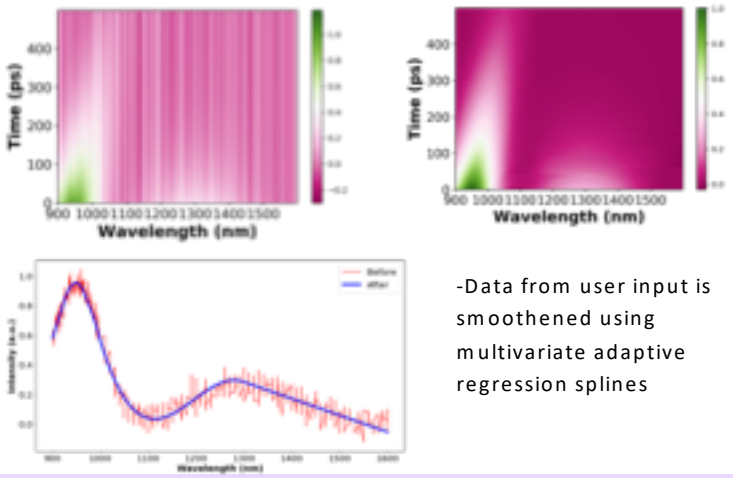
UNIVERSITY of WASHINGTON

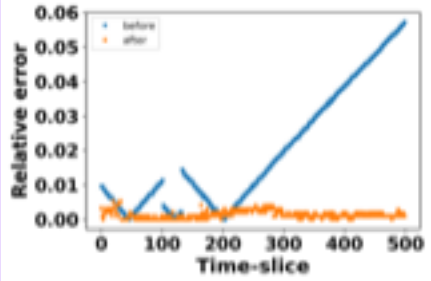
Motivation

Data Smoothening

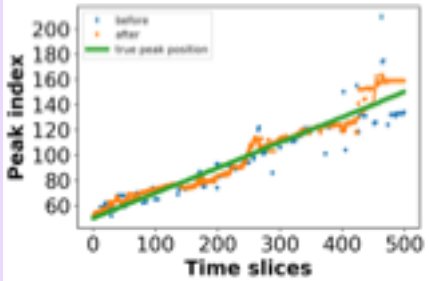


-Data from user input is smoothened using multivariate adaptive regression splines

Peak Identification, Optimization and Characterization

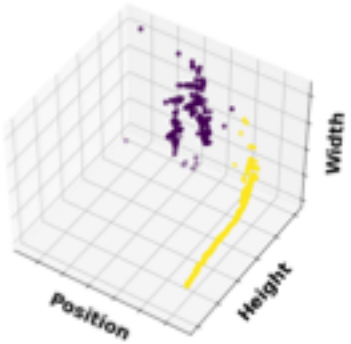


-identify peaks by finding the local minimum and maximum based on gradient
- Smoothening significantly improves the accuracy in peak identification



-Peak position is optimized by removing outliers and isotonic regression

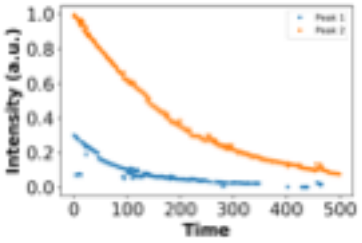
Peak Classification

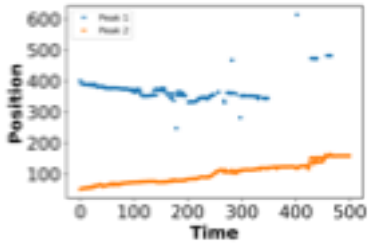


-We classify the peaks using K-Means to distinguish neighboring peaks

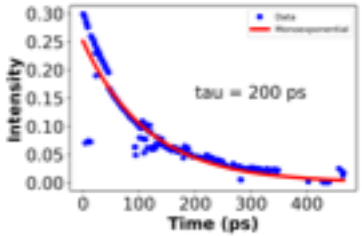
Peak Dynamics

- Users can visualize how peak position, height and width change over time





- We extract kinetic parameters to characterize the dynamics of photoexcited species



Future Directions

- Recover the entire spectrum of individual species with spectral overlap

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