

MOTIVATION

Eye surgeries are in high demand today, in particular--cataract surgeries. Although most cataract surgeries are successful, there is a significant portion of them that are sub-optimal. The high demand in the surgery leads to long wait times for patients. We want surgeons to be able to perform better and more efficient surgeries so that they are able to help more patients.

SOLUTION

We apply machine learning to surgical videos, specifically focusing on tool detection because of how they indicate different phases of a surgical procedure. We measure the duration in which a tool is used and compare it to statistics of the standard procedure, such as the average duration in which a tool was used during the typical surgery. This is compiled into a report which a surgeon can use to gain information about how to improve.

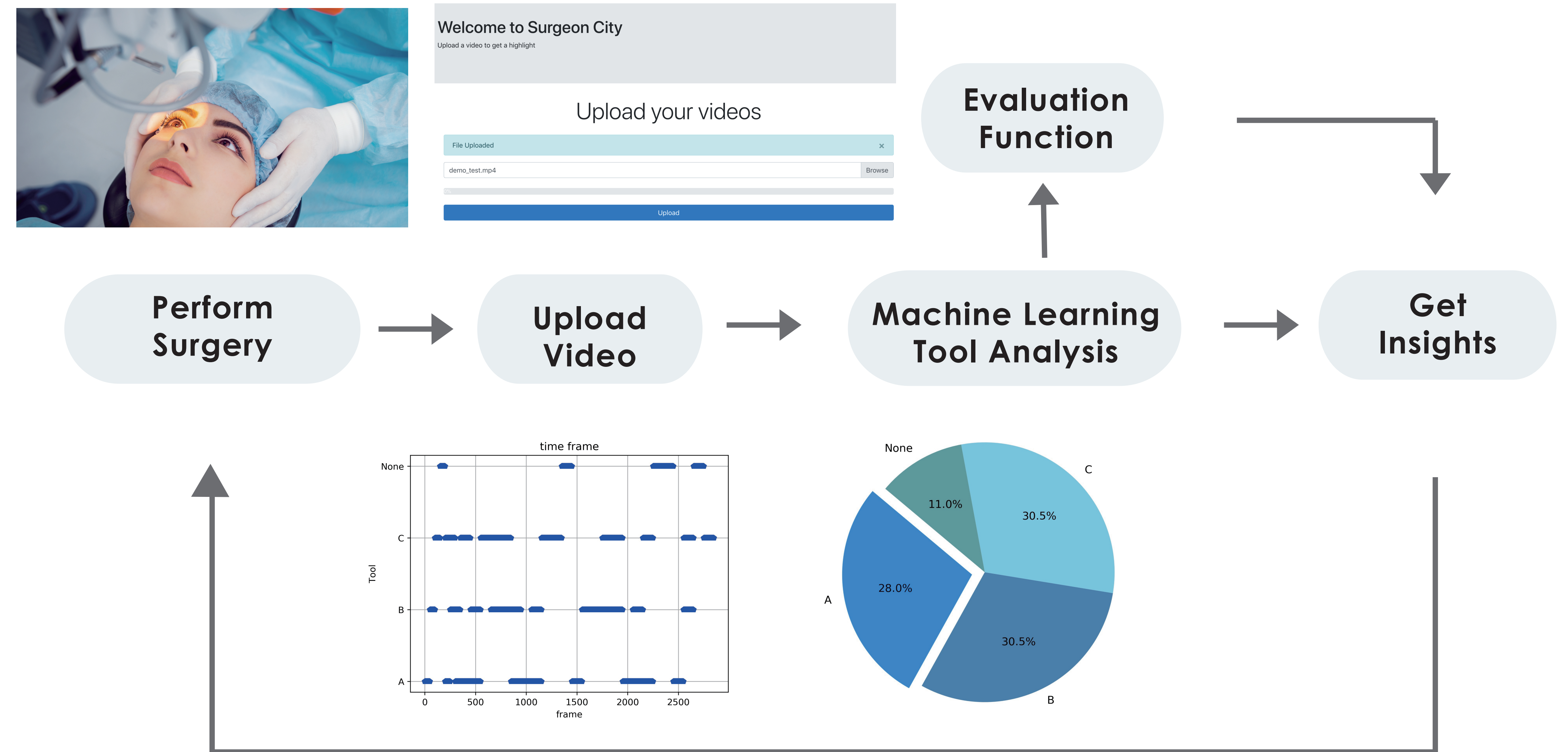
FUTURE IMPLEMENTATION

- **Portable:** Extend our web-app to more types of surgeries by retraining our tool recognition model.
- **Informative:** Extract more advanced surgical data from videos, such as motion detection and recognizing the different parts of the body being operated on.
- **Data Mining:** Correlate suboptimal post-surgery outcomes with surgery procedure.

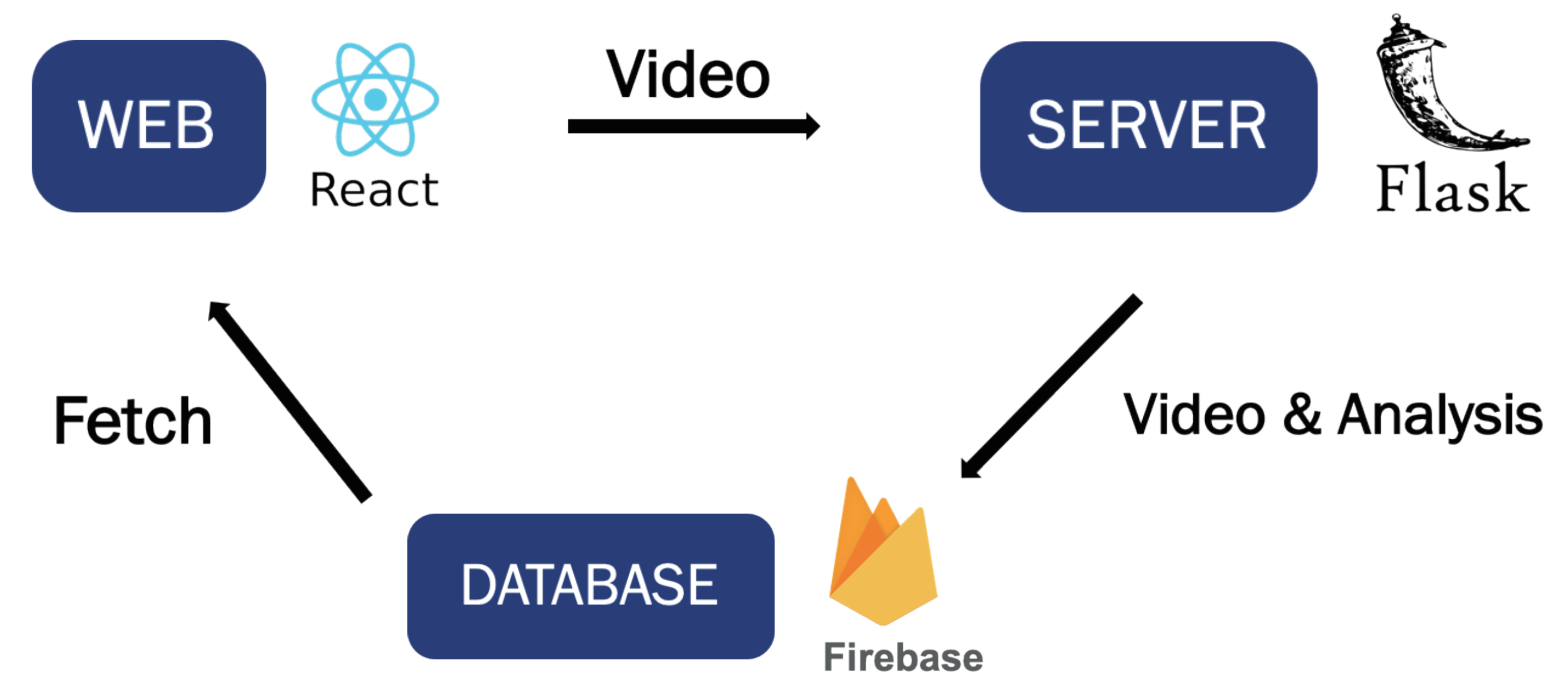
TECHNOLOGIES



USER FLOW



PIPELINE



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SPECIAL THANKS

UCSB Mentors
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