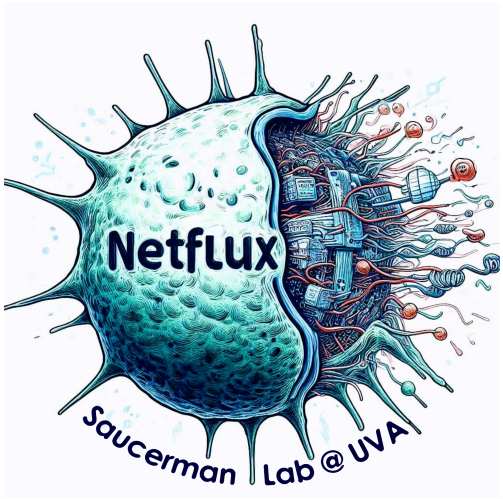


2nd Netflux and Logic-based Network Biology Meeting

January 16, 2024 1-5 pm EST on Zoom (register for link)

Free Registration: link

Abstract Submission: closed

Keynote speaker: Jay Humphrey (Yale U.), John C. Malone Professor of Biomedical Engineering

8 short talks and 6 lightning talks using various approaches for logic-based network modeling

Live demonstration of Netflux software for user-friendly modeling of biological networks link

Get your free Netflux sticker! https://forms.gle/FTQJ6kbxr7sJm7yK9

Program Committee:

Julie Leonard-Duke (UVA), Ashlee Ford-Versypt (U Buffalo),

Daniela Valdez-Jasso (UCSD)

For info: meeting chair Jeff Saucerman, jsaucerman@virginia.edu

Agenda

1:00 pm Jeff Saucerman, Meeting introduction

1:20 pm Alex Clark and Bryana Harris, Tutorial on Netflux for Network Modeling

1:50 pm 10 min break

2:00 pm Session 1: Modeling Mechano-Signaling Networks (moderator: Bryana Harris)

Short talks (10 min + 2 min questions each)

Paige Nielsen (U. Minnesota), A Cell-signaling Model to Predict Active Mechanics of Vascular Smooth Muscle Cells during Pregnancy

Johane Bracamonte (U. Alabama Birmingham), Multiscale model predicts drug modulation of ventricular hypertrophy following experimental canine mitral regurgitation

Yufan Lin (UC San Diego), Mechanosignaling network model of PAAF in PAH

Adhithi Lakshmikanthan (UC Irvine), Unraveling sex specific mechanisms in cardiac resynchronization therapy outcomes

Lightning talks (4 min + 1 min questions each)

Shannon Flanary (U. Minnesota), Graphical visualization of biochemically-coupled biomechanics models

Lionel Watkins (U. Virginia), Mechanistic Modeling Identifies Novel Regulators of Cardiac Hypertrophy

Alice Luanpaisanon (U. Virginia), Integration of in silico and in vitro models of cardiomyopathy caused by patient-specific mutation

3:05 pm 10 min break

3:15 pm Session 2: Modeling Immune- and Pharmaco-Signaling Networks (moderator: Malcolm O'Malley)

Short talks (10 min + 2 min questions each)

Krutika Patidar (U. Buffalo), Modeling the Role of Glucose-Mediated Inflammation in Glomerular Endothelial Dysfunction Using Logic-Based Differential Equations

Julie Leonard Duke (U. Virginia) Network modeling of fibroblast subpopulations in idiopathic pulmonary fibrosis

Tanya Cruz (U. Virginia), Integration of CCM Signaling Pathways Into a Logic Based Computational Model of Brain Endothelial Cells

Kaitlyn Wintruba (U. Virginia), Systems-enabled drug repurposing for cardiomyocyte proliferation

Lightning talks (4 min + 1 min questions each)

Malcolm O'Malley (U. Virginia), Systems Model Predicts Mechanisms of Neutrophil-Induced Cardiac Inflammation

Taylor Eggertsen (U. Virginia), Expansion of a Network Model Using Protein Interaction Databases Identifies Anti-hypertrophic Drugs

Alex Clark (U. Virginia), Network analysis of the healthy mouse transcriptome identifies genes modulating cardiac development

4:20 10 min break

4:30 **Keynote: Jay Humphrey (Yale U.)**, From Transcript to Tissue -- Modeling Arterial Adaptations (25 min + 5 min questions; moderator Jeff Saucerman)

5:00 Wrapup: Jeff Saucerman

Resources

Netflux software for user-friendly modeling of biological networks

https://github.com/saucermanlab/Netflux

Video introduction and tutorials for Netflux

https://www.youtube.com/watch?v=tU2gU8d5hvQ&list=PLTbDE7ZQfKy-ijd5ZrCQJ7eB-NSCQKIBi

45 publications Using Netflux or Logic-Based Differential Equations

https://docs.google.com/document/d/1FjzbdYM3lyIlpgx0t4mQ6_zQETJ1MS2QQAgsE_rX1Fo/edit?usp=sharing

https://tinyurl.com/netfluxmeet