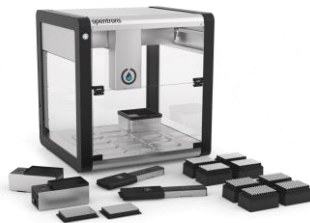


## Biofoundry Automation Assistant



Synthetic Biology (SynBio) applies engineering principles to life sciences to rationally Design, Build, Test, and Learn (DBTL cycle) how organisms can be redesigned for useful purposes or to acquire new abilities. The laboratories of Catalin Voiniciuc (Associate Professor) and Andrew Hanson (Eminent Scholar and Professor) are currently acquiring a set of fully equipped [Opentrons OT-2](#) lab robots to instantiate the UF IFAS biofoundry that will speed up research and development in agriculture, microbiology, and food science. We were recently awarded a research

infrastructure grant from the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS), and benefit from generous support from the Horticultural Sciences Department.

A biofoundry is an infrastructure that assembles genetic parts for many users, speeding up the Design to Test steps, and can be combined with Artificial Intelligence (AI) methods (Learn phase) to model the results. Together, SynBio and AI enable iterative DBTL cycles to address large-scale biological questions that are too costly or technically impractical to address by manual labor.

**Position Description and Requirements:** This part-time student OPS employee should be enrolled in engineering or computer science (BSc or MSc) studies at UF. The student employee will write, adapt and/or update automated biology lab protocols using the OT-2 robots and optional hardware modules. Strong written and oral communication is required. See [Opentrons Python API V2 Documentation](#) and [Get started: Python API onboarding](#) webinar for technical details of the programming knowledge required to control the robots.

```
from opentrons import labware, instruments, modules, robot
---
Purification of Plasmid DNA
---
trough_2row_name = 'trough-2row'
if trough_2row_name not in labware.list():
    labware.create(
        trough_2row_name,
        grid=(2, 1),
        spacing=(54, 0),
        diameter=55,
        depth=39.2)

# labware setup
mag_deck = modules.load('magdeck', '1')
mag_plate = labware.load('96-deep-well', '1', share=True)
plate = labware.load('96-deep-well', '2')
trough_2row_1 = labware.load(trough_2row_name, '3')
trough_2row_2 = labware.load(trough_2row_name, '4')
trough_12row = labware.load('trough-12row', '5')
temp_deck = modules.load('tempdeck', '6')
temp_plate = labware.load('96-deep-well', '6', share=True)

# reagent setup
lysis_buffer = trough_12row.wells('A1')
clear_beads = trough_12row.wells('A2')
bind_beads = trough_12row.wells('A3')
zippy_elution_buffer = trough_12row.wells('A4')
```

Sample OT-2 protocol

### Benefits

- This part-time position is funded for two years. The work hours are flexible and can be tailored to accommodate the course schedule of the student
- The position benefits from the strong, inter-disciplinary connections of Dr. Voiniciuc and Dr. Hanson to SynBio faculty in IFAS, Engineering, Pharmacy, and other units.
- Join the beautiful main campus of one of the top-five public universities in the U.S.
- Great quality of life: year-round sunshine, a wealth of outdoor and cultural activities

### To apply:

Email your motivation letter and CV to **both** [cvoiniciuc@ufl.edu](mailto:cvoiniciuc@ufl.edu) and [adha@ufl.edu](mailto:adha@ufl.edu), with the subject line "UF Biofoundry Automation Assistant". Applications must be received by May 15, 2023 to ensure full consideration.

Visit [DesignerGlycans.com](http://DesignerGlycans.com) and [ADHansonLab.org](http://ADHansonLab.org) for more details about our research topics, team members, publications, and international collaborations.