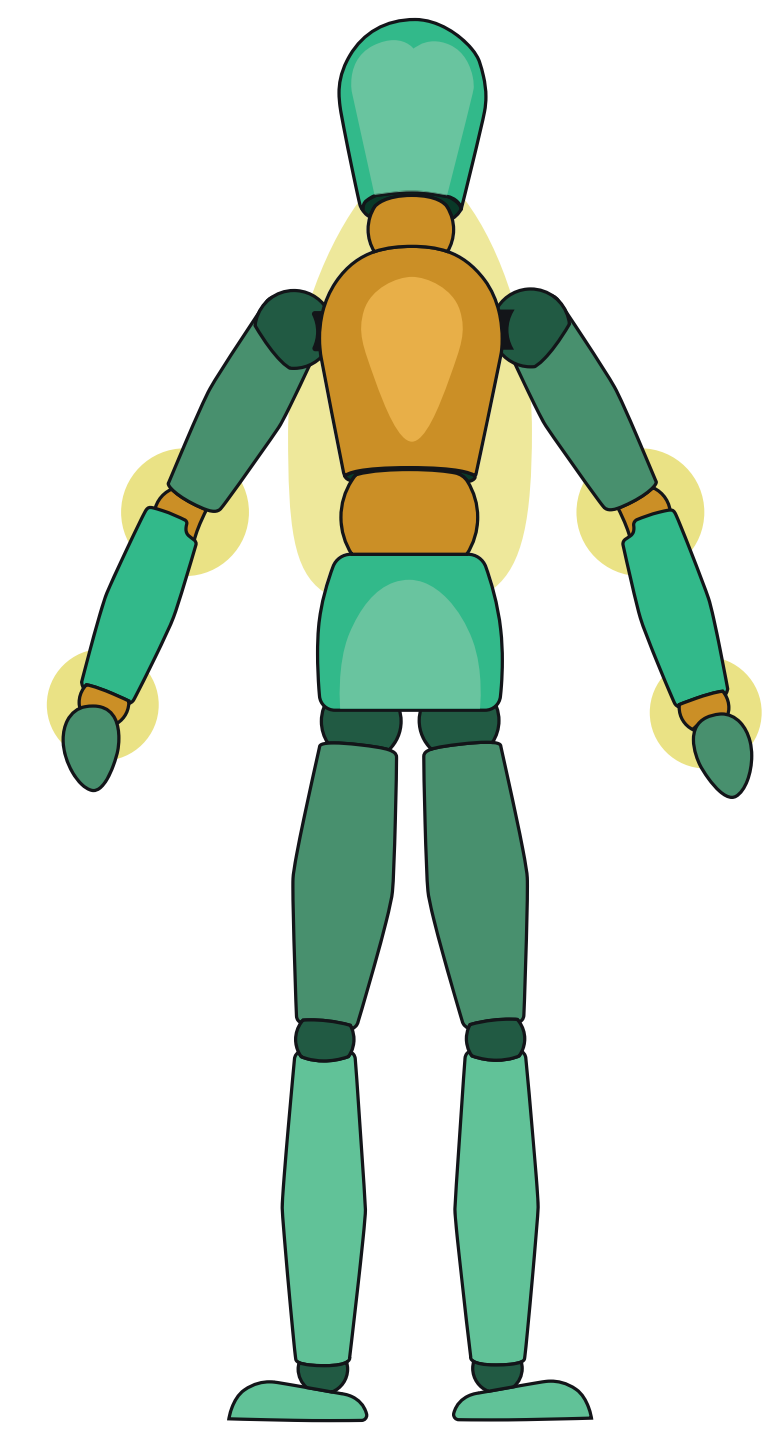


GREEN eCOMMERCE



Climate-Friendly Online Shopping Within the Green eCommerce Project:

A Fitting Tool To Determine T-Shirt Sizes Using Active Depth Sensing

Prototype Fitting Tool app

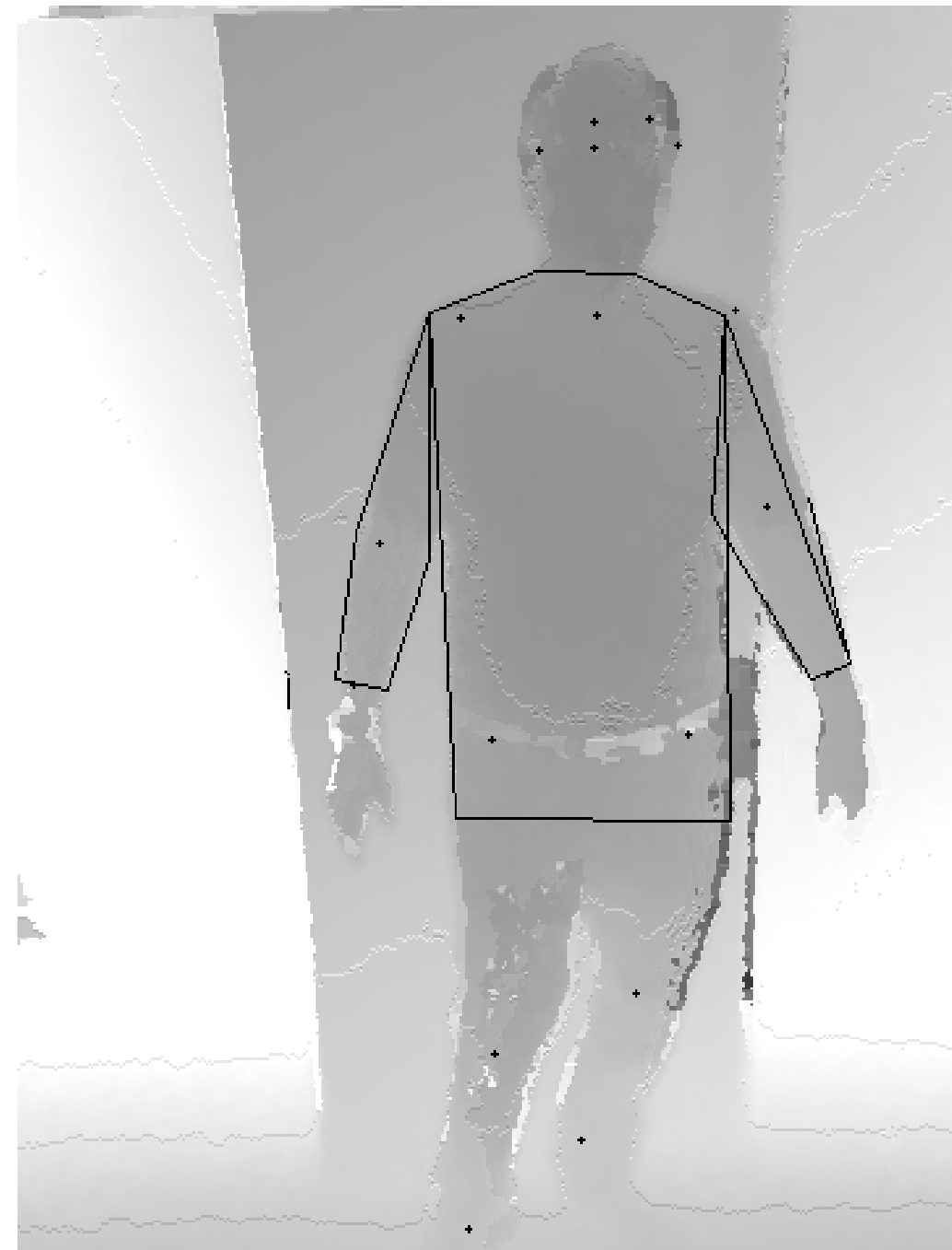


- Precise absolute body measurements (4% error)
- BUT low accuracy T-Shirt size prediction (20-30%)
- Perceived accuracy 1.5-3x higher
- Can be explained by manufacturer bias

MarkPose tracking algorithm



- Human pose detection by OpenPose model from color image
- Convert body keypoint coordinates from color to depth image
- Track left/right horizontally from various body keypoints until body border is detected by increased depth
- Compute distance for whole path from left to right body border
- Double distance to get circumference
- Do it several times at slightly different vertical positions
- Apply crosschecks to remove spurious estimates
- Do it 15 times for consecutively recorded depth frames
- Compute median over all obtained values

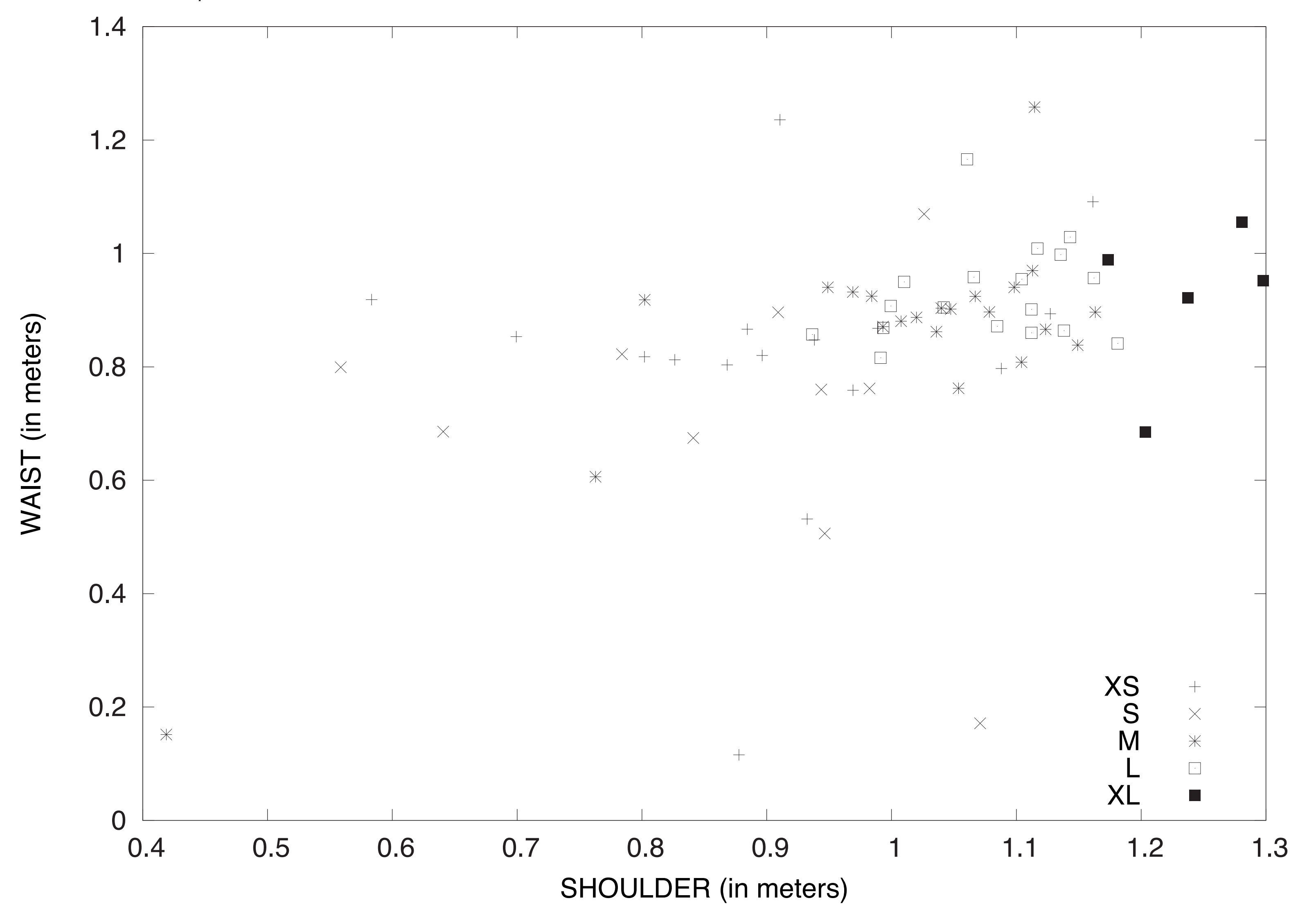


Future Work



- Improve T-shirt size prediction by manufacturer-dependent size tables or product search using absolute measurements
- Re-evaluate and possibly improve accuracy of absolute measurements
- Port app to phones with active depth sensors
- Adapt the app for one-person usage if feasible

Reported T-Shirt size versus SHOULDER and WAIST absolute measurements.



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