Vince Fasanello

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Professional Summary

I am a data scientist, statistician, and computational biologist. I utilize domain-specific knowledge coupled with transferable analytical and data science expertise to build, curate, and extract key insights from unique, high-volume, high-dimensionality datasets. I can identify and implement appropriate quantitative methods for project success. I am flexible and quick to learn new languages, software, and subject knowledge as project demands dictate.

Education

Washington University in St. Louis   **5/2021**
PhD Evolution, Ecology & Population Biology (4.0/4.0 gpa)

Bucknell University   **5/2014**
BS Biology, Magna Cum Laude (3.8/4.0 gpa)

Experience

Data Scientist | Washington University in St. Louis   **8/2015 - Current**
- Independently designed, managed, and successfully completed interdisciplinary research projects.
- Self-funded through a highly competitive federal fellowship (NSF GRFP 2017-2021).
- Developed custom data handling and analysis pipelines from scratch for two distinct research programs.
- Created publication quality figures and maps to communicate complex findings succinctly.
- Disseminated project results and broader implications through presentations and peer-reviewed publications.

Experimental Genetics
- Designed and deployed a cost-efficient, high-precision, high-yield experimental evolution system that leverages genetic tools to overcome common methodological limitations and project design constraints[1]. Maintained high-quality collaborative ties with colleagues utilizing this system in their genomics research program.
- Employed targeted experimentation to identify mechanisms underpinning evolutionary responses to stressful and variable environments; analyzed costs and benefits of specialist v. generalist phenotypes.
- Practiced laboratory manager; hands-on expertise with modern molecular biology and NGS techniques.

Climate, Topography, and Biogeography
- Utilized publicly available data, least-cost-path analysis, and GIS principles to quantify global-scale variation in the effectiveness of dispersal barriers. Evaluated environmental and biological drivers of observed trends.

Forestry Technician | The Bureau of Land Management   **5/2014 – 11/2014**
- Collected and curated forest inventory and habitat typing data to inform federal land management decisions.
- Monitored plant populations and evaluated consequences of management practices on forest health.

Presidential Research Fellow | Bucknell University   **9/2010 – 5/2014**
- Self-funded through competitive internal and external fellowships (Bucknell Univ.; Beckman Foundation).
- Identified causal links between stress, aging and senescence through laboratory and field studies[2;7].
- Developed, optimized, and performed biochemical assays (ELISA, Radioimmunoassay)[2,3,4,6].
- Managed research greenhouse operations and plant & insect stocks; designed equipment for experiments.
- Presented research findings at international conferences & published in peer-reviewed journals.

Skills

Computational Tools: R, Python, SQL, Git, CAD, GIS, LaTeX, High-Performance Computing.

Packages & Libraries: *R* – dplyr, graphics, ggplot2, stats, car, weights, glmm, lme4, nlme, MCMCglmm, pwr, simr, quantreg, psych, cluster, randomForest, brms, sf, sp, lwgeom, raster, rgeos, rgdal, spdep, spatialreg, movecost, gdistance, ape, geiger, vegan, caper, phylolm, sensiPhy. *Python* – NumPy, Pandas, SciKit-Learn, Matplotlib, Seaborn, plotly.

Data: Data Collection, Curation, Cleansing, Manipulation, Transformation, Visualization. Reproducible code.

Analysis: Exploratory data analysis. Methodological validation. Basic statistics. Predictive modeling. Machine learning (regression, classification, clustering, dimensionality reduction). Generalized linear models. Generalized linear mixed-effects models. Logistic regression. Quantile regression. Power analysis. Spatial analysis. Phylogenetic analysis.

Communication: Strong interpersonal and communication competencies. Confident public speaker and practiced storyteller. Excellent technical writer and editor. Experience incorporating feedback and maintaining detailed records. Able to deliver nuanced and technical results in a compelling, concise, and actionable manner.

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*Peer-Reviewed Publications**

[1] **Fasanello V.J.**, P.L. Liu, C.A. Botero, J.F. Fay. High-throughput analysis of adaptation using barcoded strains of *Saccharomyces cerevisae*. *PeerJ (2020)*.

[2] Majer A.D., **V.J. Fasanello**, K. Tindle, …, M.F. Haussmann. Is there an oxidative cost of acute stress? Characterization, implication of glucocorticoids and modulation by prior stress experience. *Proc. Royal Soc. B (2019)*.

[3] Martin L.B., H.J. Kilvitis, A.J. Brace, L. Cooper, M.F. Haussmann, A. Mutati, **V.J. Fasanello**, …, D.R. Ardia. Costs of immunity and their role in the range expansion of the house sparrow in Kenya. *Journal of Experimental Biology (2017)*.

[4] Ouyang J.Q., A.Z. Lendvai, R. Dakin, A.D. Domalik, **V.J. Fasanello**, …, F. Bonier. Weathering the storm: parental effort and stress hormones predict brood survival. *BMC Evolutionary Biology (2015)*.

[5] **Fasanello V.J.**, E.D. Carlton, M. Pott, …, M.F. Haussmann. Monomorphic ornamentation related to oxidative damage and assortative mating in the black guillemot (*Cepphus grylle*). *Waterbirds (2015)*.

[6] Lendvai A.Z., J.Q. Ouyang, L.A. Schoenle, **V.J. Fasanello**, …, I.T. Moore. Experimental food restriction reveals individual differences in corticosterone reaction norms with no oxidative costs. *PLoS ONE (2014)*.

[7] Vassallo B.G., R.T. Paitz, **V.J. Fasanello**, M.F. Haussmann. Glucocorticoid metabolism in the *in ovo* environment modulates exposure to maternal corticosterone in Japanese quail embryos (*Coturnix japonica*). *Biology Letters (2014)*.

**Abstracts, full-text PDFs, and publisher links available at VinceFasanello.com/publications*