

# CURRICULUM VITAE

## JAMES C. SCHNABLE

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<sup>a</sup>Clickable hyperlinks are in blue throughout

### UNL Employment

- University of Nebraska-Lincoln  
Associate Professor, Department of Agronomy and Horticulture 2019-Present  
Assistant Professor, Department of Agronomy and Horticulture 2014-2019

### Advising

#### *2020 Undergraduate Researcher Advisees:*

1. Thomas Hoban (graduated in summer 2020)
2. Aime Nishimwe (CUSP scholar, published as co-author in 2020)
3. Isaac Stevens
4. Elijah Frost
5. Alice Guo (in review paper as co-author in 2020)
6. Logan Duryee
7. Olivier Mizero (CUSP scholar)
8. Alexis Finch
9. Luke Micek
10. Aldi Airori
11. Jocelyne Horanituze (CUSP scholar)
12. Nate Pester (graduated in summer 2020, attending med school at UNMC)
13. Leighton Wheeler (graduated in summer 2020)
14. Sierra Conway
15. Madison Tunnell (remote REU student from Kansas State University)
16. Isabel Sigmon
17. Clay Christenson
18. Jean D'Amour Kwizerimana (CUSP Scholar)

*Alex Enerson (former advisee, graduated in 2019, published as co-author in 2020)*

*Alejandro Pages (former advisee, graduated in 2019, published as co-author in 2020)*

*2020 Graduate Advisees:*

19. Chenyong Miao (PhD) (Graduated Dec 2020)
20. Hongyu Jin (PhD)
21. Michael Tross (PhD)
22. Mackenzie Zweiner (MS)
23. Kahheetah Barnoskie (MS)
24. Nate Korth (co-advised, PhD)
25. Fangyi Li (co-advised, PhD)
26. Santos Yenandy Barrera Lemus (co-advised, PhD)
27. Michael Richter (rotating PhD student in 2020)

*2020 Postdoctoral Advisees:*

28. Guangchao Sun
29. Marcin Grzybowski
30. Ravi Mural
31. Xiaoxi Meng (attained new position at University of Minnesota in 2020)

*2020 Faculty Mentees:*

32. Brandi Sigmon (Assistant Professor of Practice, Plant Pathology)

*2020 Thesis Committee Service:*

- Yen Ning Chai (PhD, Agronomy & Horticulture)
- Mallory Suhr (PhD, Food Science)
- Qinnan Yang (PhD, Food Science)
- Ronghao Wang (PhD, Statistics)
- J. Preston Hurst (PhD, Agronomy & Horticulture)
- Leandra Parsons (PhD, Agronomy & Horticulture)
- Rituj Khound (PhD, Agronomy & Horticulture)
- Sergio Manuel Gabriel Peralta (PhD, Plant Pathology)
- Shimin Chen (PhD, Food Science)
- Zachery Shomo (PhD, Biochemistry)
- Jared Haupt (PhD, Biochemistry)
- Sairam Behera (PhD, Computer Science)
- Sarah Johnson (PhD, Agronomy & Horticulture)
- Michael Meier (PhD, Agronomy & Horticulture)
- Semra Palali (PhD, Agronomy & Horticulture)

## 2020 Classroom Instruction:

- LIFE 891 "Big Questions in Complex Biosystems" In Person Enrollment: 3
- AGRO 896-791 "Network Science Applied to Agronomical and Biological Sciences" Online; Joint with Federal University of Minas Gerais, Brazil Total Enrollment (UNL Enrollment): 20 (1)

## Grant Funding

### *New in 2020*

1. USDA-NIFA "[High Intensity Phenotyping Sites: Transitioning To A Nationwide Plant Phenotyping Network.](#)" (co-PI) 2020-2023. \$3.0M
2. USDA-NIFA "[CPS: Medium: Field-scale, single plant-resolution agricultural management using coupled molecular and macro sensing and multi-scale data fusion and modeling](#)" (co-PI) 2020-2023 \$1.05M
3. ARPA-E "[Soil Organic Carbon Networked Measurement System \(SOCNET\)](#)" (co-PI) 2020-2023 \$1.9M
4. USDA-NIFA "High Intensity Phenotyping Sites: A Multi-Scale, Multi-Modal Sensing and Sense-Making Cyber-Ecosystem for Genomes to Fields" (co-PI) (2020-2023) \$2.7M
5. ARPA-E "CORN- Crop Optimization Realized through Neuralnets" (co-PI) 2020-2022 \$620k
6. Nebraska Corn Board "Genomes to Fields (G2F) - Predicting Final Yield Performance in Variable Environments." (PI) 2016-2021. \$250k (Competitive annual renewal in 2020)
7. ICRISAT "Identifying Novel Loci Controlling Priority Traits in Pearl Millet and Sorghum using Supervised Classification Algorithms." (PI) 2020-2021 \$50k

### *Ongoing in 2020*

8. DOE "[TGCM: \(T\)rait, \(G\)ene, and \(C\)rop Growth \(M\)odel directed targeted gene characterization in sorghum.](#)" (PI) 2019-2022. \$2.7M
9. NSF "[RoL: FELS: EAGER: Genetic constraints on the increase of organismal complexity over time.](#)" (PI) 2018-2021. \$300k
10. USDA-NIFA "[Identifying mechanisms conferring low temperature tolerance in maize, sorghum, and frost tolerant relatives.](#)" (PI) 2015-2020. \$455k
11. NSF "[BTT EAGER: A wearable plant sensor for real-time monitoring of sap flow and stem diameter to accelerate breeding for water use efficiency.](#)" (co-PI) 2019-2021. \$300k
12. NSF "[RII Track-2 FEC: Functional analysis of nitrogen responsive networks in Sorghum.](#)" (co-PI) 2018-2022. \$4M
13. ARPA-E "[Low cost wireless chemical sensor networks.](#)" (co-PI) 2019-2022. \$2.2M
14. FFAR "[Crops in silico: Increasing crop production by connecting models from the microscale to the macroscale.](#)" (co-PI) 2019-2023. \$5M
15. NSF "[Center for Root and Rhizobiome Innovation.](#)" (Investigator & Management Team Member) 2016-2021. \$20M
16. Wheat Innovation Foundation "A Low-Cost, High-Throughput Cold Stress Perception Assay for Sorghum Breeding." (co-PI) 2019-2021. \$205k

*Submitted in 2020*

- DOE "Plant resilience to extreme short-term climatic events: discovery through integrated mechanistic models and machine learning" \$15M (co-PI) **Status:** Declined
- USDA-NIFA "Scaling Soil Health Indicators From Fields to Regions." \$500k (co-PI) **Status:** Declined
- ARPA-E "SURF: Smart Underground RFID For In-Soil CO<sub>2</sub> Measurement" \$2.0M (co-PI) **Status:** Declined
- NSF "REU Site: Integrated Development of Bioenergy Systems" \$416k (participant) **Status:** Pending
- NSF "AI Institute for Resilient Agriculture (AIIRA)" \$20M (co-PI) **Status:** Pending

**2020 Service/Citizenship***University*

- Consortium for Integrated Translational Biology (CITB) 2014-Present
- UNL Faculty Greenhouse Committee 2015-Present
- Nebraska Food for Health Center Faculty Advisory Committee 2017-Present
- Department of Agronomy and Horticulture Awards Committee 2019-Present
- Department of Agronomy and Horticulture Graduate Admissions Committee 2019-Present

*Professional*

- **Guest Editor:** The Plant Cell 2019-Present
- Data Management Subcommittee, Maize Genetics Research Collaboration Network 2018-Present
- MaizeGDB Advisory Committee 2018-Present
- **Grant Reviewer:** NSF (panel & ad hoc), USDA (panel)

**2020 Invited Talks:***At External Institutions*

- University of Missouri, Columbia, MO, USA 2020 (Remote, COVID)
- Rutgers University, New Brunswick, NJ, USA 2020 (Remote, COVID)
- Bayer Crop Science, St. Louis, MO, USA 2020 (Remote, COVID)
- University of Bonn, Bonn, Germany 2020 (Remote, COVID)
- King Abdullah University of Science and Technology, Jeddeh, Saudi Arabia 2020 (Remote, COVID)

## At External Conferences

*Invited presentations only. Excludes presentations selected based on abstracts or applications.*

- DIGICROP 2020, Digital Technologies for Sustainable Crop Production (Germany) 2020 (Remote, COVID)
- National Association of Plant Breeders Annual Meeting, Lincoln, NE, USA 2020 (Remote, COVID)
- iGenomX Session, Plant and Animal Genome, San Diego, CA, USA 2020
- Systems Biology and Ontologies Session, Plant and Animal Genome, San Diego, CA, USA 2020

## At Internal Events

- Agronomy & Horticulture Departmental Seminar Series, UNL 2020 (Remote, COVID)

## 2020 Awards and Recognition

- Chenyong Miao was nominated for and recieved Widaman Distinguished Graduate Fellowship.
- Guangchao Sun recieved 2020 CROPS presentation award.
- James Schnable elected to the Board of Directors of the Maize Genetics Cooperation.
- "[Paper of the Year](#)" Award from The Plant Phenome Journal.
- Two papers selected as "Editor's Choice" by the MaizeGDB Editorial Board.

## 2020 Outreach and News Coverages

- Plant Physiology "[First Author Insight](#)" interview with Chenyong Miao.
- Nebraska Today Pocket Science "[All the angles: Automated image processing could aid crop evals](#)"
- Nebraska Today "[Planting innovation: Schnable Lab maintains research momentum](#)"
- Nebraska Ag Connection "[Researchers Build Cyber-Physical System to Monitor Crops, Drive Decisions](#)"
- Plant Physiology - News and Views "[Functional Principal Component Analysis: A Robust Method for Time-Series Phenotypic Data](#)"
- The Plant Cell - In Brief "[Comparative Profiling Examines Roles of DNA Regulatory Sequences and Accessible Chromatin during Cold Stress Response in Grasses](#)"
- 2.1M tweet impressions to primary science/academic twitter account (@szinti) in 2020

## 2020 Professional Development

- Weekly joint meetings with a professor of computer science (Bedrich Benes, Purdue) and several of our respective graduate students have allowed me to expand both my own knowledge of algorithm design and 3D modeling relevant to plant phenotyping and functional/structural modeling and that of my trainees.
- Attendance at and participation in professional conferences in my field in 2020 including "Plant and Animal Genome" (in person), Maize Genetics (virtual), and National Association of Plant Breeders (virtual).