

# Paul R. Glaum

Mathematical Modeler & Data Scientist

Ann Arbor, MI (262)290-1639

[prglaum@gmail.com](mailto:prglaum@gmail.com) [website](#)

[Google Scholar](#) [Research Gate](#) [GitHub](#)

**Summary:** PhD ecologist and evolutionary biologist. 10+ years producing novel and high impact research with data-driven results across multiple fields. Expertise in project design, project management, multiple programming environments, applied mathematics, statistical analysis, and interpreting complex scientific results for general audiences. Organized, motivated, & adaptable to evolving project objectives while working both independently and in teams.

## Competencies

---

<b>Core Skill Set</b>	Model building & analysis; Experimental design; Data manipulation, analysis, & visualization; Scientific writing, editing, & review
<b>Types of Models</b>	ODEs, PDEs, Networks, IBMs (agent based models), Discrete time models, Spatial genetic models, Stochastic models
<b>Analysis</b>	Numerical analysis, Bifurcation analysis, Network analysis, Machine learning, Regression techniques, Large databases & data warehouses (data cleaning, curation, ETL, etc.), EDA.
<b>Types of Data</b>	Network, Time series, Allometric/Metabolic, Spatiotemporal, Environmental, Socio-economic, GIS raster data, Species distributions, Organismal traits, Allele frequencies, etc.
<b>Programming</b>	R, Matlab, Mathematica, Linux, SQL, Command line, Python, Java, C++, HTML
<b>Computing</b>	Cloud/cluster/HPC computing, pbs/slurm scripting, Globus, Git (Github)

## Professional Experience

---

<b>Present</b> <b>May 2020</b>	<b>University of California – Davis, Environmental Science &amp; Policy: Postdoctoral Scholar</b> <ul style="list-style-type: none"><li>• Wrote computationally efficient method for integrating 100s of unique organismal phenologies into large network models using the replicator equation.</li><li>• Created novel tests and network statistics to corroborate model output with a large empirical, field, and museum dataset (curated by collaborators and myself). <a href="#">Article Link</a></li><li>• Developed novel extension of machine learning techniques into analysis of ODE simulation data while mentoring graduate student research.</li></ul>
<b>May 2020</b> <b>May 2018</b>	<b>University of Michigan, Ecology &amp; Evolutionary Biology/ Michigan Computational Discovery and Engineering: Postdoctoral Res. Fellow</b> <ul style="list-style-type: none"><li>• Integrated economic and biological models with fishery yield data to develop first network based bio-economic model of fishery dynamics. <a href="#">Article Link</a></li><li>• Analyzed large simulation datasets using machine learning and regression techniques.</li><li>• Collaborative analysis of historical pollinator community database using museum specimen records and long-term weather data. Mentored undergraduate researcher.</li></ul>
<b>May 2018</b> <b>Sept 2012</b>	<b>University of Michigan, Ecology &amp; Evolutionary: Grad Student Researcher</b> <ul style="list-style-type: none"><li>• Independently implemented longitudinal pollinator field research integrating land cover and socio-economic GIS data. Mentored and trained 10 undergraduate students.</li><li>• Contacted by multiple news outlets to discuss findings, e.g. <a href="#">NPR</a>, <a href="#">PBS</a>, <a href="#">Sierra Club</a>, <a href="#">Detroit Metro Times</a>, <a href="#">The Scientist Magazine</a>, <a href="#">Next City</a></li><li>• Incorporated empirical data (e.g., plant chemistry, ontogeny) into ODE model formulation. Fit model components to field data.</li></ul>
<b>Multiple Years</b>	<b>Teaching Positions</b> <ul style="list-style-type: none"><li>• GRADUATE INSTRUCTOR (2012-2017) University of Michigan: 5 years teaching classroom and laboratory biology, managing course logistics, creating course material.</li><li>• ESL TEACHER (2007-2010) Japan: 3-year English teaching residency w/ grade and middle school students.</li></ul>

## Education

---

**2018 PhD** University of Michigan – Ecology & Evolutionary Biology  
**2014 MSc.** University of Michigan – Ecology & Evolutionary Biology  
**2007 B.S.** University of Wisconsin, Madison – Mathematics & Japanese

**Additional:** Conversational Japanese, Grant Writing (\$200K awarded), [Conference](#) organizer, Public speaking (20+ presentations), Mentoring