

Diego Calderon

Urbana, IL, USA

🌐 <https://calderondiego.github.io/>

🌐 <https://github.com/diegoac2>

EDUCATION

University of Arkansas

Bachelor of Science in Computer Science, Magna Cum Laude

Minor in Mathematics

GPA: 3.85/4.0

Thesis: Training Machine Learning Agents in a 3D Game Engine

Fayetteville, AR, USA

May 2018

WORK AND RESEARCH EXPERIENCE

National Center for Supercomputing Applications

Research Programmer

Urbana, IL, USA

December 2018 - Present

- Developed software with researchers across various fields (e.g. civil engineering, economics, and environmental sciences).
- Added Apache Airflow for managing Great Lakes to Gulf's data ingestion workflow, introducing fault tolerance.
- Implemented the OpenID Connect authentication protocol for IN-CORE (developed an external authentication service for our API Gateway, refactored our services to use the tokens, and developed a trusted client for our Python library).

University of Arkansas, Department of Economics

Undergraduate Research Assistant for Prof. Civelli

Fayetteville, AR, USA

January 2017 - October 2018

- Developed and managed a toolkit for GIS data analysis.
- Designed and developed a graphical user interface in MATLAB for a cognitive assessment study (acknowledgment and code can be found in the publication "A Flexible and Customizable Method for Assessing Cognitive Abilities").

University of Arkansas, Department of Statistics

Undergraduate Research Assistant for Prof. Datta

Fayetteville, AR, USA

August 2017 - August 2018

- Using crime data retrieved from police departments, developed a Shiny app to visualize crime hotspots.

Tesseract Center for Immersive Environments and Game Design

Gameplay and Tools Programmer

Fayetteville, AR, USA

July 2017 - May 2018

- Created a game design document for the game "Being", drawing inspiration from puzzle games and psychology metaphors such as black dog.
- Rapidly developed prototypes as proof of concepts in the early stages of development.
- Set up and maintained documentation for our C# codebase using Doxygen.

Washington University in St. Louis

Undergraduate Research Fellow

St. Louis, MO, USA

May 2017 - July 2017

- Collaborated with two undergraduates, under the direction of Prof. Brendan Juba, to design an algorithm to solve the joint task of learning under conditional distributions.

Tesseract Center for Immersive Environments and Game Design

Game Designer

Fayetteville, AR, USA

January 2016 - May 2017

- Designed, implemented, and tested functional spaces of game levels.
- Collaboratively designed, implemented, and balanced gameplay.
- Communicated and explained the need of new tools to programmers.

SKILLS

- Programming Languages: Python, C#, Java, C++, R, MATLAB
- Technologies: OpenGL (learning)
- Tools: Unity, Maya (familiar), Unreal (learning)

PUBLICATIONS

1. W.T. L. Wang, J. W. van de Lindt, H. Cutler, N. Rosenheim, M. Koliou, J.S. Lee, and **D. Calderon**. Community resilience assessment of an EF-5 tornado using the IN-CORE modeling environment. In book: Life-Cycle Civil Engineering: Innovation, Theory and Practice. DOI: 10.1201/9780429343292-49, 2021.
2. **D. Calderon**, B. Juba, S. Li, Z. Li, and L. Ruan. Conditional Linear Regression. In 23rd International Conference on Artificial Intelligence and Statistics (AISTATS), Proceedings of Machine Learning Research, PMLR 108:2164-2173, 2020.
3. L. Marini, **D. Calderon**, P. Kumar. Semantic Annotation of Data using JSON Linked Data. In 2020 EarthCube Annual Meeting. DOI: <https://doi.org/10.1002/essoar.10504143.1>, 2020
4. J. Lee, C. Navarro, N. Tolbert, Y. W. Kim, V. V. G. Naraharisetty, C. Wang, M. Ondrejcek, **D. Calderon**, S. L. Bradley, and M. Fredricksen. 2019. Interdependent Networked Community Resilience Modeling Environment (INCORE). In Proceedings of the Practice and Experience in Advanced Research Computing on Rise of the Machines (learning) (PEARC '19). Association for Computing Machinery, New York, NY, USA, Article 111, 1–2. DOI: 10.1145/3332186.3333150, 2019.

PRESENTATIONS

1. November, 2019: Geological Society of America Annual Meeting, Phoenix, Arizona, USA. Talk title: Architecture and data-flow of the Intensively Managed Landscapes (IML CZO).
2. February, 2018: 32nd AAAI Conference on Artificial Intelligence, New Orleans, Louisiana, USA. Poster title: Conditional Linear Regression.

MENTORING AND OUTREACH

NCSA SPIN (Students Pushing Innovation)

Urbana, IL, USA

Community Resource Pool

Summer 2020

- Co-mentored (with Kaveh Asli) an undergraduate student to develop a **Clowder** extractor to automatically extract image metadata for a resource allocation app.

Center of Excellence & IN-CORE

Washington D.C., USA

Annual Meeting

October 2019

- Led a support session to teach graduate students how to install and use our Python library "pyIncore."
- Provided tech support (how to install Python, packages, handle OS permissions, etc) to researchers and graduate students.

SCHOLARSHIPS AND GRANTS

Honors College Research Grant

2017

University of Arkansas

\$3,000

Florence McKee Scholarship

Fall 2017

University of Arkansas

\$4,000

Big Ten+ Graduate School Exposition Travel Scholarship

September 2017

Purdue University

\$500

Washington University Summer Engineering Fellowship <i>Washington University in St. Louis</i>	Summer 2017 \$5,000
Foundation for the International Exchange of Students Scholarship <i>University of Arkansas</i>	Fall 2017 \$3,000
Maria Teresa Frans Scholarship <i>University of Arkansas</i>	Fall 2016 \$750
ICT Membership Scholarship <i>University of Arkansas</i>	Spring 2016 \$100

WORKSHOPS

The Statistical and Applied Mathematical Science Institute <i>Data Assimilation for Numerical Weather Prediction</i>	Raleigh, NC USA <i>May 2017</i>
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- Worked with an interdisciplinary group, under the direction of **Dr. Ahmed Attia**, to learn the basics of Numerical Weather Prediction and code a Local Ensemble Transform Kalman Filter in Python.

PERSONAL PROJECTS

Simple Renderer	<i>July 2021 - Present</i>
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- Working on a very simple software rasterizer in C++. Currently implementing a z-buffer for hidden-surface determination. Will add texture next.

Untitled Game	<i>June 2021 - Present</i>
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- Worked on a VR game with two friends (using Unreal for our game engine). Currently working on an optimized grid for character movement.

Monty Hall Game	<i>October 2018</i>
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- Developed a Shiny app for the Monty Hall Game [link]. Users can play the game, read an explanation of the paradox, and run simulations of the outcomes of different strategies.