

# Introduction to systems biology

## Assignment 2

Note: all files relevant to this document are hosted on [GitHub](#)

### Problem 1: [1.5 points]

Read the paper *Just-in-time transcription program in metabolic pathways*. Provide a summary of the paper structured as follows:

1. What was the problem/challenge addressed by the authors and why is it relevant?
2. What was their approach, i.e. how did they do what they did?
3. State the key take-home messages from their results, i.e., what did they find?

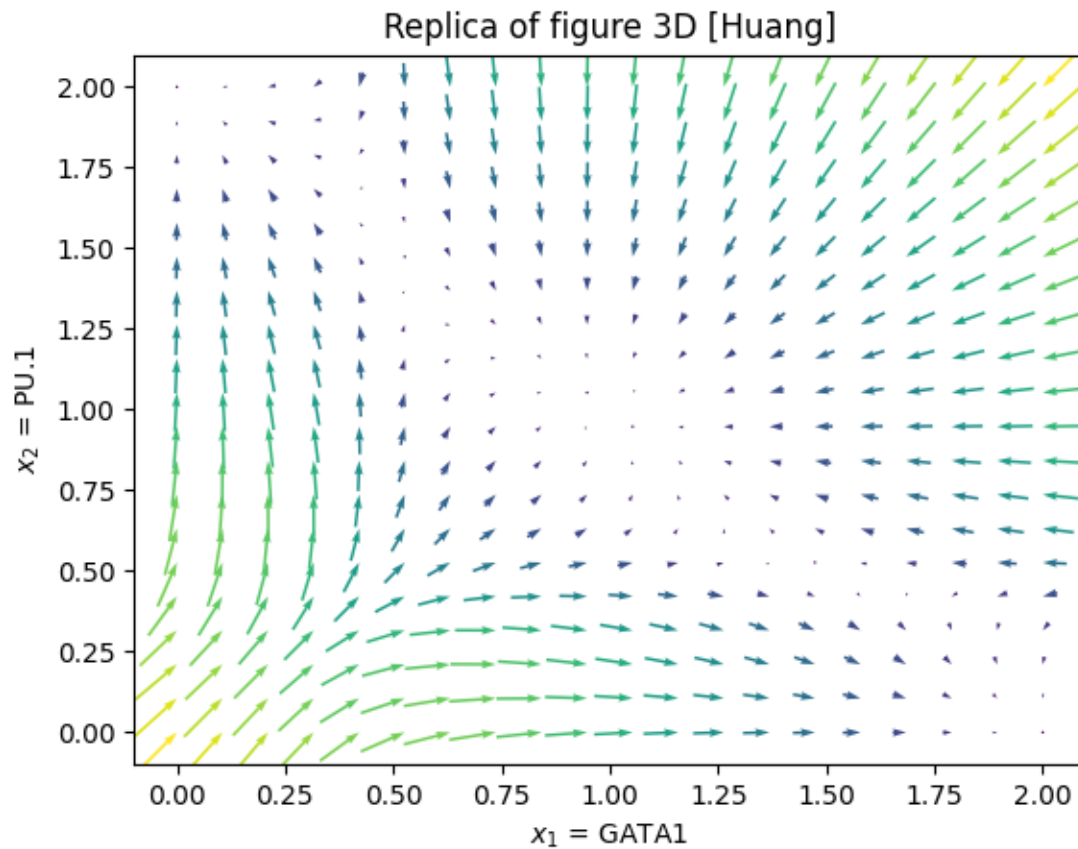
### Solution:

### Problem 2: [2.5 points]

Read Huang et al. 2007 paper *Bifurcation dynamics in lineage-commitment in bipotent progenitor cells*.

- a. [1.5 points] Provide a succinct summary of the findings of the paper. Half a page would be perfect.
- b. [1 point] Use phase portrait tools to reproduce figure 3D. Interpret the result and discuss why this behavior is relevant to developmental biology.

**Solution:**



**Problem 3: [1 point]**

Solve Exercise 7.5 (page 134) from Alon's book.

**Solution:**

**Problem 4: [1 points]**

Solve Exercise 9.1 (page 166) from Alon's book.

**Solution:**

**References**