

# NCSA Faculty Fellows 2021 Kick off Presentation

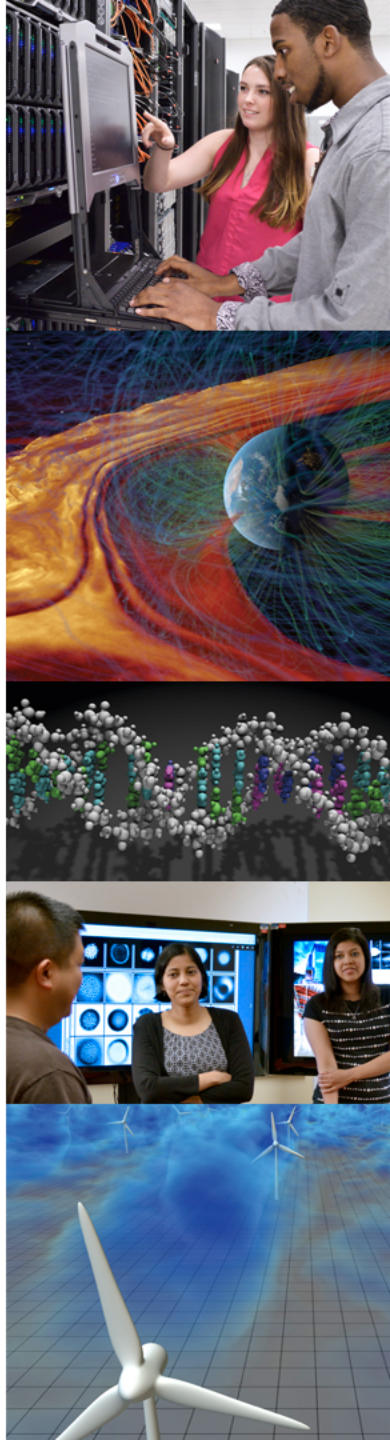
December 4, 2020

Presenters: Donna J. Cox, Alice Delage

**I** ILLINOIS

NCSA | National Center for  
Supercomputing Applications

# Introduction of NCSA



# NCSA Strategic Plan

- NCSA Mission:

NCSA leads and supports partnerships around campus, the nation, and the world by leveraging and further developing our expertise, and experience, and innovation in digitally-enabled scholarship to solve the most scientifically and societally important and challenging problems.

-> A deeper and integrative connection to the Illinois campus with faculty, postdocs and students.



# National Center for Supercomputing Applications



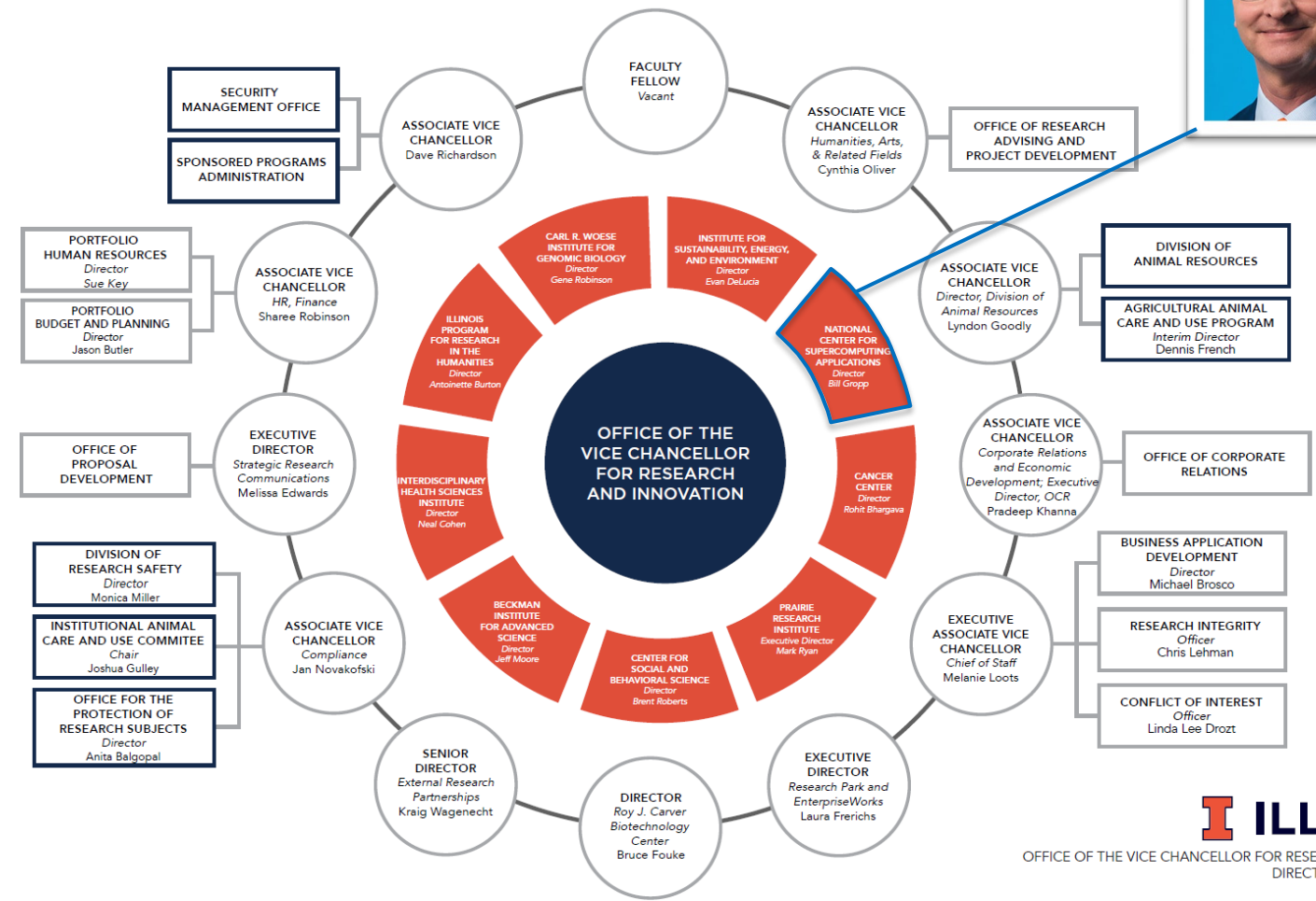
- Interdisciplinary institute at Illinois reporting to OVCRI
  - One of original five NSF supercomputing centers: Provide state-of-the-art computing capabilities (hardware, software, HPC expertise) to nation's scientists and engineers
- In total, > \$1 Billion brought to U. Illinois since 1985
  - Approximately 220 staff (160+ technical/professional staff), two facilities
- Managing NSF's national cyberinfrastructure: XSEDE (\$276M over 11 years)
- NCSA Industry: over 40 partners

**VICE CHANCELLOR FOR RESEARCH AND INNOVATION  
SUSAN MARTINIS**

ADMINISTRATIVE ASSISTANT  
Juan Chambers



**Bill Gropp,  
Director  
of NCSA**



**I ILLINOIS**  
OFFICE OF THE VICE CHANCELLOR FOR RESEARCH & INNOVATION  
DIRECT REPORTS AND UNITS  
DECEMBER 2019

- Research Institutes
- VCR Administration
- Compliance and Research Support Units

# NCSA Leadership



**Bill Gropp**  
NCSA Director



**Donna J. Cox,**  
*Chief Scholar*



**Dan Katz,**  
*Chief Scientist*



**Ruth Sosnoff**  
*Associate Director  
for Administration*



**Amy Schuele**  
*Associate Director,  
Integrated  
Cyberinfrastructure*



**Kenton McHenry**  
*Associate Director  
for Software*

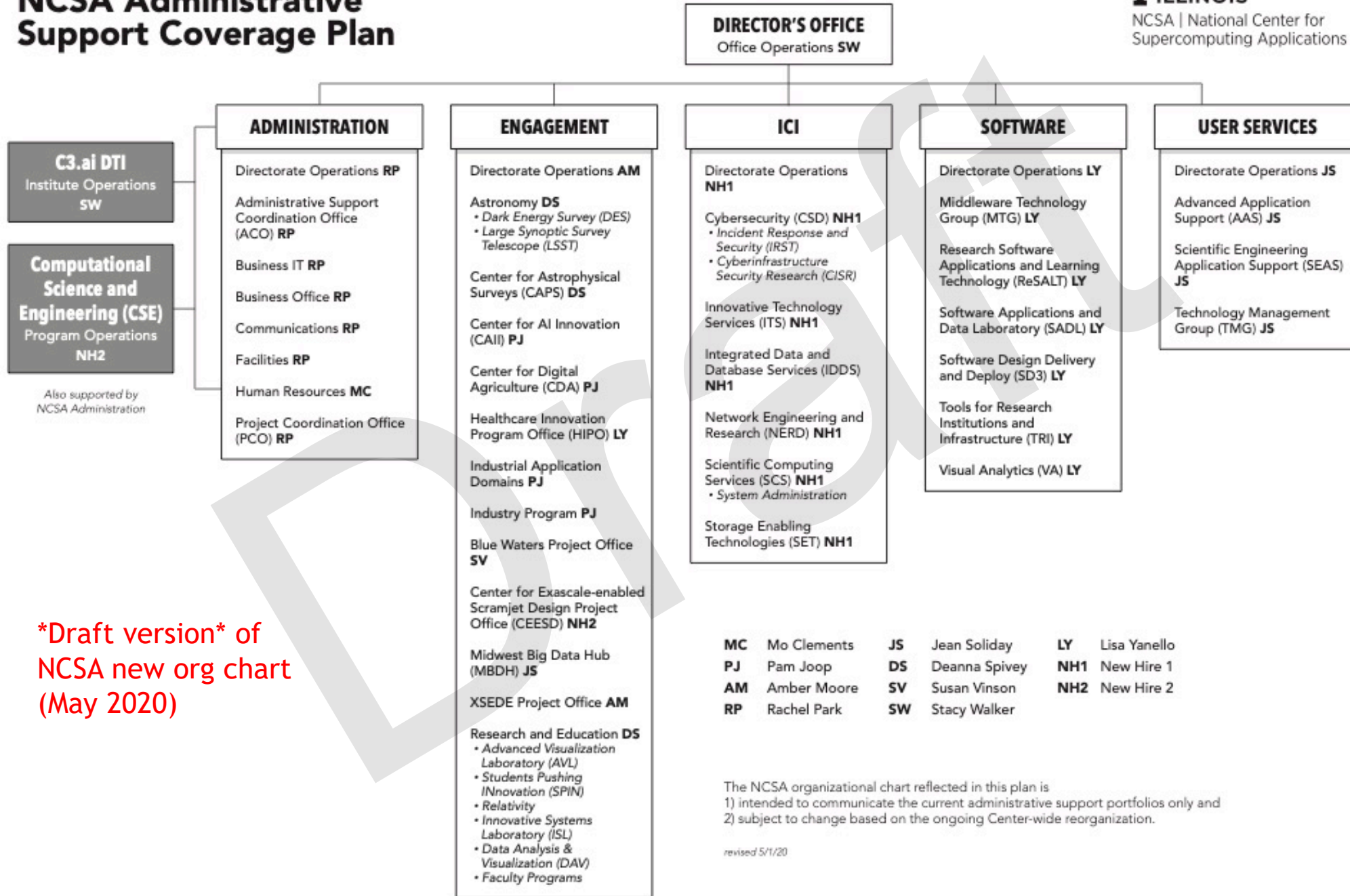


**John Towns**  
*Executive  
Associate Director  
for Engagement*

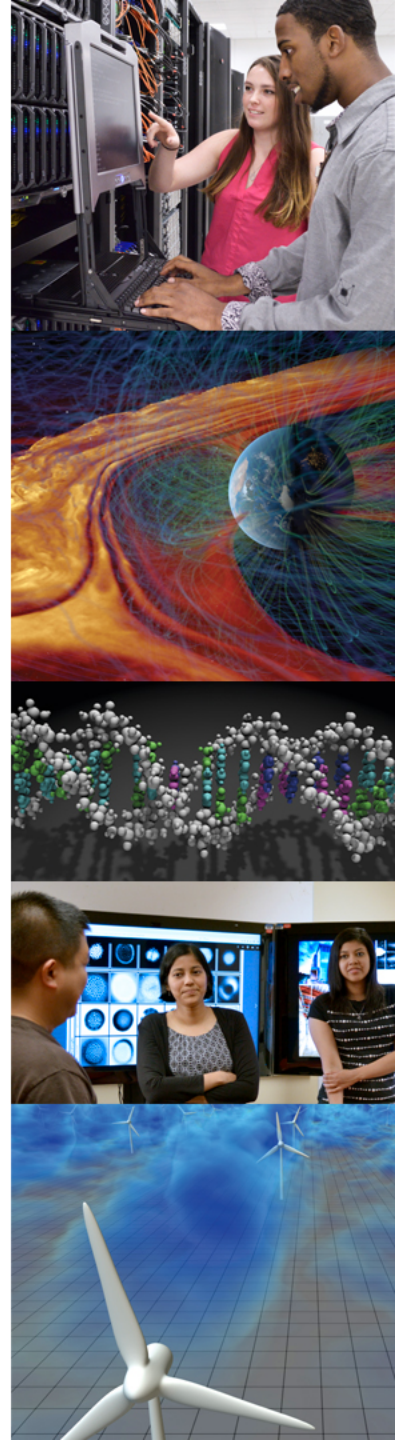


**Laura Herriott**  
*Associate Director,  
User Services*

# NCSA Administrative Support Coverage Plan



\*Draft version\* of  
NCSA new org chart  
(May 2020)



# Example Projects, Centers, Facilities

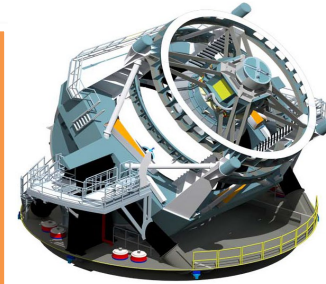


XSEDE, national cyberinfrastructure



Community Engagement around Data

- Innovative Systems Laboratory
- Center for Artificial Intelligence Innovation
- Healthcare Innovation Program Office
- Visualization:
  - Advanced Visualization Laboratory
  - Data Analysis and Visualization
  - Visual Intelligence for Bio
- NCSA Industry program
- Partnerships with the Center for Digital Agriculture and the Center for Astrophysical Surveys
- Software Directorate



LSST Data pipeline



Clowder: Open source data management for long-tail data



# Offers access to a variety of computing resources from campus level to the Nation

- **Campus Cluster:** 4 nodes dedicated to NCSA Faculty Fellows + access to NCSA allocation queue
- **HAL Cluster** for Deep Learning research on campus
- **XSEDE**
  - Access to various machines and services (storage, software, etc.)
  - Trainings
- **Delta:** new advanced computing and data resource system to expand GPU-based computing. Will be ramping up throughout 2021.



- **Petascale Computing Facility - Blue Waters:** 2021 is the final planned year of operations for the system.
  - Last call for research allocations closed on Nov. 2.
  - Applications for educational allocations are accepted on an ongoing basis.

# NCSA Research & Education

- Research and Education is within the Engagement Directorate and is led by Donna J. Cox
- Establishing new organization and continuing the mission of connecting with Faculty, staff, and students on campus
- Pursue external funding opportunities through NCSA

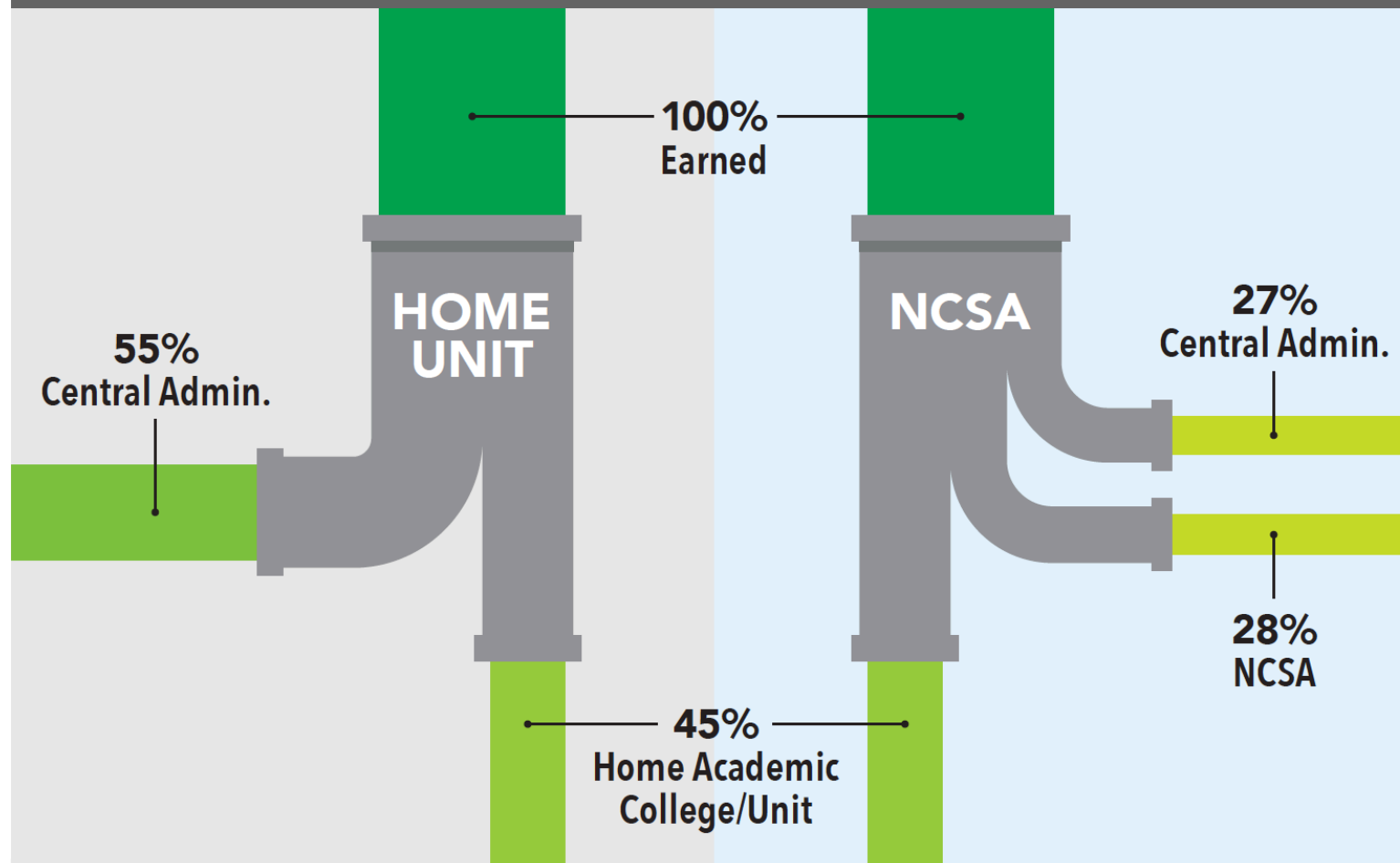


# NCSA Education

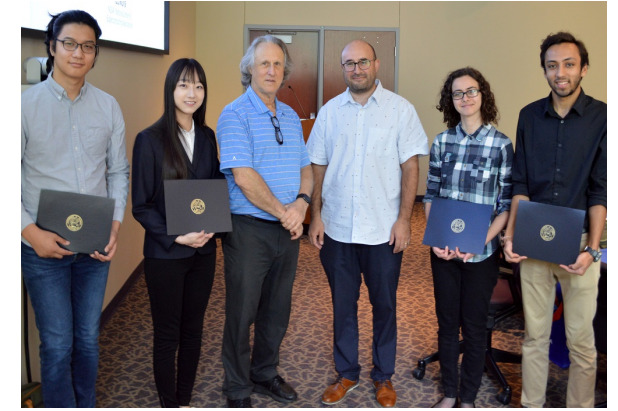
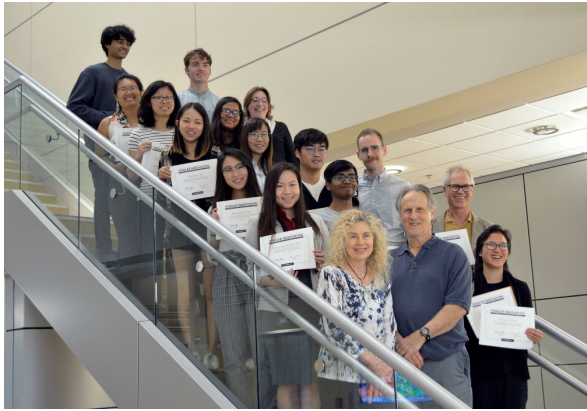
- 130+ faculty affiliates
- 10 postdoctoral scholars with a postdoc program
- Graduate and undergraduate students
  - SPIN program: NCSA undergraduates internship program
    - SPIN students are eligible for Fiddler Awards
  - NCSA International Research Internship
  - Cyberinfrastructure Professional Intern Program (CIP)
  - REU program opportunities
  - Contact: [Olena Kindratenko](#)



# Grants run through NCSA do not impact the F&A returned to your home unit.



# Fiddler Innovation Endowment Award



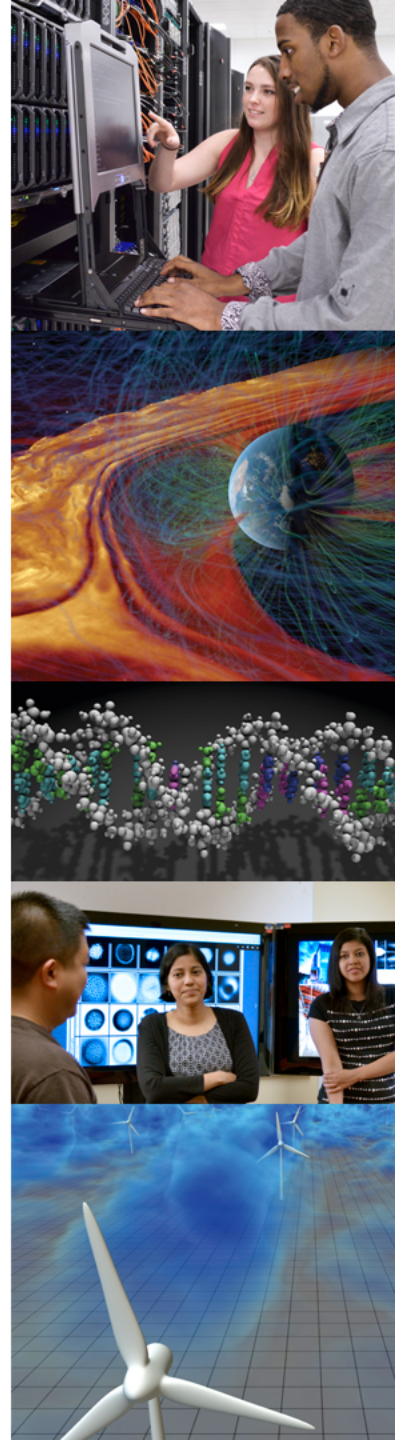
The Fiddler Innovation Undergraduate Award is part of an endowment from Jerry Fiddler and Melissa Alden to the University of Illinois in support to the Emerging Digital Research and Education in Arts Media (eDream) Institute, which is based at the National Center for Supercomputing Applications.

49 undergraduate, graduate, and NCSA faculty affiliates awarded 2018-2020

**FIDDLER INNOVATION ENDOWMENT**

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# NCSA Faculty Fellows program



# NCSA Faculty Fellows Program (est. 1999)

- Competitive program provides seed funding (up to \$25K/award) for demonstration, start-up projects, workshops, and/or other activities with the potential to lead to longer-term collaborations and externally funded activities around research and development.
- Anticipate funding for 6 fellows for the 2021-2022 cohort

## Important Dates

- **Dec. 4, 2020:** NCSA Faculty Fellows kickoff: solicitation goals and focus, help potential applicants understand its scope, answer questions
- **Feb. 26, 2021, 10 am-noon, on zoom: NCSA Fellowships Ideas Accelerator Workshop.**  
**Speed match-making event between potential applicants and NCSA staff and researchers.**
- **March 22, 2021:** Deadline to submit to the NCSA Fellowships Program - Link to submit will be posted on our website following the Idea Accelerator Workshop
- **By June 1, 2021:** Target date for decisions

# Current Fellows

- **Malaika McKee, African American Studies**
  - *Seeing Music Through Data Visualization: An Edutainment Tool for the Hiphop Xpress STEAM Mobile Lab*
  - NCSA Staff: Rob Sisneros and David Bock (Data Analysis and Visualization), Colleen Bushell (Healthcare Innovations)
- **Roqing Zhu, Statistics and Hannah Holscher, Food Science & Human nutrition**
  - *Machine Learning Approaches for Quantifying and Visualizing Dietary Effect in Personalized Nutrition*
  - NCSA Staff: Colleen Bushell, Peter Groves and Charles Blatti (VI-BIO)
- **Ann Sychterz, Civil and Environmental Engineering**
  - *Virtual Reality interactive experience for actively controlled and deployable tensegrity footbridges*
  - NCSA Staff: Rob Sisneros and Jonathan Kim (Data Analysis and Visualization)



# Current Fellows (continued)

- **Xin Liu, Astronomy**
  - *AGNet: Weighing Black Holes with Deep Learning*
  - NCSA Staff: Vlad Kindratenko (Center for AI Innovation) and Matias Carrasco Kind (DESDM)
  
- **David L. Cooper, Slavic Languages & Literatures**
  - *Successful forgeries: Analyzing fakelore for oral-formulaic epic poetry characteristics*
  - NCSA Staff: Michal Ondrejcek

# Projects are encouraged to partner with NCSA groups

- **NCSA major projects and programs:**
  - Center for AI Innovation (Contact: Eliu Huerta)
  - XSEDE (Contact: Jay Alameda)
  - Innovative Systems Laboratory (Contact: Volodymyr Kindratenko)
  - Advanced Visualization Laboratory (Contact: Donna Cox)
  - Healthcare Innovations (Contact: Colleen Bushell)
  - Cybersecurity (Contact: Alex Withers)
  - Midwest Big Data Hub (Contact: John MacMullen)
  - Software Directorate (Contact: Kenton McHenry)
  - NCSA Industry Application Domains (Contact: Seid Koric)
  - Visual Intelligence for Biology Group (Contact: Colleen Bushell)
  - Data Analysis and Visualization (Contact: Rob Sisneros)
  - Center for Astrophysical Surveys (Contact: Joaquin Vieira)
  - Center for Digital Agriculture (Contact: Matt Hudson & Vikram Adve)

# Fellows responsibilities to NCSA

- Responsible for contributing to the NCSA Academic Core;
- Contribute to and take part in large collaborative funding efforts;
- Act as liaisons with their home departments

# NCSA responsibilities to Fellows

- Provide a 0% NCSA appointment;
- Fellows are provided drop-in office space at NCSA;
- Have direct access to NCSA research scientists, staff and services;
- Where possible, NCSA will provide access to compute, data storage, and other cyberinfrastructure, including software licenses, needed for fellowship projects.

# Collaborations with NCSA staff

- Strongly encouraged to maintain an active, close collaboration with NCSA staff for the duration of the fellowship, **discuss these collaborations in detail with the NCSA staff involved before submitting proposals.**
- Describe the nature of the collaboration, anticipated staff time commitment, source of support for staff involvement.
- **Support for NCSA staff can come from existing project or grant funds, or can be requested as part of the proposal from the NCSA Director's Office\*.**

\*Requests for funding for staff time should be limited to one month of effort. Staff should discuss their plans with their supervisor.

# Proposal Preparation and Submission

- Competitive proposals will include:
  - Individual or multiple Illinois faculty
  - A well-defined activity that requires close collaboration with NCSA application and technical staff and possible use of NCSA computational resources or facilities.
  - A plan that will lead to new external funding
- Easychair used for proposal submission, beginning February 26 (see “[Proposal Preparation and Submission](#)” on Fellow Program website)

# Review criteria

- Significance
  - Does the project address an important problem or a critical barrier to progress in the field?
  - Is the project interdisciplinary and relevant to the Illinois campus and to NCSA strategic plan?
  - Is there a strong scientific promise for the project?
  - If the aims of the project are achieved, how will scientific knowledge, technical capability, and or clinical practice be improved?
- Investigators
- Innovation
- Approach
- Environment

# Review criteria (continued)

- Significance
- Investigators
  - Does the project include NCSA staff as integral contributor to the project?
  - Are the PI(s), collaborators, and other researchers well suited to the project?
  - Does the project include plan(s) to leverage NCSA scientific, technical, and management expertise, and/or leverage NCSA facilities and other major ongoing activities and programs?
  - Does the project include plan(s) for continued collaboration and pursue of external funding from Federal agencies, Foundations, or Industry?
- Innovation
- Approach
- Environment



# Review criteria (continued)

- Significance
- Investigators
- Innovation
  - Does the project challenge to seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions?
  - Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense?
- Approach
- Environment

# Review criteria (continued)

- Significance
- Investigators
- Innovation
- Approach
  - Are the overall strategy, methodology, and analysis well-reasoned and appropriate to accomplish the scientific aims of the project?
  - Are potential problems, alternative strategies, and benchmarks for success presented?
  - If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed?
- Environment

# Review criteria (continued)

- Significance
- Investigators
- Innovation
- Approach
- Environment
  - Will NCSA in which the work will be done contribute to the probability of success?
  - Does the project demonstrate a compelling need for the NCSA funding and involvement?
  - Are NCSA support, equipment and other physical resources available to the investigators adequate for the project proposed?

# Proposal Preparation – Required documents

Proposals should consist of:

- A. Abstract .....(1/2 page)
- B. Project Description .....(4 pages)
  - B.1 Project Significance
  - B.2 Investigators
  - B.3 Innovation
  - B.4 Approach
  - B.5 Environment
- C. References (avoid using et. al)
- D. Bios - each PI/co-PI .....(2 pages)
- E. Budget and Budget Justification
- F. \*Letter(s) of Commitment .....(1 page)

\*Template may be found on the “Proposal Preparation and Submission” web page

# Budgets

- Up to \$25,000 over 12 months (appointments begin July 1, 2021).
- Fellowship funds can be used for the following purposes:
  - Research assistant support (GRA, postdoc, etc.)
  - Workshop support (to be held at NCSA)
  - Travel support—maximum of \$1,500 for conference travel or travel to other sites
  - Faculty summer salary
- Project budgets do not need to include benefits, tuition remission, or overheads.
- Awards made are subject to the availability of funds, and review panel's recommendations.

# Fiddler Innovation Endowment Award

- Opportunity for additional support from the Fiddler Innovation Endowment Award to selected Faculty Fellow awardees
- To further and augment Fellows' research projects
- Additional \$10K post-award per project
- Determined in spring 2022, based on a review process and research project progress

# Program oversight

- **Faculty Fellows Program coordination**
  - Donna Cox, [donnacox@illinois.edu](mailto:donnacox@illinois.edu)
  - Amanda Lombardo, [alombar@illinois.edu](mailto:alombar@illinois.edu) (starting February 2021)
- **Faculty Fellow account management**
  - Shawn Quigley, Grants and Contracts Specialist, [sfquigle@illinois.edu](mailto:sfquigle@illinois.edu)
- **Student Appointments**
  - Jewel Goodly, HR Specialist, [jgoodly@illinois.edu](mailto:jgoodly@illinois.edu)
  - Devin Scheidemantel, HR Specialist, [wds@illinois.edu](mailto:wds@illinois.edu)
- **Proposal Development for External Funding**
  - Janessa Gentry, Grants and Contracts Specialist, [janessag@illinois.edu](mailto:janessag@illinois.edu)

# Idea Acceleration Workshop – February 26, 2021

## 10am-noon, on zoom

- Potential applicants encouraged to present 1 slide on:
  - project ideas and/or skills/resources needed from NCSA
  - Picture of yourself
  - Contact information (e.g. email address)
  - Submit slide to Amanda Lombardo (alombar@illinois.edu) by 5pm on February 24<sup>th</sup>.
- NCSA staff will be present to share information on major NCSA program areas



# Questions/Comments??

- All information from today and the Idea Acceleration Workshop will be available on the NCSA Wiki via the Faculty Fellows website:  
<http://www.ncsa.illinois.edu/about/org/fellowships>