# César A. Lizárraga

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## Relevant Experience

* [**CiBO Technologies**](https://www.cibotechnologies.com/) **(St. Louis, MO): July 2017 - Present**  
  *Engagement Engineering Lead (Project Lead / Software Engineer)*
  + Led a small team (4-5 engineers) in custom appliation development for a strategic partnership client that resulted in a multimillion dollar contract
  + Participated in planning multiple stages of the project at different time scales
  + Regularly interfaced with the client team to ensure their needs were met
  + Used a high level concept, designed and architected an industry leading set of tools that allowed the client to reduce their research time from weeks and months to days
  + Helped prototype, develop, and deploy several services, APIs, and API clients in kubernetes
* [**Nanaya**](http://www.nanaya.co) **(St. Louis, MO): July 2014 - Present**  
  *Co-founder/ Infrastructure & Sofware Engineer / Statistician*
  + Developed, designed, and tested algorithm(s)
  + Verified that proper statistical procedures are being used within the algorithm(s)
  + Facilitated communication between developers and R&D Team members
  + Managed and updated infrastructure depending on needs of team
* [**Donald Danforth Plant Science Center**](https://www.danforthcenter.org/) **(St. Louis, MO)**
  + **October 2016 - July 2017**  
    *Senior Computational Scientist*
    - Provided computational interface for research groups
    - Trained several lab technicians in computational infrastructure use
    - [PheNode: Developed prototype of Arduino & Raspberry Pi controlled field canopy sensor system](https://www.agrelaeco.com/)
    - [PhenoPiSight: A Fixed Camera Greenhouse-based Phenotyping platform](#phenopisight)
  + **December 2014 - October 2016**  
    *Laboratory Technician (Bioinformatics/Statistics) in Mockler Lab*
    - Developed, documented, maintained, and tested pipelines for analyzing high throughput sequencing and imaging data
    - Analytics, Data Management, and Development for the [Brachypodium ENCODE Project](http://genomicscience.energy.gov/research/DOEUSDA/abstracts/2014mockler_abstract.shtml) and the [EPSCoR Project](https://missouriepscor.org/)
    - Coordinated with Bioinformatics Core Director for computational resource management
    - Assisted with data analysis whenever requested

## Public Projects

#### PhenoPiSight: Fixed Camera Greenhouse-based Phenotyping Platform

* Used Ansible to automate image capture and transfer of images from 180 Raspberry Pis on a gantry above the greenhouse
* Developed pipeline to take captured images and make dense 3d pointcloud reconstructions (+/- 0.5cm accuracy)
* Trained lab technicians to find phenotypes in 3d reconstructions and compare to ground-based greenhouse measurements
* [Example of the 3d reconstruction](https://traitcapture.org/pointclouds/by-id/586a428ef7f5667846b1f8a0)

## Education

**B.A. Mathematics, 2008**  
*Probability and Statistics*  
Department of Mathematics, Washington University in St. Louis

## Engineering Skills

* In order of familiarity:
  + Languages: *Scala, Python, R, Bash, Java*
  + Infrastructure & DevOps: *Kubernetes, Helm, Argo Workflow Engine, Ansible*
  + Operating systems and GNU/Linux: *grep, AWK, sed*

## Languages

* Fluent: *English*, *Spanish*
* Intermediate: *Italian*

## Publications

* Erica Agnew, Adam Bray, Eric Floro, Nate Ellis, John Gierer, **César Lizárraga**, Darren O’Brien, Madeline Wiechert, Todd C. Mockler, Nadia Shakoor, Christopher N. Topp. Whole‐Plant Manual and Image‐Based Phenotyping in Controlled Environments. *Plant Biology 2(1):1-21. https://doi.org/10.1002/cppb.20044 (2017)*
* He Huang, Malia A. Gehan, Sarah E. Huss, Sophie Alvarez, **Cesar Lizarraga**, Ellen L. Gruebbling, John Gierer, Michael J. Naldrett, Rebecca K. Bindbeutel, Bradley S. Evans, Todd C. Mockler, Dmitri A. Nusinow. Cross‐species complementation reveals conserved functions for EARLY FLOWERING 3 between monocots and dicots. *Plant Direct 1:4 https://doi.org/10.1002/pld3.18 (2017)*
* Gehan MA, Fahlgren N, Abbasi A, Berry JC, Callen ST, Chavez L, Doust AN, Feldman MJ, Gilbert KB, Hodge JG, Hoyer JS, Lin A, Liu S, **Lizárraga C**, Lorence A, Miller M, Platon E, Tessman M, Sax T. 2017. PlantCV v2: Image analysis software for high-throughput plant phenotyping. PeerJ 5:e4088 https://doi.org/10.7717/peerj.4088
* Laura Rayhel, B.A., Copper Aitken-Palmer, D.V.M., Ph.D., Priscilla Joyner, B.Sc., B.V.M.S., Carolyn Cray, Ph.D., **César Andrés Lizárraga, B.A.**, Betty Ackerman, M.T. (A.S.C.P.), and Chris Crowe, B.S. Hematology and biochemistry in captive white-naped cranes (*Grus VIPIO*). *Journal of Zoo and Wildlife Medicine 46(4):747-754. http://dx.doi.org/10.1638/2015-0027.1 (2015)*

## Professional Presentations (Posters)

* Skyler Mitchell, Stuart Marshall, Stephanie Turnipseed, Luke Burnham, **César Lizárraga**, Jared Streich, Rob Alba, and Todd C. Mockler (2015) “Effect of drought treatments on transpiration rate and stomatal density in *Brachypodium distachyon*.” Donald Danforth Plant Science Center and Missouri Botanical Gardens Joint Fall Symposium, St. Louis, MO, October 2015
* **César A. Lizárraga**, Henry D. Priest, Noah Fahlgren, Rob Alba, and Todd C. Mockler. Bioinformatics Pipelines for Purple False Brome (Brachypodium distachyon) Donald Danforth Plant Science Center, St. Louis, MO. (2015)
* **Cesar Lizarraga**, Stuart Marshall, Bradley Flynn, Nadia Shakoor1 and Todd C. Mockler. PhenoPiSight: Fixed Camera Greenhouse-based Phenotyping Platform. (2016)