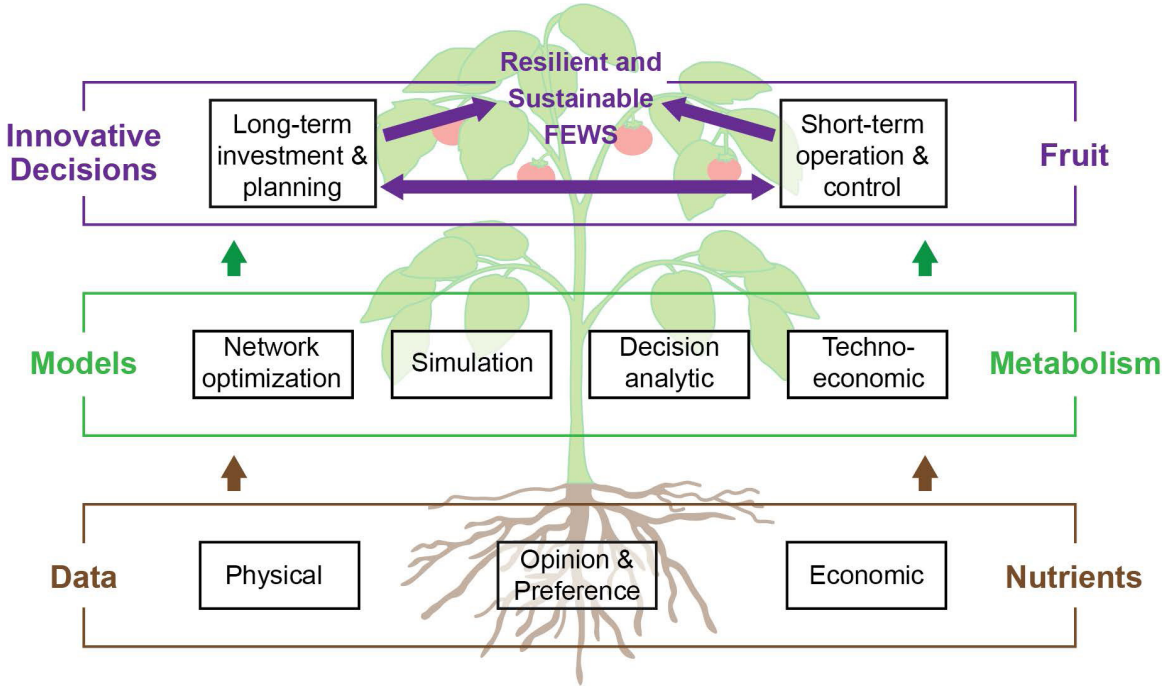
IOWA STATE UNIVERSITY

THE DATAFEWSION TRAINEESHIP PROGRAM FOR INNOVATIONS AT THE NEXUS OF FOOD PRODUCTION, RENEWABLE ENERGY AND WATER QUALITY



Sustainable provision of food, energy and clean water requires understanding of the interdependencies among systems as well as the motivations and incentives of farmers and rural policy makers. Effective innovations at the nexus of these food, energy and water (FEW) systems require data-rich system modeling with analytic capabilities for diverse types of data. The project aims to prepare MS and PhD student trainees for multiple career paths such as research scientist, bioeconomy entrepreneur, agribusiness leader, policy maker, agriculture analytics specialist, and professor.

Open to MS and PhD students in agricultural and biosystems engineering, agronomy, industrial engineering, mechanical engineering and natural resources ecology and management. US citizens and permanent residents **accepted to a relevant PhD program** are eligible to apply for the DataFEWSion traineeship scholarship, which includes:

- $34,000 stipend for the first 12 months
- Tuition and health insurance for the first 12 months
- Competitive assistantships (stipend, tuition, health)

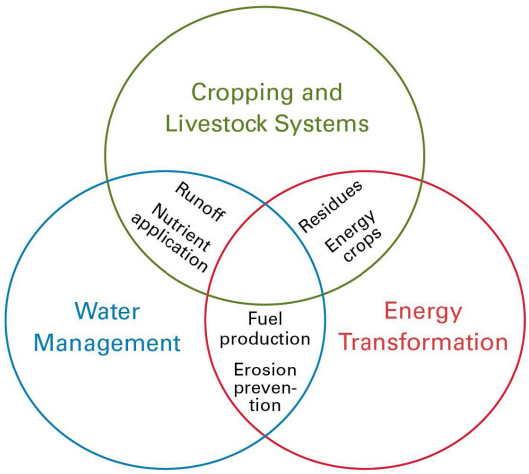
Students from groups traditionally under-represented in science and engineering are especially encouraged to apply.

Contact: *datafewsion@iastate.edu*

Visit: *www.imse.iastate.edu/datafewsion*

Components of the Traineeship

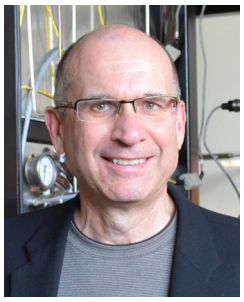
- Certificate based on coursework in FEW nexus issues; communication; entrepreneurship; data analytics; systems modeling; and social science
- Interdisciplinary research on:
  - Technologies and best practices for improved FEW system operation
  - Data science to increase crop productivity within sustainability constraints
  - Decision science to manage tradeoffs among diverse stakeholders
- Graduate learning community with professional development workshops
- Small group experiences in collaboration and peer review



Leadership Team

Sarah Ryan, PI
Industrial & Manufacturing Systems Engineering

Discipline
Operations research; data-driven decision models



Robert Brown, Co-PI
Bioeconomy Institute

Discipline
Biomass energy

Amy Kaleita, Co-PI
Agricultural & Biosystems Engineering

Discipline
Agricultural land and water resources conservation engineering

Sergio Lence, Co-PI
Economics

Discipline
Agricultural economics, welfare and market analysis

Michelle Soupir, Co-PI
Agricultural & Biosystems Engineering

Discipline
Water quality and watershed management

Other Faculty Mentors

Emily Heaton
Agronomy

Discipline
Perennial plant management and landscape design

Gül E. Kremer
Industrial & Manufacturing Systems Engineering

Discipline
Ecological indicators in engineering for sustainability

Leifur Leifsson
Aerospace Engineering

Discipline
Complex systems modeling

David Peters
Sociology

Discipline
Sociology of agriculture, rural communities, adoption and diffusion

Soumik Sarkar
Mechanical Engineering

Discipline
Data analytics and machine learning for cyber-physical systems

Lisa Schulte Moore
Natural Resource Ecology & Management

Discipline
Agroecology, human-landscape interactions, social-ecological systems

ABOUT NSF

The National Science Foundation Research Traineeship (NRT) is designed to encourage the development and implementation of bold, new, potentially transformative, and scalable models for STEM graduate education training. The NRT program also seeks to catalyze and advance cutting-edge interdisciplinary research, and prepare STEM graduate students more effectively for multiple research and research-related career paths.