

# Emerging Technologies: VR Simulation in the classroom

How a public-private-education  
partnership is expanding Aviation  
Maintenance opportunities in Southern  
Illinois





# Agenda

Partnering to tackle workforce shortages

- 1 Meet the presenters
- 2 Transfr: a new training solution
- 3 The challenge in Illinois  
Man-Tra-Con and SIU: A  
workforce/education  
partnership
- 4 VR training demo
- 5 Q&A





01

## Meet Karen Johnson

Associate Professor, Southern Illinois  
University School of Aviation

ATEC Vice President

Editor, ATEC Journal





02



## **Meet Brian G. Hartz**

Business Owner, Virtual  
Training Facility at Transfr,  
Inc.

# WE ARE ON A MISSION



**Transfr is building**  
**a classroom-to-career pathway** for  
millions of workers who will be the  
future of every industry (healthcare,  
manufacturing, green technology, etc.)  
**via interactive training using**  
**immersive technologies** and in  
partnership with schools, businesses,  
and governments.

**HELLO!**



**Under 30%** of rural residents age 25+ have an associates or higher; **80%** of all jobs with a median wage above \$65,000 demand a post-secondary credential, according to Georgetown University's Center on Education and the Workforce.

**Around 53%** of recent college graduates are **unemployed or underemployed**.

**70%** of U.S. employers report a lack of skilled employees.

**Transfr can help!**



**Transfr Trainee  
Experience Video**





## Virtual Training Facility

The **Virtual Training Facility** is a virtual environment where trainees master the skills they need to get hired for well-paying jobs in a safe, supportive setting, under the expert guidance of Simon, our digital coach.

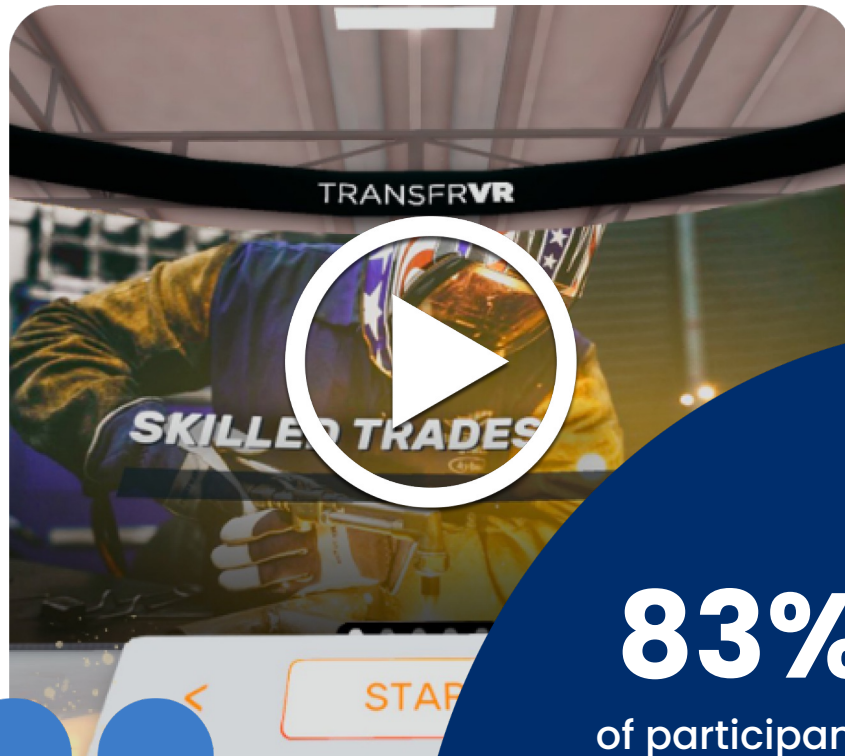


# 93%

of Participants Still  
Employed After  
6 Months\*

## Career Exploration

Career Exploration with Transfr takes place in a virtual training environment that helps job seekers understand their career options and get started on a path to choosing the right job for them.



**83%**  
of participants  
Chose a Career Path





# The challenge in Southern Illinois

A national trend with local impact

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# "NOT ENOUGH AVIATION MECHANICS"



The title says it all, but let's look at the specifics

1

## National trends and shortage

Shortages already abound following post-COVID recovery of air travel industry

- Pandemic cost industry some 5,000 new mechanics
- Employers offering \$10k [signing bonuses](#), free childcare, other enticements

2

## The worst is yet to come

Boomer retirements driving structural shortage to peak in 2027

- 24% gap in labor supply
- Shortfall of up to 48k maintenance workers!

3

## Southern Illinois

Transportation is a top industry in IL, and new opportunities are emerging in Southern IL\*

- Entry level ~\$45k/yr
- Median ~\$78k/year
- 98% of Aircraft Mechanic jobs do not require a college degree

4

## How do we build the pipeline?

- More students interested in the first place
- Accelerate time to competency/entry level skills
- Boost graduation from A&P

\*Source: Illinois Department of Employment Security

# Man-Tra-Con and SIU

A workforce/education partnership



**MAN-TRA-CON**  
C O R P O R A T I O N



## A solution?

Man-Tra-Con and SIU seize an opportunity to use technology to extend the reach of career promotion and training

### Man-Tra-Con

Workforce services provider for Southern Illinois

- Serves regional employers
- Services for youth, adults, & dislocated workers
- Reaches constituents in 5-county rural area of IL

### Southern Illinois University - Carbondale

Programs for pilots, flight management, and aviation maintenance

Supplying national workforce needs - graduates go all over USA

New Aviation Maintenance provider, Crucial MRO (Maintenance, Repair, Overhaul)

- At airport, “across the street” from SIU
- SIU supplies majority of workers already





## Partnership roles

Each organization plays to its strengths to build the talent pipeline and prepare them for their journey



### Man-Tra-Con

Grant partner, primary on **DOL/DRA WORC grant** (Workforce Opportunities for Rural Communities) to develop & use VR in training - partnership creates opportunity!

Able to add WIOA (public workforce) resources & **funding** to equation to **support students** pursuing education at SIU

**Partnering** with Crucial MRO to promote growth

Career Exploration **outreach to K12s** in region, building pipeline

Goal to help keep more graduates in state





## Partnership roles

Each organization plays to its strengths to build the talent pipeline and prepare them for their journey



### Southern Illinois University - Carbondale

Working with local HS partners and Crucial MRO

- “tour day” at Crucial
- Working on integrating training with CTE classes (Overlap with Choose Aerospace)

Incorporating VR into SIU coursework

- Designed with Karen’s input for alignment with ACS
- [FAA changes allow greater flexibility!](#)







# Building a New Training Resource

Developing new solutions hand in hand with  
partners



1

2021  
Initial grant and Man-  
Tra-Con partnership



2

2021  
Design process begins,  
site visits and  
breakdown of key  
training subjects



3

Spring 2022  
Delivery of general skills  
package



4

Summer 2022  
Delivery of Airframe  
skills package



5

Summer 2023  
Delivery of Powerplant  
package



# Why Virtual Reality?

What makes this tool effective to respond to Illinois' challenge?

- **Extend outreach** to areas & institutions (inc. K12 schools)
- **Force multiplier** for instruction
- Prepare for hands-on time in **immersive** environment
- Resource savings
- A **safe environment** to make mistakes
  - Physically
  - Mentally/emotionally!





# Emily Perks

Business Services & Special Projects  
Manager, Man-Tra-Con

1



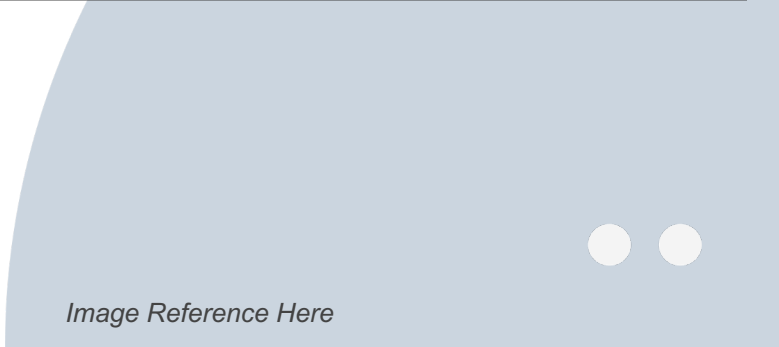



Special project manager for grant

2

Project objective: Enhance  
instructional capacity to support  
growing need for Av. Maintenance

3

Partnering enables Man-Tra-Con to  
support students with funding for  
tuition/books/fees!



*Image Reference Here*



# Josey Blumshine

Student, Aviation Maintenance  
Southern Illinois University

1

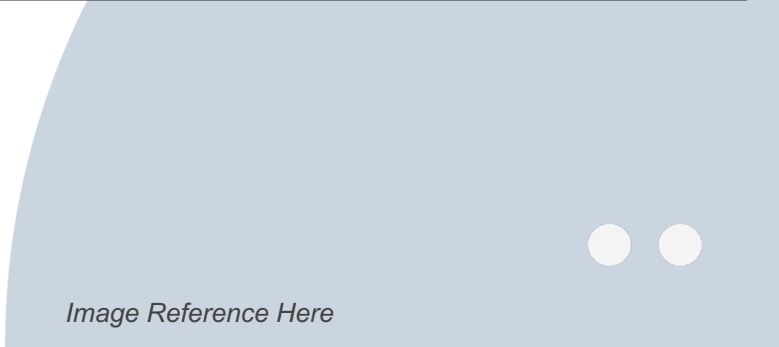

Prior VR experience through gaming

2

A&P work is challenging, but quality instruction and collaboration with peers helps develop problem solving skills

3

Using VR enables Josey to get experience with tasks that may be difficult/expensive to do in real world



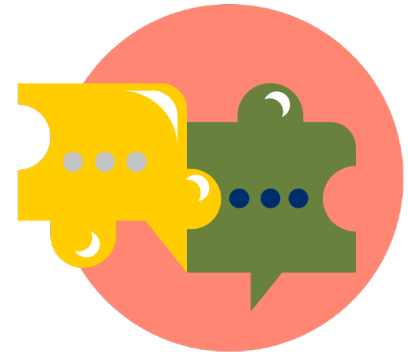
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# Virtual Reality Demonstration

Sim Title for Demo


In this live demonstration, you will see how we built a step-by-step training sequence to enable students to (DO TASK IN THIS SIMULATION - TBD)





# Q&A

Ask us anything!







# THANK YOU

Let's connect!  
[email@transfrvr.com](mailto:email@transfrvr.com)





# Add Main Title Here

Subtitle Here



**“Shortbread danish  
chocolate bar oat  
cake marshmallow  
jelly cookie.**

**– Name Here ”**

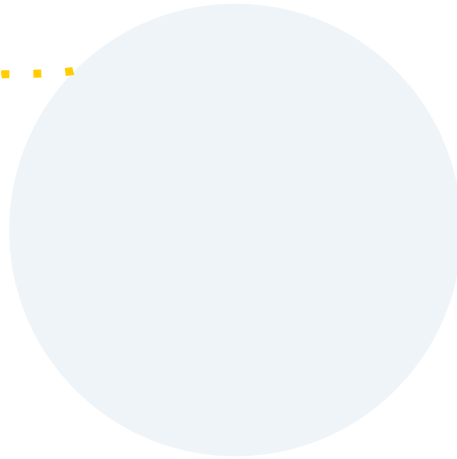


# Big Timeline

Some cool statement here!



Jelly wafer bear claw topping tart  
muffin. Tiramisu dessert danish  
cake chocolate cake. (Manrope  
Regular - 10pt)



Jelly wafer bear claw topping tart  
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Jelly wafer bear claw topping tart  
muffin. Tiramisu dessert danish  
cake chocolate cake. (Manrope  
Regular - 10pt)



## Our Motto, Is Really Big News

100%

Big Statement

100%

Big Statement

100%

Big Statement

100%

Big Statement

Jelly wafer bear  
claw topping tart  
muffin. Tiramisu  
dessert danish  
cake chocolate





# Title Big Statement!

Subtitle plus so much more!



# Title

Subtitle

## Title

chocolate bar croissant bear claw  
macaroon chocolate cake cupcake.





## Resources

