

**Title:**

Upgrading and Extending RNAVLab: Transition to Python3 and Flask

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**Abstract:**

The RNAVLab platform is a bioinformatics tool designed to assist researchers in analyzing various aspects of RNA data, such as secondary structure. RNAVLab was developed using Python2 and the web.py framework, and challenges maintaining compatibility with the current technology frameworks have occurred. This project addresses these limitations by upgrading the RNAVlab codebase to Python 3 and transitioning the web.py interface to the Flask framework. These improvements enhance the platform's performance, security, and scalability. In addition, the core programming has been reorganized to allow for increased functionality. RNAVLab is being extended to include more than just secondary structure prediction and a database. Functions such as sequence comparisons, CT Format conversion, results' visualizations, RNAseq analysis, and report generation for users. This upgrade extends the usability of RNAVLab for the current research needs and positions it to support future bioinformatics advancements. The poster highlights the key technical challenges encountered during the transition, the methods used to overcome them, and the resulting benefits for both the users and the development team.