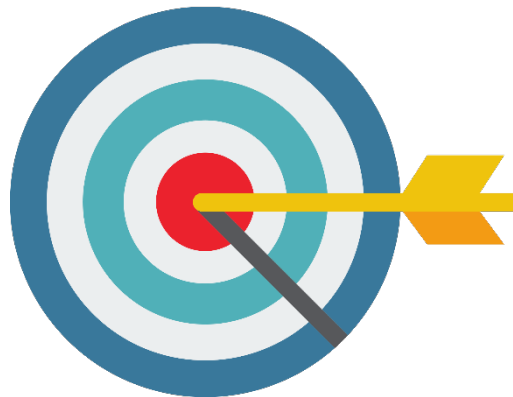


Source: Levy and Murnane, "Dancing with Robots: Human Skills For Computerized Work."

<https://dusp.mit.edu/sites/dusp.mit.edu/files/attachments/publication/Dancing-With-Robots.pdf>

Unknowns: What the future holds...

- Jobs of the future
- Skills of the future
- Upskilling and reskilling specifics
- Who should have what skills



Knowns: Workers need uniquely human skills and traits to be resilient

- ✓ Analytical thinking and innovation
- ✓ Active learning and learning strategies
- ✓ Complex problem-solving
- ✓ Critical thinking and analysis
- ✓ Creativity, originality and initiative
- ✓ Leadership and social influence
- ✓ Technology use, monitoring and control
- ✓ Technology design and programming
- ✓ Resilience, stress tolerance and flexibility
- ✓ Reasoning, problem-solving and ideation

So, what can we do?

Community Colleges & Workforce Development Partners

- Communicate value
- Relevancy
- Flexibility
- Sustained engagement, esp. with our marginalized communities

Employers

- Rethink “Talent”
- Worker Engagement and Support
- Continuous Ed Partnerships

Workers

- Learn and Adapt
- Resiliency
- 21st Century Skills*
 - Agency
 - Agility
 - Adaptation
 - Awareness

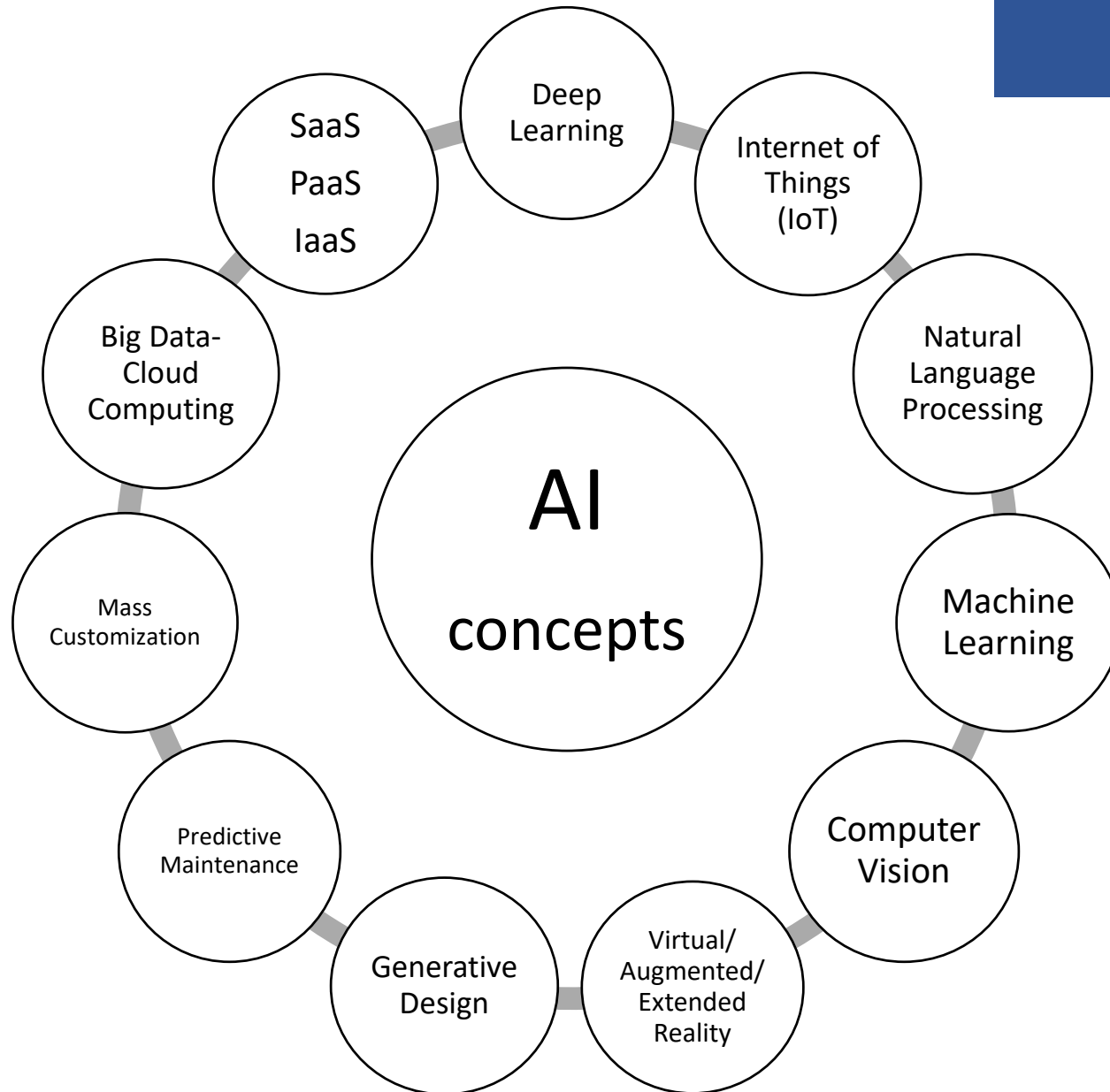
Shifts in mindsets and actions; Need to learn continuously

AI definitions and concepts

“[AI] is a collection of capabilities like visual perception and spatial awareness, speech recognition, language translation, and analytical predictions that lead to decision-making The ability of an AI system to learn is fundamental and **differentiates it from traditional algorithms** that are explicitly programmed to act in a predefined manner. A human brain **learns throughout life to understand and process information**. Similarly, a machine learning algorithm or model must be trained to comprehend its environment and produce desired outcomes.”

– [Oregon Workforce and Talent Development Board- AI Task Force, Oct 2020](#)

AI definitions and concepts



“AI is not a single piece of hardware or software, but rather, a **constellation of technologies** [AI is] a massive collection of interrelated technology blocks called **the AI stack** AI requires talent, data, hardware, algorithms, applications, and integration.”

—[National Security Commission on AI, Nov. 2019](#)

AI Architects and Translators

Architects - Builders

- AI Systems researchers
- Software developers
- Data Scientists
- Data/ AI Engineer
- Computer Systems Architect
- Machine Learning Engineers
- AI Solutions Programmers
- Collaborative Robotics Specialists
- Cognitive Systems Engineer

Most AI – related
roles are involved
in both functions

Translators; Implementers

- Business leaders
- Change management experts
- Subject matter experts
- Systems Analyst
- Business Management Analyst
- Data Mining/Data Analyst
- Data Quality Analysts
- Human-Computer Interaction Specialist

Few postings specifically reference AI

- health care ~100 out of 17,000 postings
- manufacturing ~140 out of 5,600 postings

Two kinds of employer postings reference AI

- large employers: Intel, Cisco, Applied Materials, Anthem Blue Cross
- third-party firms that specialize in data systems/analytics and business/operations strategy

No AI-related jobs postings are for middle-skill jobs

Computer science is the most commonly-referenced requirement

The postings do not shed light on the “translator / implementation” side

The **jobs postings** in health care provide a sample of types of positions, employers, and skills.

Job title	Employer	Skill requirements
Systems director	CommonSpirit Health/ Dignity Health	<ul style="list-style-type: none"> • data/information/thought leadership-technical team supervision • advanced analytics • clinical informatics • data science • descriptive statistics • PowerBI, Tableau, R • database architecture/management • enterprise architecture / interoperability • SQL • .NET framework • Python • SaaS • business intelligence • forecasting • data driven decision-making • communicating value in laypersons terms • cross-function business-technical engagement
Senior marketing analyst	CommonSpirit Health/ Dignity Health	
Senior web application developer/analyst	xFusion Technology	
Senior Operations Analyst	MAXIMUS	
Clinical Informatics Supervisor	UC Davis Health	
Group Manager, Digital Health, Connectivity and Platforms	Baxter	
AI Principal Engineer	Anthem Blue Cross	
Strategy Director	Anthem Blue Cross	
AI Machine Learning Scientist	Anthem Blue Cross	

The **jobs postings** in manufacturing provide a sample of types of positions, employers, and skills.

Job title	Employer	Skill requirements
Director, Capability & Analytics	Intel	<ul style="list-style-type: none"> • Data science • PowerBI, Tableau, R • Data mining / modeling • Predictive modeling/analysis/simulation • Agile, Scrum • SQL; Oracle; XML; Python; Java; NODE.JS; Matlab; C++ • SCADA • SAS • ML packages: TensorFlow, PyTorch • “bringing together technical and business skills” • Managing schedules, business goals, supply chains • Work across technical and business teams • Collaborative team member • Understand stakeholders; stakeholder management
Application Engineer: Operations Productivity	Applied Materials	
Graphics Silicon Planner	Intel	
Data and Business Technology Lead	Merck & Co, Inc.	
Project Manager/ Project Analyst	Intel	
Junior Data Scientist	Intel	
Vegetable Predictive Breeding Lead	Bayer	
Technical Product Marketing Manager	Tignis	
DEVOPS Engineer	Hewlett Packard	

Indication of low levels of technology adoption?

Trained workforce could enable technology adoption

Support for STEM pathways in engineering and computer science

“AI-Adjacent” skills for middle-skill level: [New World of Work](#)

Governance: Real-time employer feedback and training opportunities

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Employer Panel Discussion: Industry Direction in Automation and AI



Trish Kelly
Managing Director
Valley Vision

Industry Direction in Automation and AI



Brendan O'Donnell,
Global Category Director –
Nuts, TOMRA Sorting, Inc.



Gabe Youtsey,
Chief Innovation Officer,
UC Agriculture and Natural
Resources



Dirck Schou,
Chief Executive Officer,
Taqtile

AI and Machine Learning Programs with Community Colleges

- **Emerging programs in community colleges**
- **Example programs**
 - Maricopa Community College
 - In partnership with Intel
 - Coastline College
 - Bellevue College
 - Houston Community College
- **We look forward to new partnerships!**

THANK YOU FOR JOINING

For more information contact

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Regional Directors, Employer Engagement, North/Far North Region

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- **Cornelius Brown, Information & Communication Technologies / Digital Media -** **BrownC@crc.losrios.edu**
- **Jeff Briggs, Advanced Manufacturing -** **JeffBriggs@sierracollege.edu**