

Amelia Taylor

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I'm a data scientist whose first career was Tenured Mathematics Professor. I love working on complex problems with clear business impact. As a data scientist, I deliver complex data products requiring a deep understanding of statistics, design of experiments, and machine learning along with an the ability to balance the trade-offs between research into the best solution and delivery of a quality product on time. As a Staff Data Scientist, I love leading technical delivery teams, thinking about strategy and evaluating ROI early in a project to inform prioritization.

Skills & Languages Summary: Python, Pandas, NumPy, Scikit-Learn, Matplotlib, Altair, Plotnine, R, tidyverse, ggplot, Binderhub, Jupyter, Git, SQL, Snowflake*, Flask*, Docker*, Jenkins*
*some experience

Experience:

- **Staff Data Scientist, Zymergen, Inc,** Bend, OR July 2019 - Present
Zymergen integrates robotics, software and genetic engineering, all guided by data science, to deliver end-to-end microbial strain improvement for applications in industrial fermentation. I primarily work on rapid, robust and useful processing of data to provide scientists with the information they need to make the next round of changes and decide which strains to promote and fast, repeatable, experimental design and analysis with maximum information delivery for assay development.
 - Worked with C-suite and director level leadership to scope projects and determine ROI, providing the technical expertise to make quick go no-go decisions.
 - Technical lead of two different cross-functional teams that delivered multiple products on time with a unique blend of statistics, chemical engineering and software engineering mix. Throughout these deliveries we standardized processes, captured critical data, and cut data processing time by at least a day per month.
 - Coordinate across diverse stakeholders from a broad range of scientists to data engineering, and manufacturing.
 - Architect complex deliveries including quick turn around UI connected to libraries integrated into our continuous integration system.
 - Deliver high impact short term analytical solutions.
- **Data Science Manager, Zymergen, Inc,** Bend, OR March 2019 - July 2019
 - Facilitated transition of data science team from a small number of people working on individual projects to a large org delivering on complex products using cross-functional teams.
 - Coached data scientists stretching into project management and technical leadership.
 - Grew a diverse team to meet business needs.
 - Helped onboard two new managers.
- **Senior Data Scientist, Zymergen, Inc,** Bend, OR January 2019 - July 2019
 - Building product for assay development that cuts analytical time by 70%, makes experiments and analysis repeatable and designs and stores data for improved analysis and future predictive models.
 - Technical lead for cross-functional collaborative product team.
- **Data Scientist, II, Zymergen, Inc,** Bend, OR October 2016 - January 2019
 - Provided analytical support for client teams doing assay development. Technical lead for team that developed the proof of concept that lead to assay development tool.
 - Owned end-to-end development of outlier detection from algorithm development to automation of the process. Automation save 2 hours per week per client. Model selection and hyper-parameter tuning algorithms provided metrics critical for rigorous decision making. *Patent pending and presented at PyBay* <https://youtu.be/gOSz5SFJA14>.
 - Designed and and worked cross-functionally to productionize normalized data tables storing data critical to the data science team that is now used company wide and considered critical infrastructure.

- **Consultant**, *Mathematical Sciences Research Institute*, Bend, OR October 2017 - December 2018
 - Conducted study of postdoctoral fellowship program analyzing seven years of data. Updated existing survey to adhere to current best practices and analyzed results in R as primary author of the final report.
- **Consultant**, *Insight Data Science*, Seattle, WA September - November, 2017
 - Taught probability course and mentored fellows in technical development of products and interview preparation.
- **University Professor**
 - **Instructor**, *Oregon State University - Cascades*, Bend, OR September 2015 - June 2016
 - **Associate Professor** (tenured), *Colorado College*, Colorado Springs, CO July 2012 - May 2016
 - **Assistant Professor** (tenure-track), *Colorado College*, Colorado Springs, CO August 2006 - July 2012
 - **Assistant Professor** (tenure-track), *St. Olaf College*, Northfield, MN August 2003 - July 2006
 - **VIGRE Hill Assistant Professor** (postdoctoral fellow), *Rutgers University*, Piscataway, NJ 2000-2003
 - Leadership
 - * Supervised 11 full time faculty, 7 part time faculty and 2 staff. (Department Chair)
 - * Coordinated all daily operations of the department, including two major personnel reviews, an external review of the department, course scheduling, weekly speaker series and budgeting process. (Department Chair)
 - * Coordinated department assessment team for two years. Developed outcomes, rubrics and feedback loops.
 - * Organized 6 intense week-long workshops of 25+ people.
 - Data Science
 - * Developed a statistically powerful method for inferring phylogenetic trees using representation theory. Implemented algorithm for inference and simulation data tests in R.
 - * Converted Statistical Modeling and Probability Theory course to being taught using R.
 - * Developed and published an algorithm for computing a monomial ideal invariant using reverse search.
 - * Developed a Monte Carlo based method for fast computation of a key invariant in commutative algebra.

Professional Presentations:

- **Data Did That!** 2019 Fall Gordon Lecturer, Denison University October 2019
- **Data Did That!** National Mathematics Festival, Washington DC May 2019
- **Robots, Biology and Unsupervised Model Selection**, San Francisco, CA August 2018

Education:

- **Ph.D., Mathematics**, *University of Kansas*, Lawrence, KS May 2000
- **M.S., Mathematics**, *Purdue University*, West Lafayette, IN May 1997
- **B.A., Mathematics**, *St. Olaf College*, Northfield, MN May 1994
Magna Cum Laude, with Distinction