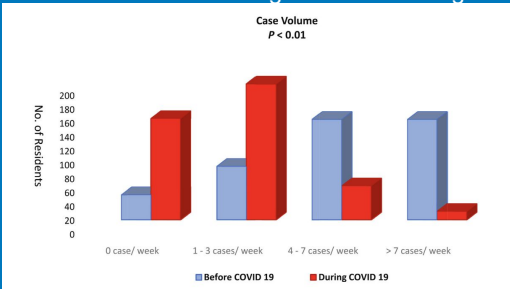


Leveraging a Real-Time Spatiotemporal AI Model for Surgical Resident Training and Education With Implications during Pandemic-Related Surgical Volume Changes

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Introduction/Problem

The COVID-19 pandemic exposed the existing need for more opportunities to provide real-time feedback for surgical skills for surgical residents.



Aim/Goal

To Provide Automated Classification of Surgical Skill and Incorporate Real-Time Feedback

The Team

Gabriel Brat, MD, MPH

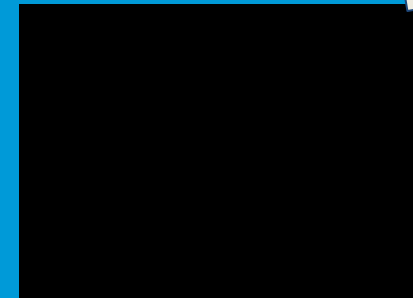
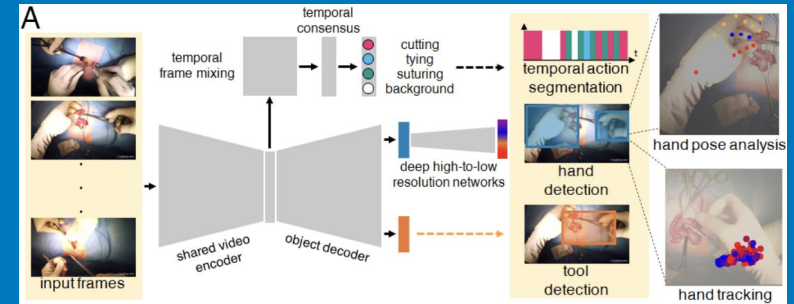


Serena Yeung, PhD



The Intervention

Real-Time Spatiotemporal AI Model

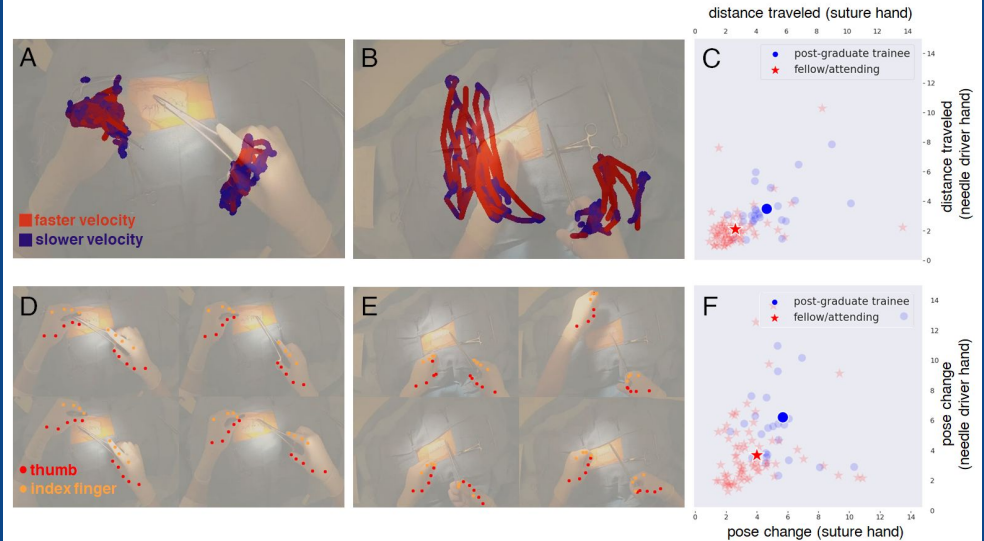


More Results/Progress to Date

From Understanding Surgical Technique...



Towards Understanding Surgical Skill



More Results/Progress to Date

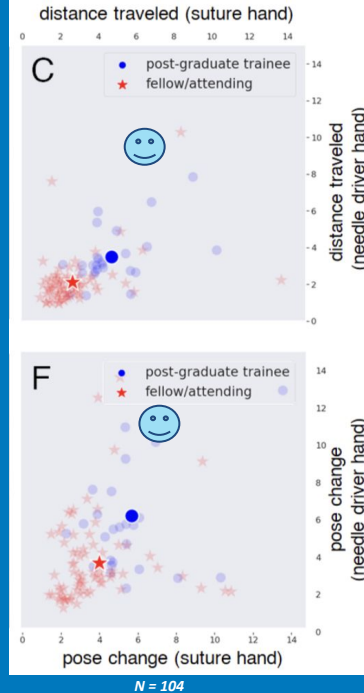
Model for Implementation

Lessons Learned



PGY1

Baseline



Next Steps

For more information, contact:

More Results/Progress to Date

Model for Implementation



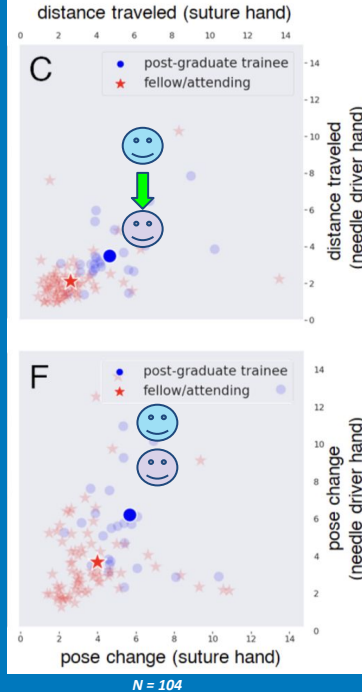
PGY1 **Baseline**

*Work on economy of motion by:
Reduce distance traveled by needle
driver hand*



PGY1.5

*Work on economy of motion by:
Continue to reduce distance traveled by needle
driver hand but also that of suture hand
Conserve hand pose by reducing unnecessary
rotation*



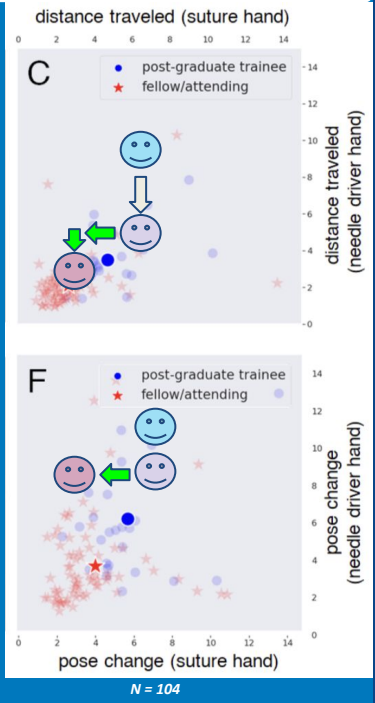
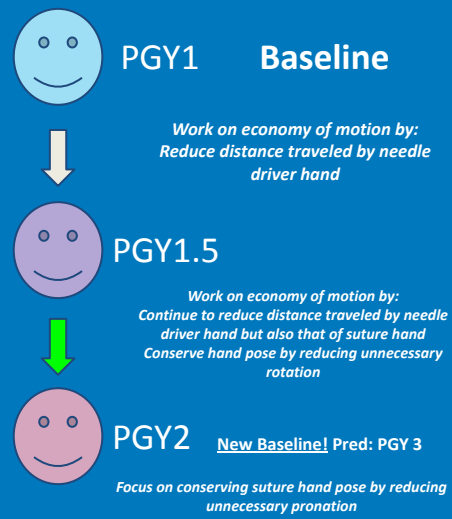
Lessons Learned

Next Steps

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More Results/Progress to Date

Model for Implementation



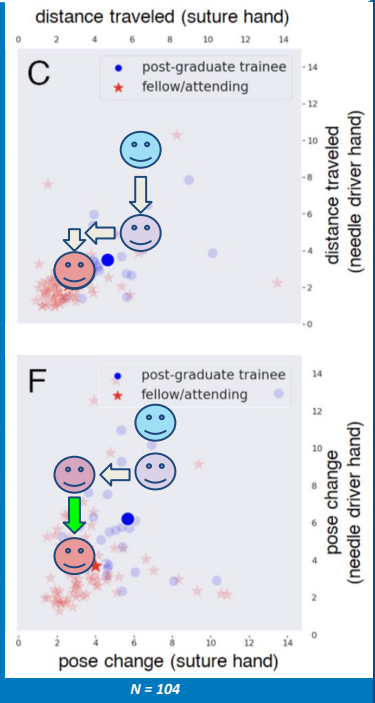
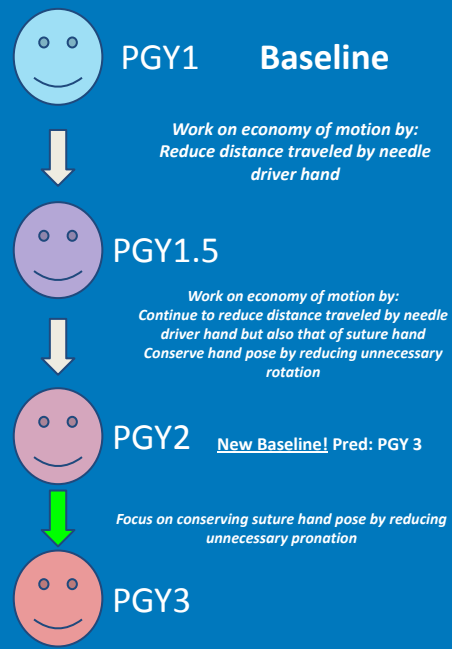
Lessons Learned

Next Steps

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More Results/Progress to Date

Model for Implementation



Lessons Learned

Surgical Residents Require More Feedback during Case Load Changes

Automated evaluation of surgical skill is possible

Providing “Just in Time” feedback after engaging in a task increases retention

More discrete levels of training could allow for better than a binary skill classification

Next Steps

Improve integration of automated and remote forms of real-time feedback for surgical trainees

Potential for other situations whenever the training path could be disrupted

Encourage increased collaboration between institutions

Thank you to the peri-operative staff, the Shapiro Clinical Center, and the residents who helped make this possible!

For more information, contact:

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