Web application for setting up an ergonomic position on a bicycle

2024

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1. Cycling video recording

- Video should be at least 5 seconds long
- Use an indoor trainer for best results

Figure 1: Example input video.

2. Video upload and fit goals selection

- Can be used with road, gravel and mountain bikes
- Supports comfort, performance and balanced fit goals

3. Pose estimation and angle calculations

- Uses state of the art RTMPose model
- Fine-tuned on custom bikefitting dataset
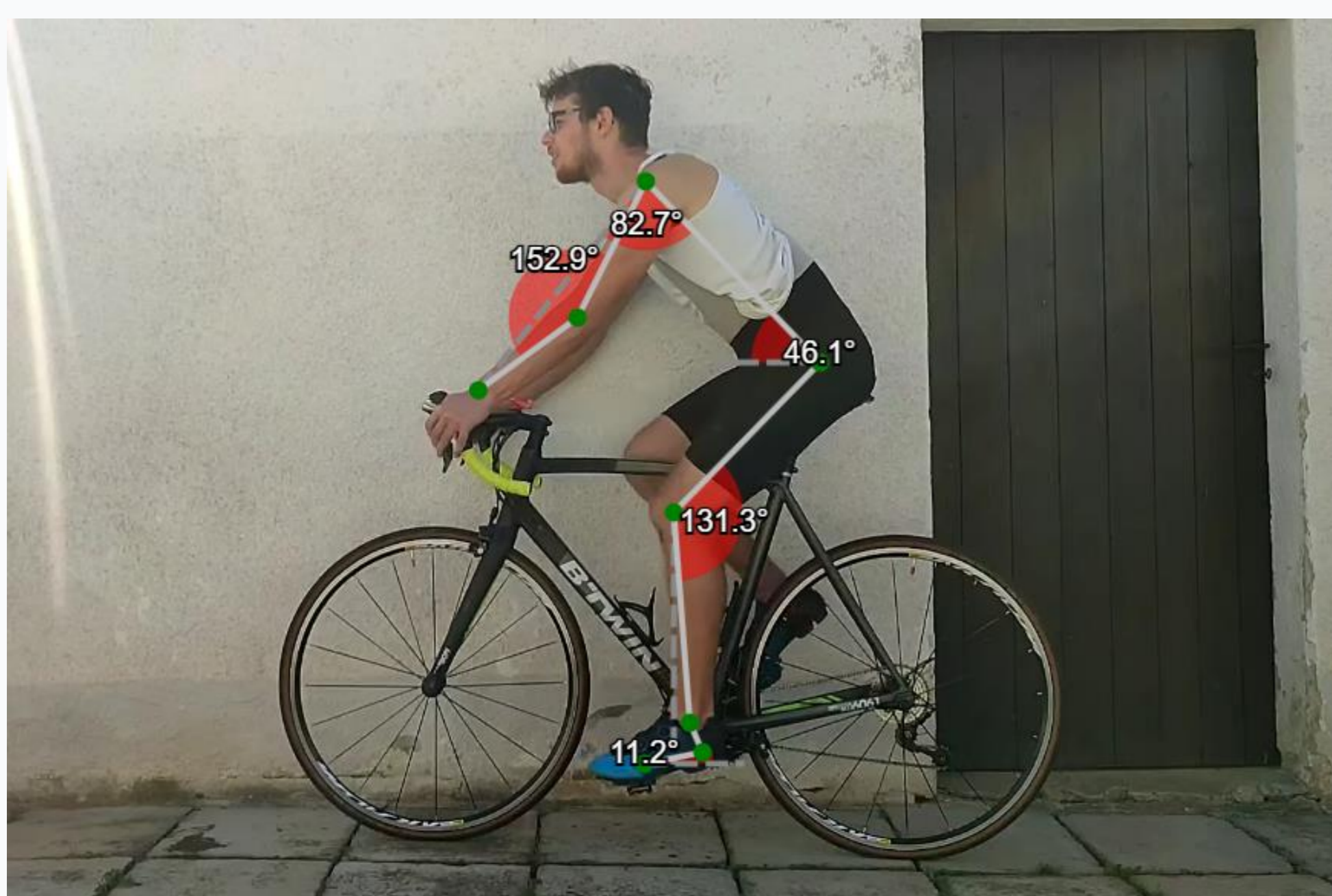- Everything runs on front-end using tensorflow.js with WebGPU or WebGL backends

Figure 2: Video after processing, with measured joint angles drawn on top.
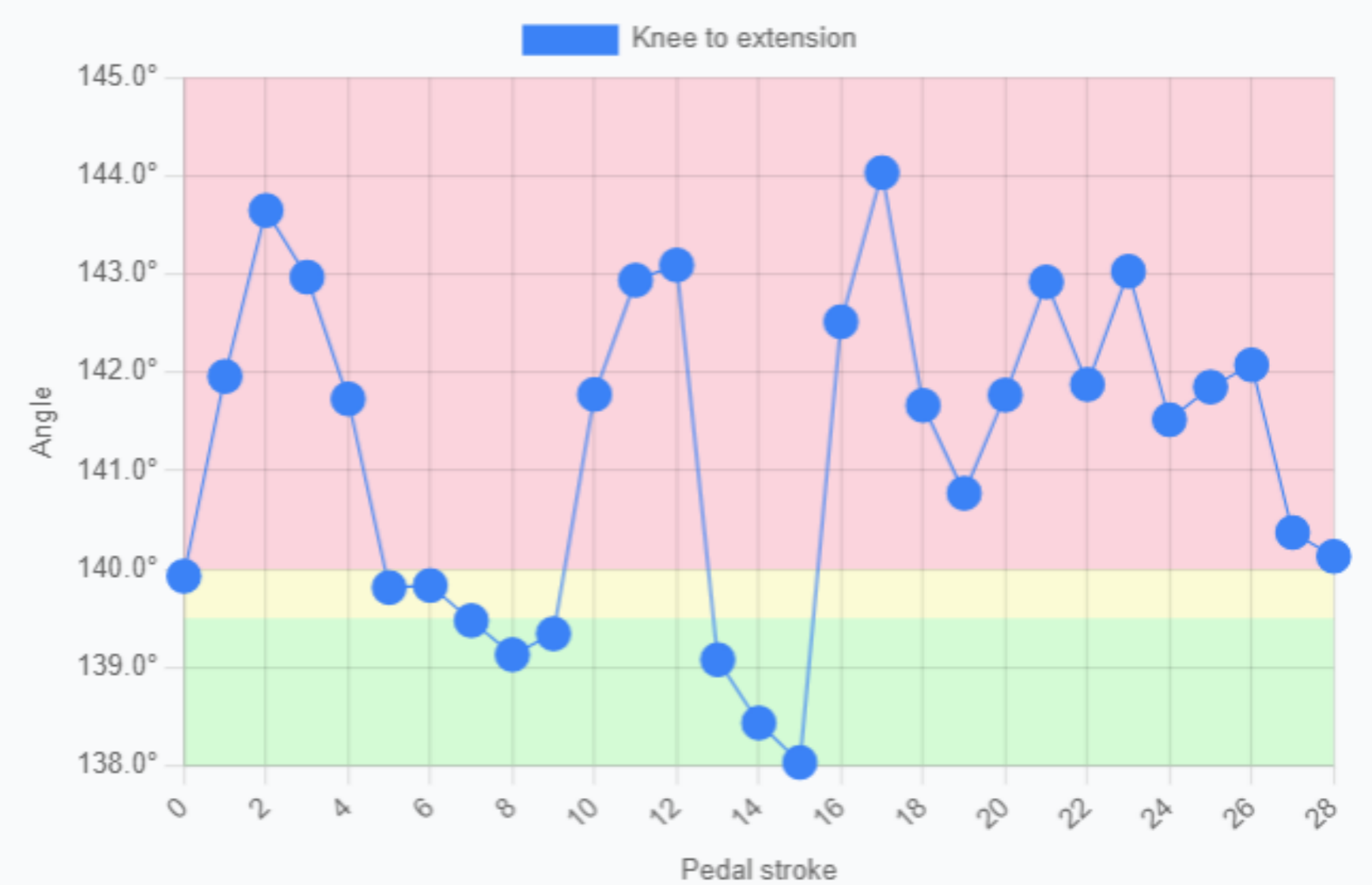

vlasakjiri.github.io/bikefit

4. Angle analysis

- App tracks joint angles at different phases of the pedal stroke (top, bottom and front)
- Joint angles at individual pedal strokes are compared to recommended ranges

Bottom of the pedal stroke

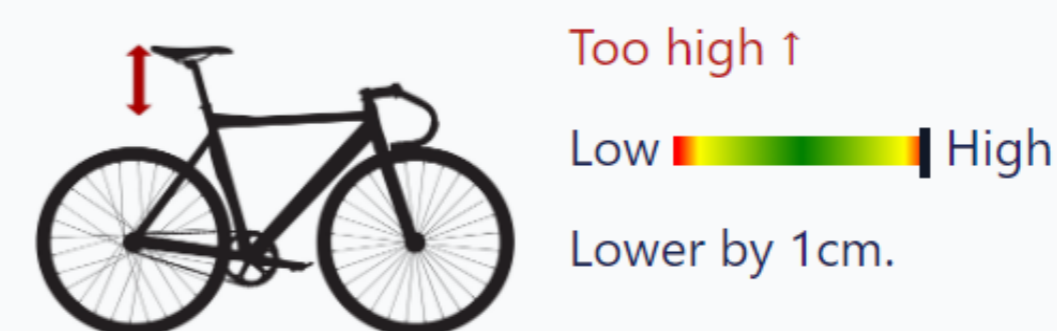| Measurement	Value	Recommended
👁 Knee to extension	141.7°	135° ▮▮▮ 140° ⌃

Details

Min	Max	Median	Range
138.0°	144.0°	141.7°	6.0°

Figure 3: Angle analysis for knee to extension angle on the bottom of the pedal stroke.

5. Recommendations

- Based on measured angles, app recommends changes to saddle height, saddle setback, handlebar height and handlbar reach

Saddle Height

Too high ↑

Low ▮▮▮ High

Lower by 1cm.

Hanglebar Height

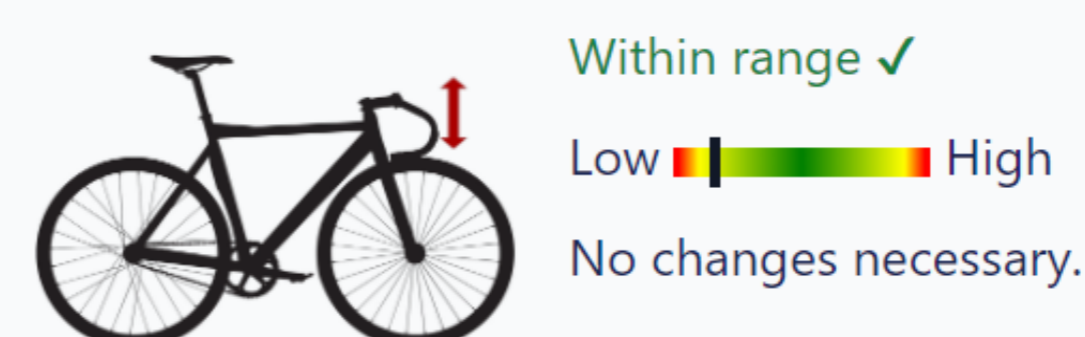
Within range ✓

Low ▮▮▮ High

No changes necessary.

Figure 4: Recommendations for changes in saddle height an handlebar height.