

Fifth Annual **CROPS IN SILICO**

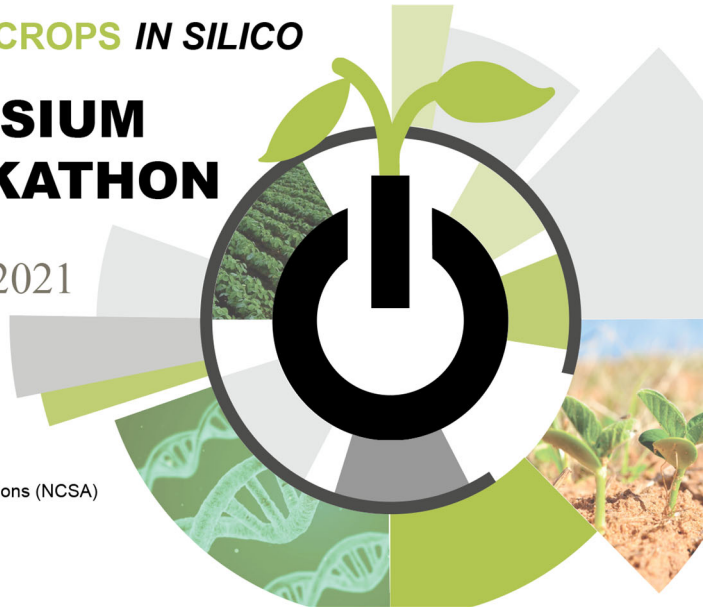
# SYMPOSIUM & HACKATHON

June 8-10, 2021

A virtual event!

University of Illinois  
at Urbana-Champaign

National Center for  
Supercomputing Applications (NCSA)



Virtual meeting link: <https://go.illinois.edu/CropsinSilicoSymposium>

## Agenda

### Tuesday, June 8

#### 8 a.m. — Introduction and Welcome

Opening remarks from Madhu Khanna, Interim Director, Institute for Sustainability, Energy, and Environment (ISEE)

#### 8:10 a.m. — Facilitation Explanation and Meeting Expectations

#### 8:15-10:05 a.m. — Session I

8:15 — Karine Chenu: “Using Crop Modeling in an Integrative Approach to Adapt Crops to Current and Future Climates”

8:40 — Qingfeng Song: “Dissecting the Contributions of Plant Architecture, Chlorophyll Content, and Leaf Photosynthetic Capacity to Canopy Photosynthesis with a New Plant Phenotyping Platform”

9:05 — Break

9:15 — Andrea Schnepf: “Functional-Structural Plant Modeling with CPlantBox – Local Processes and Emerging Patterns”

9:40 — Megan Matthews — Soybean-BioCro: A Semi-Mechanistic Model of Soybean Growth

#### 10:05 a.m. — Break

#### 10:15-10:55 a.m. — Interactive Posters, Round I

10:15 — One-minute poster previews

10:25 — Interactive poster breakout rooms

The presenters:

- Xinyu Fu — “Modeling Photorespiration Using Isotopically Nonstationary Metabolic Flux Analysis”
- Paige Henning — “Transcriptome and Network Analyses of Heterostyly in *Turnera subulata* Provide Mechanistic Insights: Are S-Loci a Red-Light for Pistil Elongation?”
- Wang Zhou — “Integrating Process-Based Model, Leaf Architecture Measurements, and Whole Genome Prediction for Sorghum Breeding”
- Matthew Turk — “Node-Based Approaches to Plant Modeling”

- Harini Rangarajan — “Multi-Objective Optimization of Root Phenotypes Using Evolutionary Algorithms”
- Ivan Lopez-Valdivia — “Testing Local Adaptation Of Maize Root Traits in silico using OpenSimRoot”

**10:55 a.m. — Break**

**11:05 a.m. — Keynote**

Speaker Michael Pound, University of Nottingham, UK: “Data-Hungry Models: Deep Learning of Phenotypes in Crop Plants”

**11:50 a.m. — Wrap Up and Goals for Next Day**

## Wednesday, June 9

**8 a.m. — Recap of Day 1 and Introduction to Goals of Day 2**

**8:05-9:20 a.m. — Session II**

8:05 — Sanu Shameer: “Modeling Growth by Osmotic Cell Expansion Using Flux Balance Analysis (GrOE-FBA)”

8:30 — Maurice Cheung: “Integrating Crop Growth Model and Constraint-Based Metabolic Model”

8:55 — Anna Matuszyska: “Photosynthesis under Fluctuating Light”

**9:20 a.m. — Break**

**9:30-10:10 a.m. — Interactive Posters, Round II**

9:30 — One-minute poster previews

9:40 — Interactive poster breakout rooms

*The presenters:*

- John Gottula — “New Compound Discovery: Translating Lab Assays to Field Outcomes”
- Jonathan Ojeda — “BestiaPop: A Python Package to Automatically Generate and Visualize Gridded Climate Data for Crop Model Applications”
- Ana Cristina Zepeda Cabrera — “Modeling the Sugar Pool in Response to Temperature and Light Fluctuations”
- Marvin van Aalst — “Optimality Principles in Leaf Venation Patterns”
- Ernst Schafer — “Optimizing Root System Architecture using Emulator Approaches”

**10:10 a.m. — Break**

**10:20-11:10 a.m. — Session III**

10:20 — Cyrille Midingoyi: “Crop2ML: An Open-Source, Multi-Language Modeling Framework for the Exchange and Reuse of Crop Model Components”

10:45 — Rea Antoniou-Kourounioti: “Modeling How Plants Sense and Remember Winter”

**11:10 a.m. — Wrap Up and Hackathon Introduction**

## Thursday, June 10

**1-5 p.m. — Hackathon**

## Event Sponsors

