

Lux Miranda

she/they

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[Google Scholar Profile](#)

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CV current as of 1 November 2022



Education

2022-2027 PhD in Computer Science

(expected) ✦ [Uppsala University](#), Sweden, European Union

✦ Defense expected May 2027

2020-2022 Master of Science in Industrial Engineering

✦ [University of Central Florida](#) (UCF), Orlando, Florida, USA

✦ Honorary 10,000th master's degree conferred by the college

✦ **Thesis:** *Humans in algorithms, algorithms in humans: Understanding cooperation and creating social AI with causal generative models*

2016-2020 Bachelor of Science with University Honors, double-major in Computational Mathematics and Computer Science, minor in Anthropology, *Cum Laude*

✦ [Utah State University](#) (USU), Logan, Utah, USA

✦ **Honors thesis:** *Computationally revealing recurrent social formations and their evolutionary trajectories*

Publications

2022 Freeman, J., Baggio, J., Miranda, L., & Anderies, J.M. (2022). Social infrastructure moderates the energy use of polities. Accepted / in revision, *Cross-Cultural Research*.
(Accepted)

2022 Miranda, L., Garibay O.O., & Baggio, J. (2022). Evolutionary model discovery of human behavioral factors driving decision-making in an irrigation experiment. Invited and in press for a special issue of the *Journal of Artificial Societies and Social Sciences*.
(Invited; In press)

2022 Miranda, L. & Garibay O.O. (2022). Approaching (super)human intent recognition in stag hunt with the Naïve Utility Calculus generative model. *Computational and Mathematical Organization Theory*. <https://doi.org/10.1007/s10588-022-09367-y>
Invited manuscript

2022 Miranda, L. (2022). Humans in Algorithms, Algorithms in Humans: Understanding Cooperation and Creating Social AI with Causal Generative Models. *UCF Electronic Theses and Dissertations*. <https://stars.library.ucf.edu/etd2020/1054>

- 2022 Bird, D., Miranda, L., Vander Linden, M. et al. (2022). p3k14c, a synthetic global database of archaeological radiocarbon dates. *Nature Scientific Data*.
[10.1038/s41597-022-01118-7](https://doi.org/10.1038/s41597-022-01118-7)
- 2021 Miranda, L. & Garibay O.O. (2021). Multi-agent Naïve Utility Calculus: Intent Recognition in the Stag-Hunt Game. Social, Cultural, and Behavioral Modeling. Awarded *Best Human-Autonomy Teaming Paper* SBP-BRiMS 2021. Lecture Notes in Computer Science, vol 12720.
[10.1007/978-3-030-80387-232](https://doi.org/10.1007/978-3-030-80387-232)
- 2020 Miranda, L. & Freeman, J. (2020). The two types of society: Computationally revealing recurrent social formations and their evolutionary trajectories. *PLoS One*
[10.1371/journal.pone.0232609](https://doi.org/10.1371/journal.pone.0232609)

Presentations

- 15 September 2022 Stochasticity can not be ignored: Results from the evolutionary model discovery of behavioral factors driving decision-making in an irrigation experiment. *Social Simulation Conference 2022*. Milan, Italy / Virtual.
- 07 April 2022 Humans in Algorithms, Algorithms in Humans: Understanding Cooperation and Creating Social AI with Causal Generative Models. *Thesis Defense*. University of Central Florida, Orlando, Florida, USA
- 07 July 2021 Multi-agent Naïve Utility Calculus: Intent Recognition in the Stag-Hunt Game. *2021 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction and Behavior Representation in Modeling and Simulation*. Virtual
- 10 June 2021 Evolutionary model discovery of behavioral factors driving decision-making in an irrigation experiment. *Inverse Generative Social Science (iGSS) Workshop 2021*. Virtual <https://youtu.be/Z7zmaHVSdHc>

Research Experience

- Summer 2022 PIBBSS Summer Research Fellow. Awarded the 9,000 USD [Principles of Intelligent Behavior in Biological and Social Systems](#) (PIBBSS) summer research fellowship to conduct research on [human-aligned AI systems](#).
- August 2020 - Graduate Research Assistant. *University of Central Florida Human-Centered Artificial Intelligence Research Laboratory & Complex Adaptive Systems Laboratory*.
 May 2022 (4 semesters) Contributed to the publication of three journal articles, one conference paper, and my master's thesis.

- August 2019 - **Undergraduate Research Assistant.** *Utah State University Anthropology Program.*
- August 2020 (1 year) As part of an international archaeological working group known as **PEOPLE 3000**, I helped to create and manage a new **radiocarbon database** larger and more complete than any other. I also worked to program and test an online social experiment studying cooperation in a common-pool resource management scenario.
- Summer 2019 **Peak Summer Research Fellow.** *Utah State University.* One of ten recipients awarded the 4,000 USD **Peak Summer Research Fellowship** for highly-engaged undergraduate researchers to conduct work on a proposed project over the summer. The research conducted under this fellowship produced my first publication, listed above.
- Summer 2018 **NASA Space Grant Consortium Fellow.** Awarded a 1,600 USD **NASA space grant fellowship** to continue work on a CubeSat mission as the software team leader for the USU Get Away Special Microgravity Research team. Managed a team of ten other programmers. Wrote software for a prototype platform that successfully served over a dozen high-altitude balloon flights. The project (**GASPACS**) was the world's first CubeSat developed entirely by undergraduate students. It successfully served its mission after being launched to the International Space Station as part of the **SpaceX CRS-24** mission and deployed into low Earth orbit on 26 January 2022.

Teaching Experience

- August 2020 - **Graduate Teaching Assistant.** *University of Central Florida Complex Adaptive Systems Laboratory.* Assisted in teaching, grading, and holding office hours for
- May 2022 (4 semesters) master's-level courses in data mining, cloud computing, and statistical analysis.
- January 2018 - **Assistant Lecturer / Recitation Instructor.** *Utah State University Department of Mathematics and Statistics.* Created and gave original lectures for the Differential
- May 2019 (3 semesters) Equations and Linear Algebra course at USU. Held office hours, created numerous course materials, designed exam questions, and used Python to create an automated tool for online assessment creation which continued to be used by the department after my departure.
- August 2016 - **Computer Science Tutor.** *Utah State University Department of Computer Science.*
- May 2017 (2 semesters) Tutored students in introductory computer science courses. Primarily assisted with homework concepts and code debugging.

Industry Experience

- May 2017 - Embedded Engineering Assistant. **Space Dynamics Laboratory**, Logan, Utah. USA.
- October 2017 - Developed software for embedded systems in C++. Built a technology demo
(6 months) showcasing a multi-agent platform which toured the USA to help garner funding. Developed, documented, and standardized methods for in-house Linux distribution management that continued to be used after my departure.

Scholarships

- November 2021 - **PAGES Data Stewardship Scholarship**. Received a 4,400 USD scholarship from
August 2022 **PAGES** (Past Global Changes) to continue stewardship work on the **p3k14c**
(8 months) **archaeological radiocarbon database** as part of the PEOPLE 3,000 working group.
- Summer 2018 **Honors Study Abroad Scholarship**. Received a 1,000 USD scholarship from the
USU Honors Program used towards a semester studying historical European art and
theatre in Italy, Switzerland, France, and the UK.
- 2016-2020 **Daniels Scholarship**. Received the full-ride **Daniels Scholarship** (final award amount:
(4 years) 58,100 USD) to attend any four-year Bachelor's program in the USA for
demonstrating exceptional leadership ability, strength of character, and commitment
to community betterment. To maintain the scholarship, I was required to strictly
keep the Daniels Scholar Code of Conduct which entailed working a paid position
for at least ten hours per week during the semester, following all local laws, being
involved in community betterment, and maintaining good academic standing.

Awards

- May 2022 **Honorary 10,000th Master's Degree** conferred by the UCF College of Engineering
and Computer Science. **Awarded for my accomplishments at UCF** via faculty
nomination.
- April 2022 **Best 2021 Paper** within the Human-Centered Artificial Intelligence Research
Laboratory. Awarded by the lab director for my **publication in SBP-BRiMS 2021**.
- July 2021 **Best Human-Autonomy Teaming Paper**. Awarded by the *Social, Cultural, and
Behavioral Modeling (SBP-BRiMS) 2021* conference for my **submission**.

Supplemental Courses

- January 2021 **Agent-Based Modeling of Social-Ecological Systems**, **CoMSES Net International
Winter School**, Arizona State University

Skills

Programming Python (plus pandas, numpy, matplotlib, etc.), NetLogo, JavaScript, Haskell, C++
Tools Linux, Git, Vim, LaTeX, spreadsheet macros, Canvas
Languages English (native; CEFR level C2), Swedish (conversational; CEFR level B1)
Cooking Mesoamerican, vegan pastries, hot beverages