

MICHIGAN STATE
UNIVERSITY

Beta Presentation

Modernizing Robotic-Surgery Education

The Capstone Experience

Team Henry Ford Innovations RSE

Olivia Jordahl

Sid Pawa

Jacob Guty

Lilly Yanke

Shaili Annadurai

Joseph Eisho

Department of Computer Science and Engineering
Michigan State University

Fall 2024



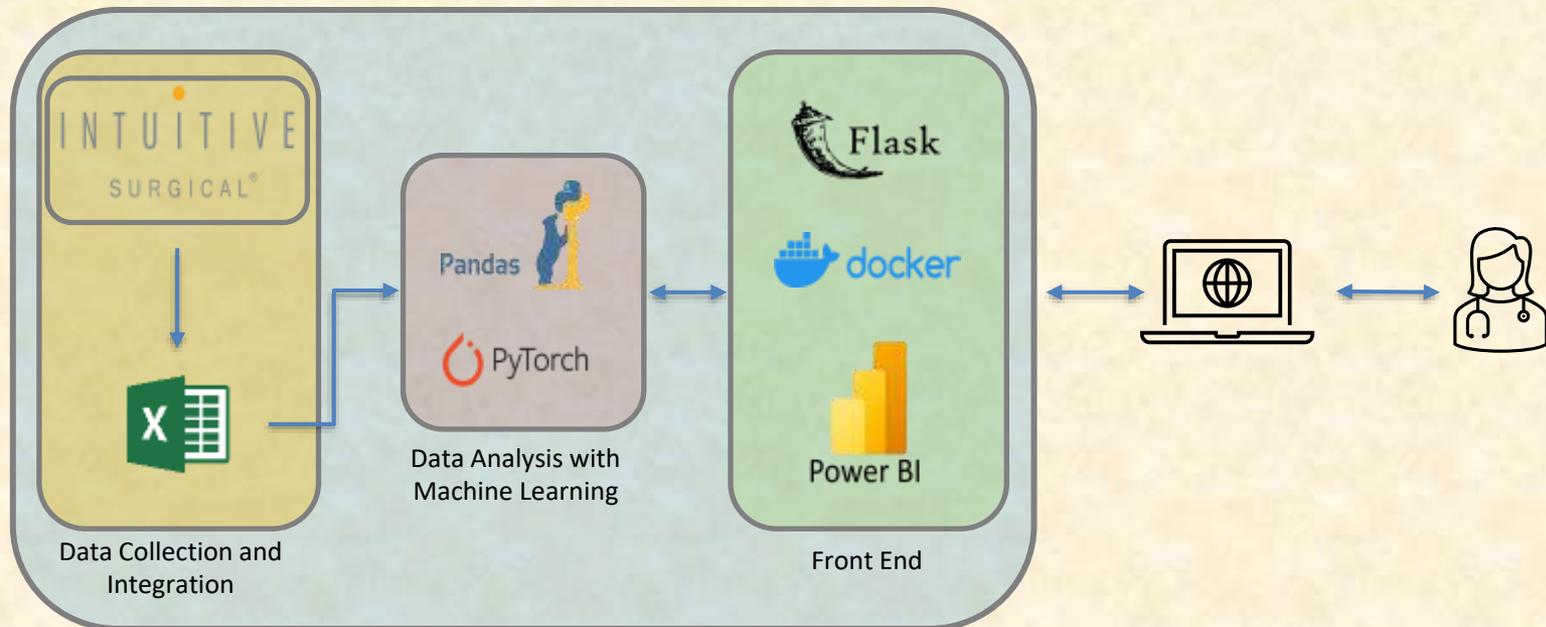
*From Students...
...to Professionals*

Project Overview

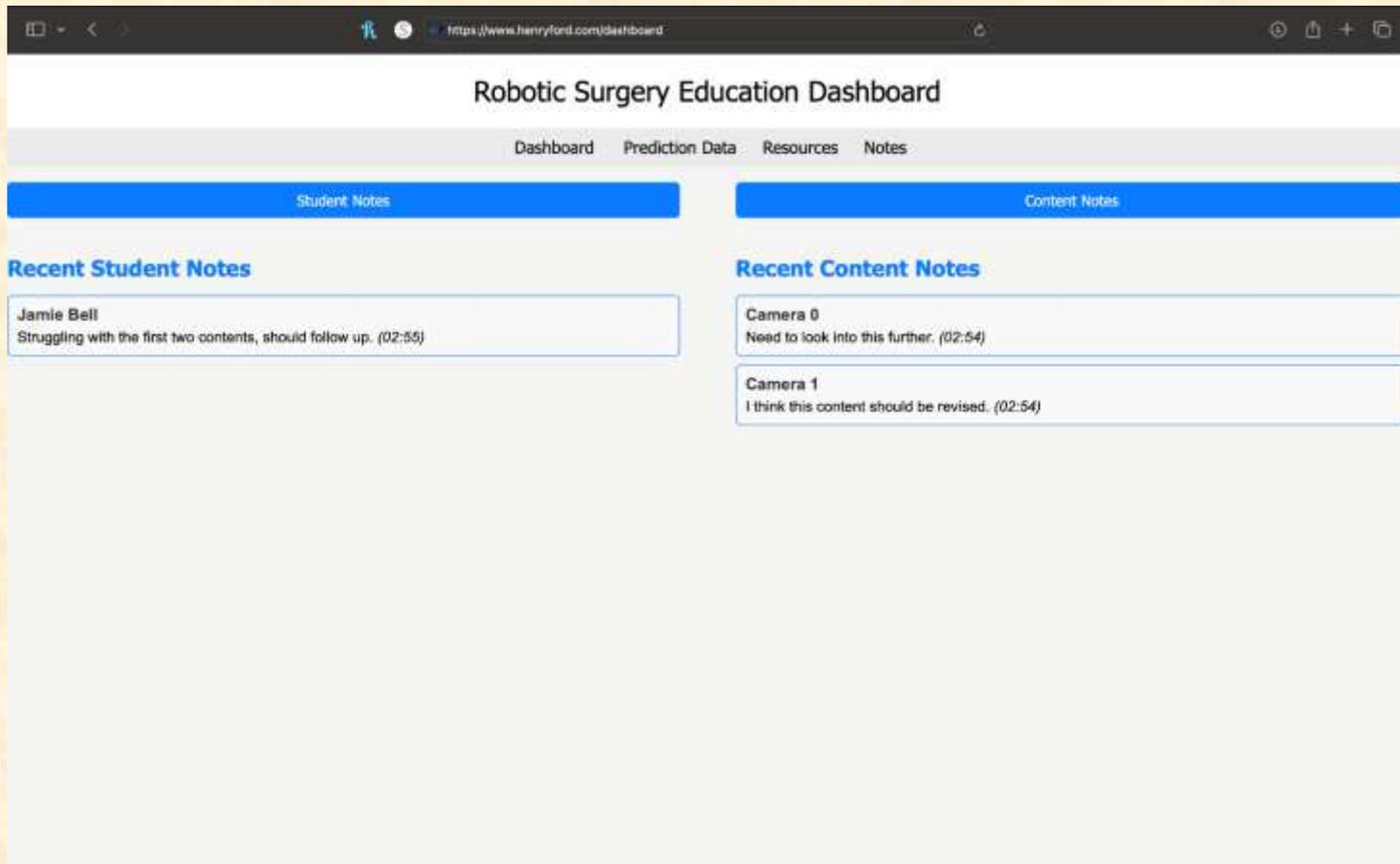
- Reduce training time for surgeons using robotic surgery training data.
- Outdated curriculum
- Analyze training module data from Intuitive
 - Most important/effective modules
- Visualize metrics on dashboard



System Architecture



Educator/Student Comments



The screenshot displays a web browser window with the URL <https://www.henryford.com/dashboard>. The page title is "Robotic Surgery Education Dashboard". Below the title is a navigation bar with links for "Dashboard", "Prediction Data", "Resources", and "Notes". The main content area is divided into two columns. The left column is titled "Student Notes" and contains a section for "Recent Student Notes" with one entry: "Jamie Bell" with the comment "Struggling with the first two contents, should follow up. (02:55)". The right column is titled "Content Notes" and contains a section for "Recent Content Notes" with two entries: "Camera 0" with the comment "Need to look into this further. (02:54)" and "Camera 1" with the comment "I think this content should be revised. (02:54)".

Robotic Surgery Education Dashboard

Dashboard Prediction Data Resources Notes

Student Notes Content Notes

Recent Student Notes

Jamie Bell
Struggling with the first two contents, should follow up. (02:55)

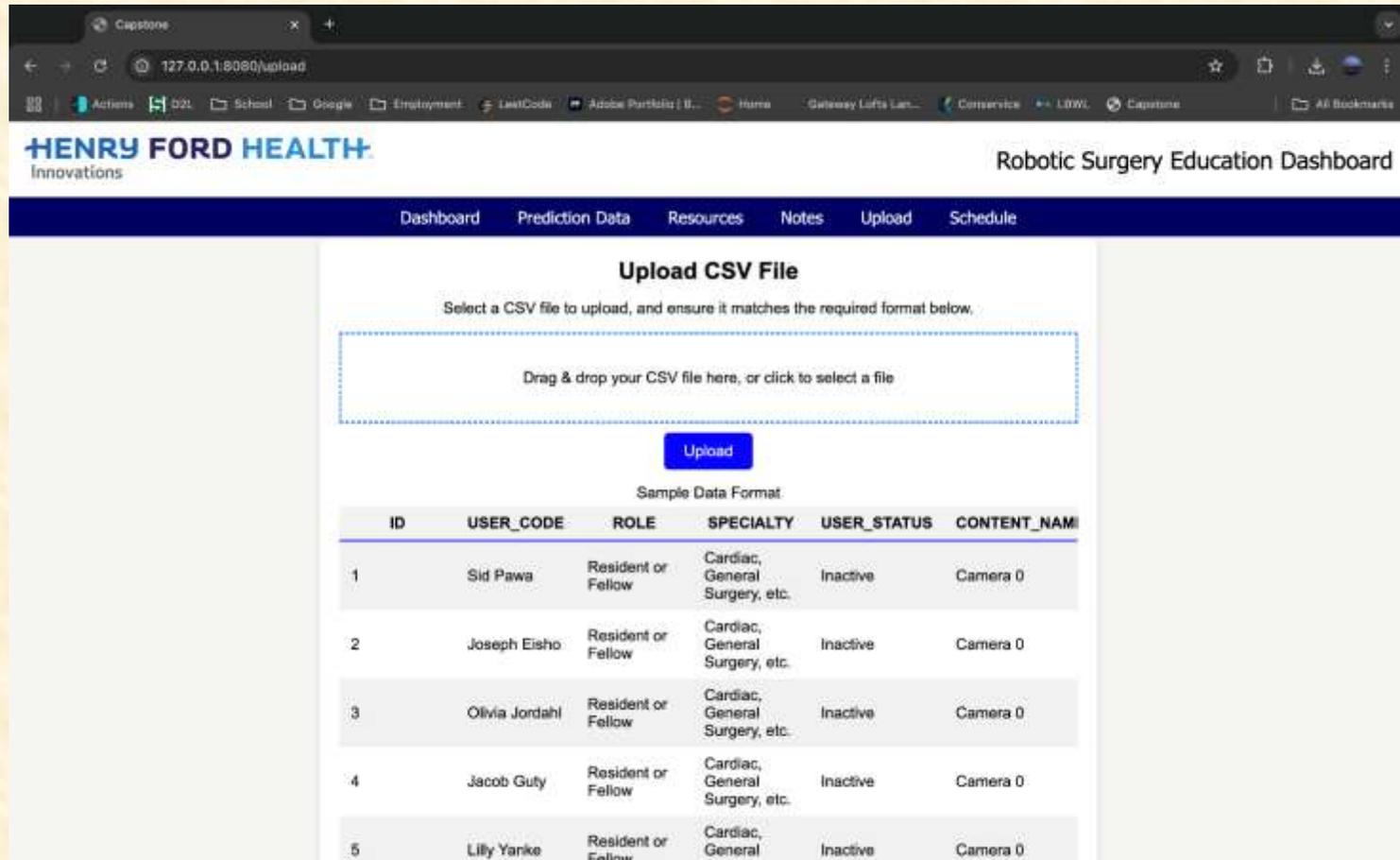
Recent Content Notes

Camera 0
Need to look into this further. (02:54)

Camera 1
I think this content should be revised. (02:54)



Educator Uploads New Data



HENRY FORD HEALTH
Innovations

Robotic Surgery Education Dashboard

Dashboard Prediction Data Resources Notes Upload Schedule

Upload CSV File

Select a CSV file to upload, and ensure it matches the required format below.

Drag & drop your CSV file here, or click to select a file

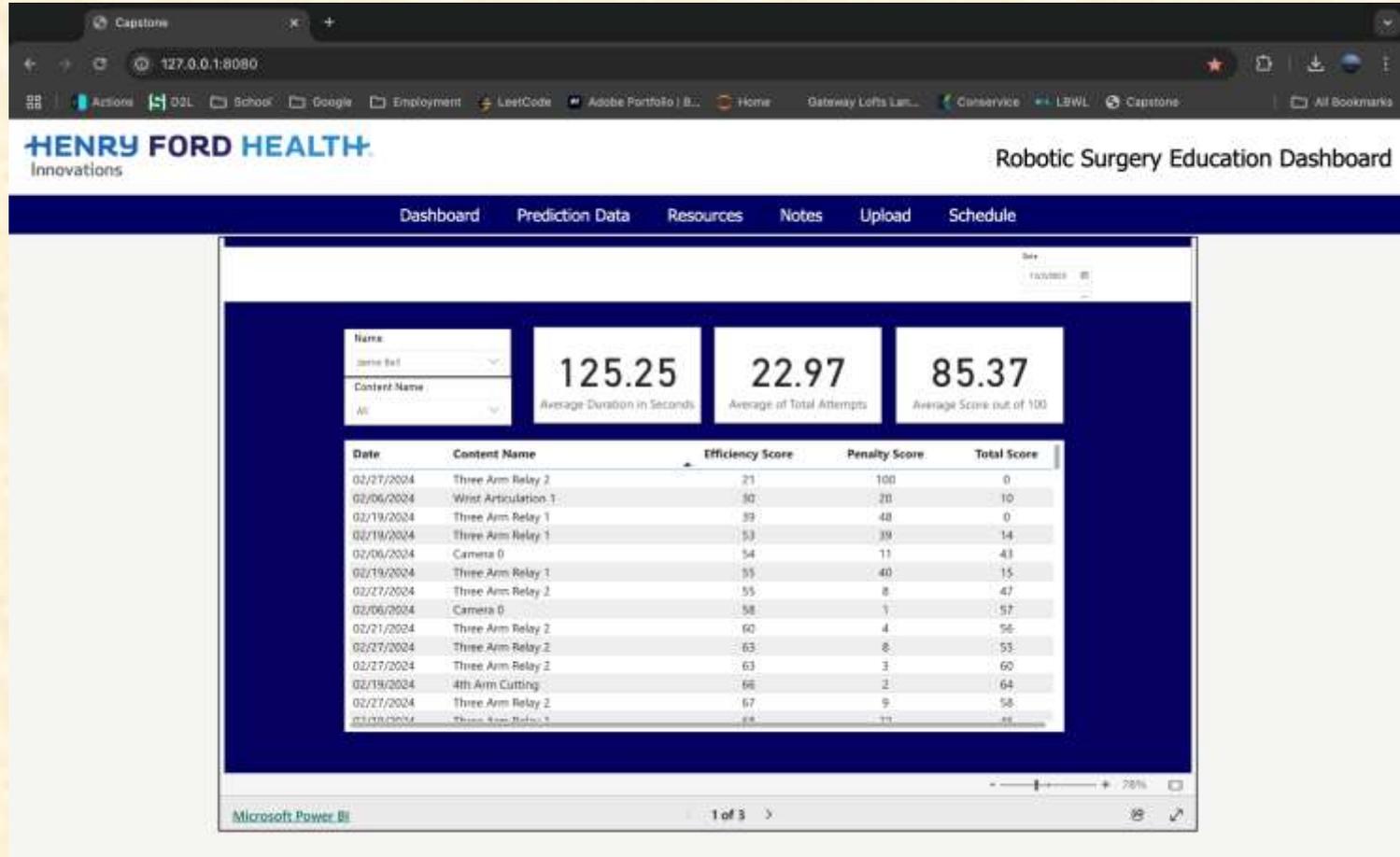
Upload

Sample Data Format

| ID | USER_CODE | ROLE | SPECIALTY | USER_STATUS | CONTENT_NAME |
|----|----------------|--------------------|--------------------------------|-------------|--------------|
| 1 | Sid Pawa | Resident or Fellow | Cardiac, General Surgery, etc. | Inactive | Camera 0 |
| 2 | Joseph Eisho | Resident or Fellow | Cardiac, General Surgery, etc. | Inactive | Camera 0 |
| 3 | Olivia Jordahl | Resident or Fellow | Cardiac, General Surgery, etc. | Inactive | Camera 0 |
| 4 | Jacob Guty | Resident or Fellow | Cardiac, General Surgery, etc. | Inactive | Camera 0 |
| 5 | Lilly Yanke | Resident or Fellow | Cardiac, General Surgery, etc. | Inactive | Camera 0 |



Power BI Dashboard Display



Resources and AI Chat Box

The screenshot displays the 'Robotic Surgery Education Dashboard' for Henry Ford Health. The dashboard includes a navigation bar with 'Dashboard', 'Prediction Data', 'Resources', 'Notes', 'Upload', and 'Schedule'. The main content area is divided into three sections:

- Summary Metrics:** A table showing key performance indicators.
- Data Table:** A detailed table of surgical cases with columns for Date, Current Name, Efficiency Score, Penalty Score, and Total Score.
- AI Chat Interface:** A chat window titled 'VectorShift' with a logo and the text 'Hi, how can I assist you today?' and 'Powered By VectorShift'.

| Key | 147.38 | 285 | 82.03 | |
|-----------|---------------------------------|--------------------|--------------------------|-------------|
| Accuracy | Message Description of Accuracy | Number of Messages | Message Score out of 100 | |
| Date | Current Name | Efficiency Score | Penalty Score | Total Score |
| 3/27/2024 | Camera II | 54 | 71 | 62 |
| 3/27/2024 | Camera II | 56 | 71 | 54 |
| 3/27/2024 | Clutch | 489 | 149 | 61 |
| 3/27/2024 | Clutch | 489 | 149 | 469 |
| 3/27/2024 | Wind Assistance 1 | 35 | 33 | 19 |
| 3/27/2024 | Wind Assistance 1 | 35 | 33 | 131 |
| 3/27/2024 | Camera II | 76 | 0 | 18 |
| 3/27/2024 | Camera II | 76 | 0 | 18 |
| 3/27/2024 | Camera II | 84 | 0 | 58 |
| 3/27/2024 | Camera II | 84 | 1 | 58 |
| 3/27/2024 | Camera II | 84 | 1 | 58 |
| 3/27/2024 | Camera II | 84 | 0 | 58 |
| 3/27/2024 | Camera II | 84 | 0 | 58 |

Calendar

The screenshot shows a web browser window with the address bar displaying "127.0.0.1:8080/calendar". The page header includes the "HENRY FORD HEALTH Innovations" logo on the left and "Robotic Surgery Education Dashboard" on the right. A navigation bar below the header contains links for "Dashboard", "Prediction Data", "Resources", "Notes", "Upload", and "Schedule".

The main content is a calendar for November 2024. The calendar grid shows the following events:

- Monday, November 4: 30-Degree Scope Swap (X) Due
- Friday, November 8: ATW Needle Driving Due, Sea Spikes 2 Due
- Sunday, November 17: Ring Rollercoaster 1 Due, Three Arm Relay 1 Due
- Monday, November 18: Guided Incision and Dissection Due
- Wednesday, November 20: RH: Anatomy Identification Due

An "Add Event" button is located at the bottom right of the calendar grid.



Predictions

The screenshot shows a web browser window with the URL 127.0.0.1:8080/predictions. The page header includes the Henry Ford Health Innovations logo and the title 'Robotic Surgery Education Dashboard'. A navigation bar contains links for Dashboard, Prediction Data, Resources, Notes, Upload, and Schedule. The main content area is titled 'Select an Option' and features three buttons: 'Compare Scores', 'Run Score Prediction', and 'Add Comparison'. Below these are three dropdown menus for 'Choose Student' (set to 'All Students'), 'Choose Category' (set to 'Overall'), and 'Choose Content' (set to 'Select a Content'). A table titled 'Average Metric Scores' displays the following data:

| Metric | Score |
|-------------------|---------------------|
| TOTAL_SCORE | 67.47 Out of 100 |
| Time to Complete | 199.38 Seconds |
| DURATION_SEC | 198.88 Seconds |
| Economy of Motion | 319.07 Distance |



What's left to do?

- Stretch Goals
 - User login

- Other Tasks
 - Dashboard metric units to be added
 - UI style improvements
 - Deploy site



Questions?

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