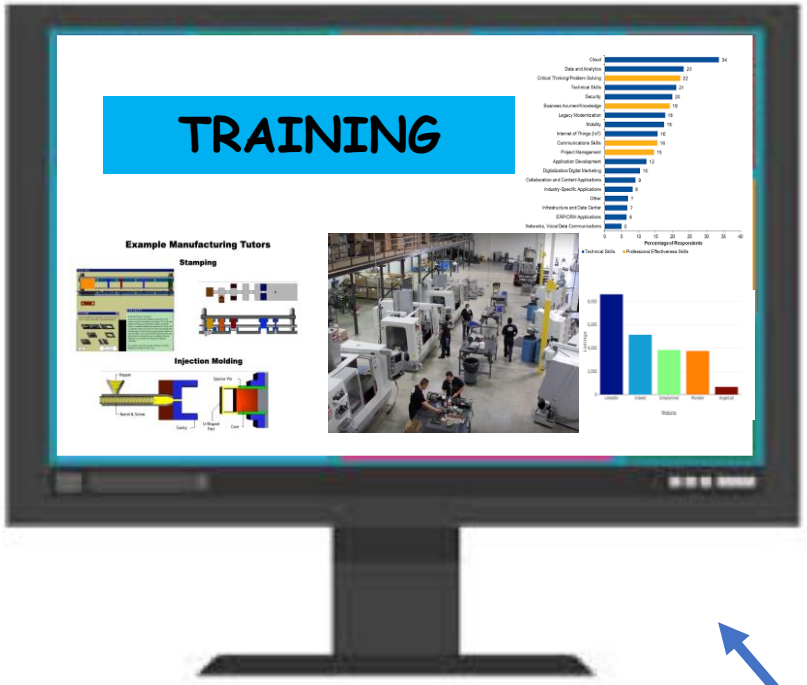
DIRECT: A Framework for Diagnosis, Recommendation, and Training in Continuous Workforce Development



StanleyBlack&Decker

Carlos

MASSHIRE
HOLYOKE CAREER CENTER

Jorge

Puerto Rico

Beverly Woolf, University of Massachusetts

• On-job skill assessment • Training platform development • Skill gap analysis • Future job/training recommendation

Career path for ***Carlos***

Production manager by **2023**

Basic manufacturing in **2019**

Advanced manufacturing with collaborative robots by **2020**

Know the User: Interviews

"New technology will change the way we work and train."

"We are undergoing a huge cultural shift… Workers are constantly being asked to learn new processes. Can we use technology to be the teacher? We need to place that person who is just reminding people how to do things into a much more productive job."

-- Ashley Baron, VP of HR, Stanley Black & Decker

StanleyBlack&Decker

"But anything we develop has to be rooted in real life"

"A retirement calculator allows me to enter 5 or 10 variables… We need a tool for finding a job that allows me to enter how much time I will devote to training, how much I want to earn and where I want to live. . . The pathline into employment is incredibly difficult. Online applications fall into an Internet blackhole. "

-- Tom Thacher, Director of Workforce Analytics, Employment Center

"Upskilling is required during the worklife"

MASSHIRE HOLYOKE CAREER CENTER

UMass Amherst

"We need to find out what employers really need…and create a curriculum that is based on real life needs. Make sure to teach soft skill and hard skills and have work experience be part of it."

-- **Naomi Klayman, VP of Development, Employment Center**

Data Science Component

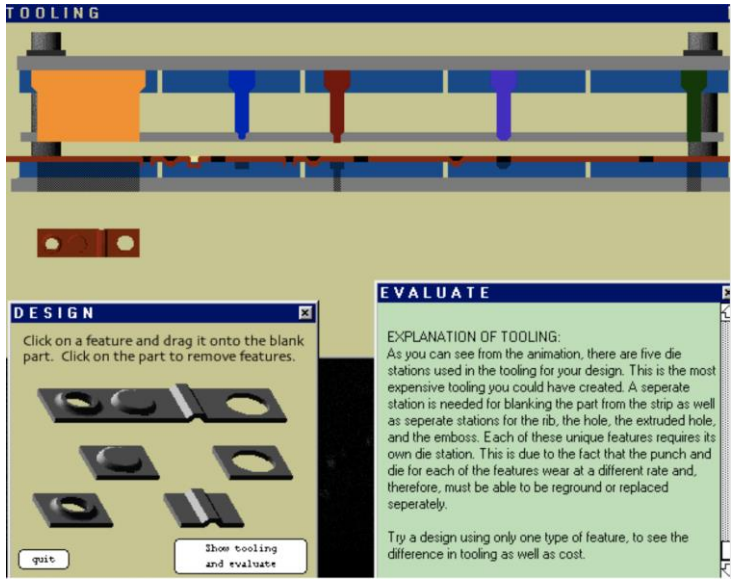
- Tens of thousands of job descriptions;
- We parse the text and classify upcoming and leading new jobs.
- Goals:
  - On-job skill assessment based on rising jobs;
  - Future job and training recommendation

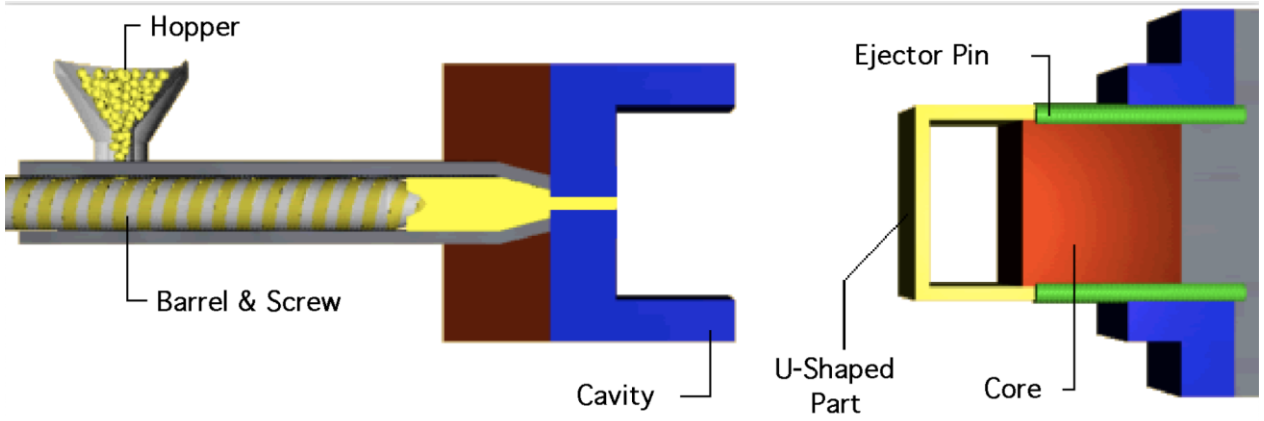
Partner with Robotics Team

- 60% of all manufacturing jobs can be automated; but who will program those robots?
- Less than 15% of the workforce has a degree in computer science;
- Our Solution: Adaptive, on the fly training for workers; make robots self-explaining.

Online Intelligent Training System

- Scale adaptive training techniques;
- Develop adaptive, on the fly training for workers; make robots self-explaining;
- Develop training system for selected manufacturing scenarios.



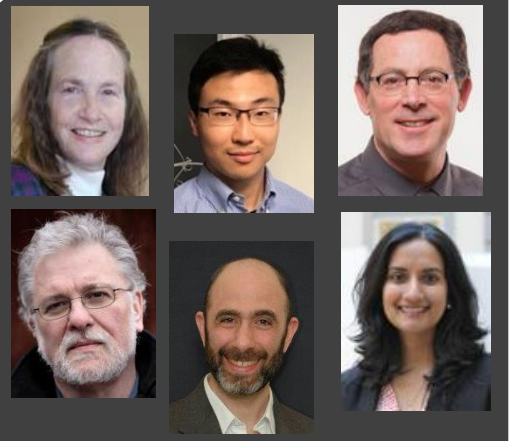


Fairness

- AI will cause role changes in the marketplace; not necessarily job losses;
- Around 50% of repetitive and predictive jobs are predicted to be automated;
- Training systems should recognize workers in protected classes (e.g., gender);
- Training system should not discriminate against workers who might slip through the cracks: live in poverty, belong to a minority group, struggle with language or have a disability;
- Training systems can be biased if the database is biased.
- Databases based on high achieving students will bias the amount of training for students;
- Training that benefits all workers should not disproportionately benefit more advanced workers.

Academic, Industrial and Government Partners

Academic Team



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