RIPS 2019 LLNL Deliverables Guide

- advec-diff-implicit.c

This script solves the linear advection diffusion optimization problem via a backwards in time centered in space discretization. See final report Section 5.1 for problem statement. See Section 5.2.1 for discretization scheme.

- advec-diff-rms.c

This script solves the linear advection diffusion optimization problem with a backwards in time centered in space discretization via restricted RMS. See final report Section 5.1 for problem statement. See Section 5.2.1 for discretization scheme. See Chapter 6 for theory on RMS. See Section 7.1 for the implementation of RMS for this problem.

- advec-diff-serial.c

This script solves the homogeneous linear advection diffusion equation via explicit forward time stepping.

- advec-diff-upwind.c

This script solves the linear advection diffusion optimization problem via an upwinding discretization scheme. See final report Section 5.1 for problem statement.

- visc-burgers-explicit.c

This solves the viscous burgers' optimization problem via an explicit discretization scheme. See Section 8.1 for problem statement. See Section 8.3 for discretization scheme.

- visc-burgers-implicit.c

This solves the viscous burgers' optimization problem via an implicit backwards in time central in space discretization scheme. See Section 8.1 for problem statement. See Section 8.2 for discretization scheme.

- visc-burgers-serial.c

This script solves the homogeneous viscous burgers' equation via explicit forward time stepping. See Section 8.3 for discretization scheme.

- viz-serial.py

This program visualizes the output of the visc-burgers-serial.c script.
This code is run by typing

```
python viz-serial.py
```

into the command line

- viz.py

This is a master visualization script for the non time stepping codes. It will produce visualizations for:

1. advec-diff-implicit.c

2. advec-diff-rms.c

3. advec-diff-upwind.c

4. visc-burgers-explicit.c

5. visc-burgers-implicit.c

This code is run by typing

```
python viz.py -file_stem out/*script_name*.out. -np *number of processors*
```

into the command line.
For instance, if we ran advec-diff-implicit.c using 6 processors, we would have

```
python viz.py -file_stem out/advec-diff-imp.out. -np 6
```