

## SKILLS

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- **Advanced:** Python, PyTorch, NumPy, scikit-learn, Pandas, Matplotlib, Seaborn.
- **Proficient:** Pyro and SQL.
- **Languages:** English and Spanish.
- **Miscellaneous:** Machine learning, probability theory, and reinforcement learning.

## EXPERIENCE

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- **Insight Artificial Intelligence Program** New York, NY  
*Fellow* *September 2018 – Present*
  - Developed AutoTunes, an automatic music generation engine for indie/retro video games.
  - Implemented a pipeline for processing MIDI files, feeding them into AutoTunes, and recovering MIDI files by using `pretty_midi`.
  - Prepared a curated GitHub with a detailed Jupyter Notebook for future usage and extensions of AutoTunes.
- **Open Data Group** Chicago, IL  
*Data Science Intern* *May 2018 – August 2018*
  - Implemented hierarchical models for studying the transition rates of mortgage-backed securities using Pyro.
  - Built recommender system prototypes to assist traders with trades.
  - Presented work on applications of reinforcement learning to industry.
- **Northwestern University** Evanston, IL  
*Graduate Researcher* *Sept. 2013 – June 2018*
  - Collaborated with three mathematics professors to tackle high dimensional problems in probability theory.
  - Discovered emerging phenomenon in the average number of stable equilibria for high dimensional systems, with applications to physics, machine learning and mathematics.
  - Taught and led weekly discussion sections with over 25 students in attendance.
- **Williams College** Williamstown, MA  
*Summer Researcher* *June 2012 – Aug. 2012*
  - Collaborated with two other undergraduates from across the country to produce publishable work.
  - Extended discussions with a faculty at Williams College to write manuscript of results.
  - Presented work at conference with over 50 people in attendance.
- **Multicultural Center for Academic Excellence** Minneapolis, MN  
*Tutor* *Sept. 2010 – May 2013*
  - Developed materials to help students in over 7 different mathematics classes.
  - Led study groups ranging from 2-5 students, facilitating communication among the students.
  - Worked with students from a variety of backgrounds through one-on-one lessons, raising their test scores from 60% to over 80%.

## EDUCATION

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- **Northwestern University** Evanston, IL  
*Doctor of Philosophy in Mathematics* *Sept. 2013 – June 2018*
- **University of Minnesota - Twin Cities** Minneapolis, MN  
*Bachelor of Science in Mathematics* *Sept. 2009 – May 2013*

## HONORS & AWARDS

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- **National Science Foundation** Evanston, IL  
*Graduate Research Fellowship* *May 2015 – May 2018*

## RELEVANT PUBLICATIONS

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- Garcia, X. *On the number of equilibria with a given number of unstable directions.* (2017). Preprint.  
<https://arxiv.org/abs/1709.04021>