

RAFAEL A. MARTINEZ-FERIA

Agronomic Modeling and Data Scientist

📞 (515) 231-7899 ✉️ mart2225@msu.edu
📍 East Lansing, MI in rafael-martinez-feria

EDUCATION

- 2015 - 2018 **PhD in Crop Production and Physiology**
[Iowa State University](#), Ames, IA
- 2012 - 2015 **MS in Sustainable Agriculture**
Graduate Certificate in Geographic Info. Systems
[Iowa State University](#), Ames, IA
- 2007 - 2012 **BS in Agronomy (Ing. Agrónomo)**
[Instituto Tecnológico y de Estudios Superiores de Monterrey](#), Querétaro, Mexico

EXPERIENCE

- 2/2019 - pres. **Postdoctoral Research Fellow**
[Digital Agronomy and Spatial Analytics Lab](#)
[Michigan State University](#), East Lansing, MI
 - Principal Investigator of a \$165,000 NIFA project
 - Evaluate subfield integration of perennial lignocellulosic biomass production into row crops using crop modeling, remote sensing, and Machine Learning techniques
 - Develop and implement new mechanisms into the SALUS simulation model
 - Oversee and mentor graduate students
- 8/2015 - 12/2018 **Graduate Research Assistant (PhD)**
[Integrated Cropping Systems Lab](#)
[Iowa State University](#), Ames, IA
 - Led research project on nitrogen leaching
 - Maintained and curated the lab's research database
 - Designed and implemented modeling workflows
 - Developed new predictive model for field dry-down of corn and soybean grains
 - Instructed undergraduate classes on crop nutrient management, soil conservation and modeling
- 7/2012 - 8/2015 **Graduate Research Assistant (MS)**
[Alternative Cropping Systems Lab](#)
[Iowa State University](#), Ames, IA
 - Examined the feasibility of winter canola in Iowa
 - Generated \$42,000 in grants for the study
 - Designed field and lab experiments, collected and analyzed data, presented results
- 1/2011 - 5/2011 **Farmer Outreach Coordinator**
[Center for Rural Affairs](#), Lyons, NE
 - Promoted USDA programs for socially disadvantaged farmers and ranchers
 - Interviewed more than 50 landowners and operators about challenges specific to minority farmers

SKILLS

- Expert knowledge of crop ecophysiology
- Process-based modeling (APSIM, SALUS, Daycent, DSSAT, Ensembles)
- Programming (R, HTML/JS, SAS, SQL)
- Parameter and uncertainty estimation
- Experimental design and inference
- Big data mining, wrangling and visualization
- Supervised Machine Learning
- Process automation in HPC environments
- Strong publication record in leading scientific journals
- Languages: English, Spanish

AWARDS & HONORS

- NIFA Postdoctoral Research Fellowship, 2019**
U.S. Department of Agriculture
- Outstanding PhD Student Award, 2019**
Iowa State University, Dept. of Agronomy
- Distinguished Master's Thesis Award, 2018**
ProQuest & Midwestern Association of Graduate Schools
- Research Excellence Award, 2015**
Iowa State University, Graduate College
- Vernon C. Miller Agronomy Scholarship, 2015**
Iowa State University, Dept. of Agronomy

SELECTED PUBLICATIONS

- Capturing maize stand heterogeneity across yield-stability zones using Unmanned Aerial Vehicles (UAV) (*In press*)
- [Maize yield and nitrate loss prediction with Machine Learning algorithms](#)
- [Evaluating maize and soybean grain dry-down in the field with predictive algorithms and genotype-by-environment analysis](#)
- [Linking crop- and soil-based approaches to evaluate system nitrogen-use efficiency and tradeoffs](#)
- [Rye cover crop effects on maize: A system-level analysis](#)