**AutoRAS2Du: A Python Library for 2D Unsteady Flow Simulation in HEC-RAS**

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1. **Introduction**
2. **Methodology**

**AutoRAS2Du is built with Python.**

1. **Get\_WSE: extract the WSE data from HDF plan file and geometry file of HEC-RAS model based on the location of input sample points and output the data as a CSV file (wse\_point.csv).**

**Figure 1**

1. **Get\_Velocity: extract face velocity data from a HDF plan file of HEC-RAS model and store the data in two CSV files, one for input cell numbers as ‘face\_velocity\_cells.csv’ and the other for all cells as ‘face\_velocity\_total.csv’.**

**Figure 2**

1. **Usage Examples**

**The usage examples for UntoRAS2Du are still in evolution for better user experience. We demonstrate two examples here, one for extracting WSE data from the model and the other for extracting velocity data.**

**>>> from AutoRAS2Du import Get\_WSE**

**>>> from AutoRAS2Du import Get\_Velocity**

**>>> # define sample points**

**>>> sampl\_pt = [[406306.67, 1802563.63], [406695.49, 1801683.77], [411232.04, 1802599.27]]**

**>>> # extract WSE data**

**>>> Get\_WSE('data/Muncie.p04.hdf', 'data/Muncie.g04.hdf', sampl\_pt, 102673)**

**>>> # extract velocity data**

**>>> Get\_Velocity('data/Muncie.p04.hdf', [1,2,5])**