



Instant Item Training: Practical AI for the Retail Industry

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Mashgin

Who We Are

- **The fastest self-checkout system on earth, powered by computer vision**
- **Checkout in 5 seconds**
- **Works with packaged goods, produce, & plates**



Which Line Do You Want to Be in?



Who We Serve



- **1000+ Locations**
- **25+ Sports Stadiums**
- **10+ Airports**
- **120 Corporate Cafeterias**
- **500 Convenience Stores**



Corporate Cafeterias





Gas Station & Convenience Stores



Sports Stadiums



Why Mashgin?

Business Benefits of Computer Vision to Our Customers



- 400% faster transactions
- 20 - 400% more sales
- Labor “upscaling”: Making existing labor more efficient and human centric
- 25% increase in basket
- 80% of customers say they prefer Mashgin

Practical AI Constraints In Retail



- Accuracy
- Speed
- Commodity Hardware
- Edge Compute

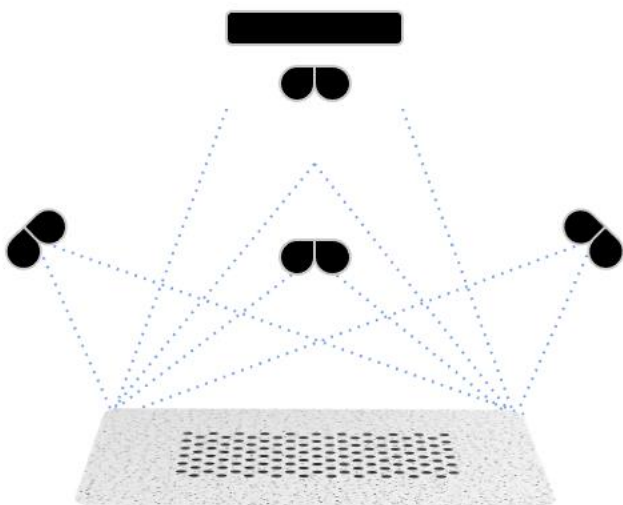
Instant Item Training: Critical For Operations



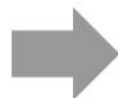
- Staff do not care about tech
- If new items cannot be added within seconds, they will not do it
- New item inventory arrives last minute, need to be ready for checkout within minutes

Technology Overview

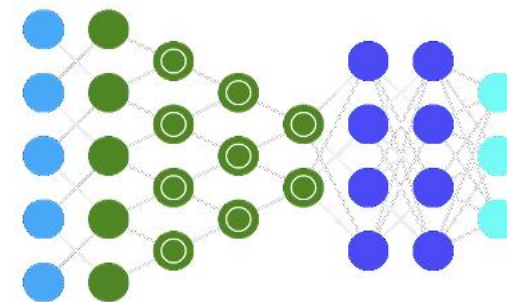
3D Computer Vision + AI = 99.9% Accuracy



Multiple 3D Cameras



Color + Location



Deep Learning

3D Real-Time Mesh



We Can:



- Train new item system-wide in 1 minute
- Launch a new store in 15 minutes
- Handle complicated items and scenes with ease (different sized Red Bulls, occluded items, crowding etc.)

Examples Of Complicated Scenes



Kiosk 540

Circle K - 2703486



READY TO PAY >>>	
Discount: MXM GR PEPSI 1 LITER 310632 (-\$0.49)	
● Pepsi 20oz	\$1.75
Pepsi 20oz (\$1.99) Discount: MXM GR PEPSI 20OZ 2FOR 310147 (-\$0.24)	
● Monster Energy Ultra Sun...	\$2.95
● Rockstar Recovery Orang...	\$2.59
● Smartwater 23.7oz	\$2.36
● Polar Pop Epic XI	\$0.99
● Fv Sausage Egg Chs Biscu	\$2.00
● Fvn Ham Cheese Croissant	\$2.00
Sub-total	\$20.39
Taxes	\$0.77
TOTAL	\$21.16

Lessons Learned

Stick Around and Good Things Will Happen



- Resilience is key to success for most startups – Justin Kan, Co-Founder of Twitch
- “Do not run out of money” – The only advice that matters!

Think Long Term



- Resist investor pressure
- Acknowledge that computer vision is hard, it's not normal SaaS
- Research problem vs. startup growth
- No shortcuts in hard tech

- 3D Computer Vision + Deep Learning
- Those two often do not talk to each other
- Be ready to do grunt work, not all computer vision is glamorous

- **Do one thing well**
- **There is no one way to success**



We Are Hiring



Jobs

jobs.lever.co/mashgin

Resources



mashgin.com/about