For project content & details visit: https://github.com/DrYuWang/ILI_Transformation.git

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Feature Transformation

Scope

Following the achievement of algorithm debugging and parameter tuning, we have now entered the 2nd phase of feature matching. In this project, our main focus is to determine the validity of the transformation algorithm when applied to real ILI data. Main tasks include procedural data testing, performance analysis and the automation of multi-year iteration.

Milestones

The project is further broken down in to 10 main issues, which have been solved or fixed completely. Testing results on three datasets of hundreds of joints further confirmed this.

Project Setup
Week 1

#1-3 Configure the project environment and discuss the procedure

Performance Analysis
Week 2 - 3

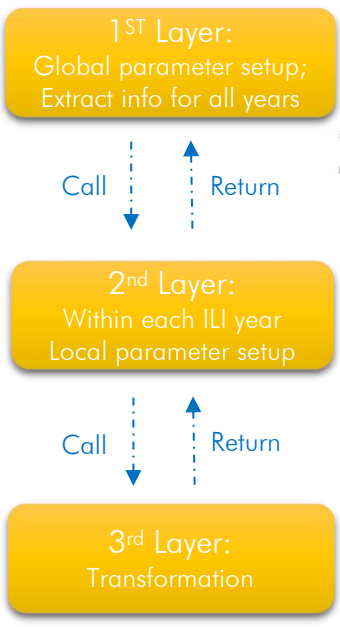
#4, 9 Test on two ILI years of 159 joints and 18 joints, separately
#8 Standardize data input and output
#10 Validate the transformation by plotting out the consistency of feature growth

Program Automation
Week 4

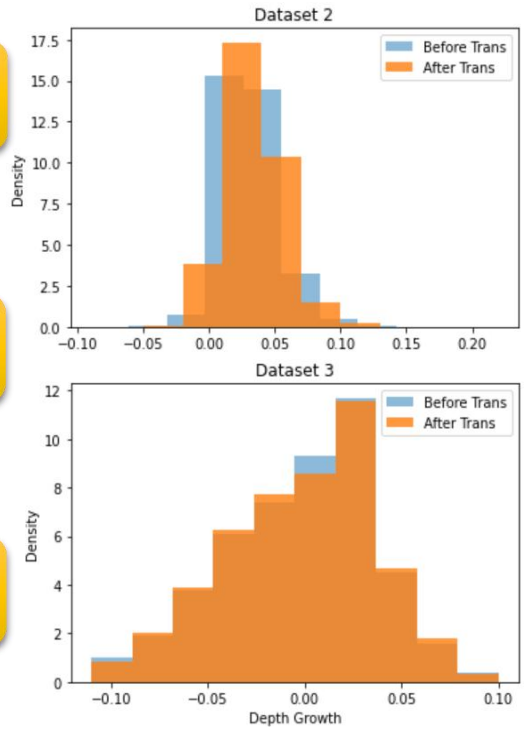
#11 Automate multi-year iterations by building a three-layerd program; and test it on three ILI years containing 113, 136 and 159 joints separately.

Algorithm Enhancement
Week 5

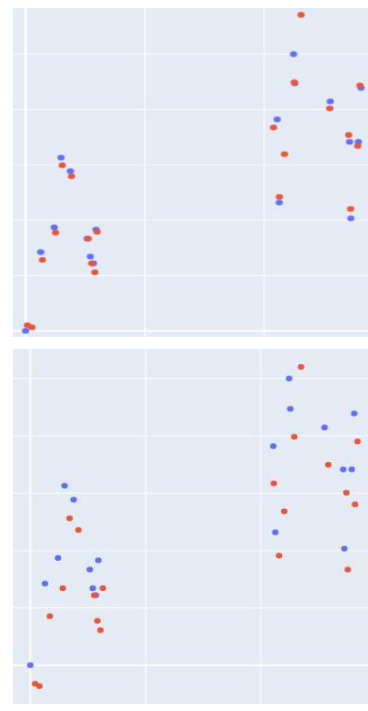
#6 Increase processing speed by removing redundant algo structures, e.g functions and loops
#7 Complete automation by removing manual evaluation and intervention



Structured Program
(Tree-like, three-layers)



Consistency of Feature Growth
(Dataset 2 & 3)



Joint 1760
(after vs before)

Next Steps

- To reduce algorithm runtime
- To extend comparison metrics of pre- & post-trasnformation
- To automate ILI analysis process

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