UCI Systems Biology 2022 recently hired PIs and recent MCSB-student-takers

Automated text retrieval from PubMed, NIH Reporter, NSF Awards, processed using Python Natural Language Processing keyword extractors

github.com/allardjun/PIWordCloud

regulatory pathway, regulatory modules, signal, signal pathway, pathway interactions, autoregulation, inhibitor, antagonist, **network** effects, gene regulatory network, map (as in, "making a map"), chemical reaction network

simulation, modeling, mathematical model, **mathematics**, scaling limit, co-operativity, control, general theory, flux, feedback loops, fitness valley, Markov models, Markovian, Markov Chain Monte Carlo, second-order derivative, curvature, differential geometry, nonlinear, Laplacian operator, analytical methods, spatial agent-based model, network model, hierarchy, collective behavior, "minimal mathematical model", computer models,

environment, tumor microenvironment, ecosystem, cellular **community**, connective tissue, extracellular matrix

time course, timescale, **dynamics**, temporal organization, kinetics, temporal trends,

spatiotemporal, **spatial**, spatial relationship, spatial pattern formation, location, sorting, resolution, super-resolution

algorithm, learning, regression methods, non-stationarity, covariance, clustered data, likelihood, Bayesian, covariates, differential expression, efficient computation, expectation-maximization, high-throughput, **high-dimensional**, bioinformatics, reinforcement algorithms, computer, **data**, combinatorial, auto-regressive

stochastic, probabilistic, noise, biological noise, single-cell, single-nucleus, **heterogeneity**, variation

tools and approaches

scale, **multi-scale** modeling

challenges

diffusion, binding, **mechanics**, force fields, tensile forces, hemodynamics

imaging, light transmission, biophotonics, optics, chips, CRISPR, genome editing

A single project going across scales, e.g.,: genes, molecular modeling, macromolecular, biochemical, organelles, cells, extracellular, proliferation, genome-wide, microfilaments, tissues, cognitive, population density, ecosystem

future, open-source, open science, web portal, data availability, databases

Alzheimer's, cancers, diabetes, wound healing, cardiac, inflammation, obesity, exercise, strokes, cystic fibrosis, longevity, joint injury, regenerative medicine, pharmaceutical preparations, drug screening, implantation, addictive behavior, widhdrawal symtpoms, fear memory, cognition, emotionalsoil, climate change, carbon

DNA binding protein, RNA, transcription, phosphorylation, receptor, receptor signaling, growth factors, chromatin, nucleosomes, cytoskeleton, actin, filaments, notch, MAP (mitogen activated protein), wnt, piezo, Shh, interferon, amyloid

evolution, convergent evolution, directed evolution, cell motility, bacteria, biofilms, microbes

diffusion magnetic resonance imaging, ventral tegmental area, connected neurons, neuronal circuitry,

societal goals

systems