Casey Ghilardi

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Data professional with 3+ years of experience and dynamic skills spanning software development, quantitative analysis, and statistics. Open source contributor with presentation experience and ability to define and enhance data capabilities.

EXPERIENCE

PotlatchDeltic - Spokane, WA   Nov 2016 - Aug 2019

PotlatchDeltic (NASDAQ: PCH) is a timber real estate investment trust (REIT).

Forest Biometrics Analyst (Dec 2018 - Aug 2019)

Promoted as first Biometrics Analyst responsible for ensuring statistical integrity, establishing and improving capabilities, optimizing efficiency/cost to bring outsourced work in-house, documenting procedures, and automating processes.

- Directed a two-month inventory data collection campaign (2500 plots, 4000 acres). Defined project tasks and deliverables, managed workflows for project teams and contractors, and enforced several levels of internal data governance processes and standards.
- Wrote data visualization scripts to track contractor performance and data integrity using R and ggplot.
- Presented project briefs to key stakeholders and as a part of an internal journal club to share research findings on relevant innovative technologies and processes.
- Evaluated field data collection processes to determine need and ROI of removing/adding measurements.
- Mentored inventory analysts on internal processes and analytical methodologies.
- Reviewed data dictionaries for a migration and triaged feedback from IT and contract teams to ensure sustained data quality.
- Served as subject matter expert during acquisition of multiple TBs of LiDAR data to identify tools, ensure proper hardware for increased processing needs, and create a proof of concept on a smaller dataset.

Forest Inventory Analyst (Nov 2016 - Dec 2018)

- Improved existing internal sampling protocols and suggested improvements that reduced the number of field plot measures while maintaining statistical accuracy targets, leading to ~$200k in cost savings.
- Validated large scale inventory during company merger using publicly available federal plot data source.
- Employed cluster analysis to segment multi-spectral satellite data (remote sensing) into land classes.
- Analyzed vegetation patterns using Landsat and Sentinel imagery with QGIS and Google Earth Engine.
- Examined the main effects of overall tree growth using ANOVA and time-series analysis.
- Developed pre-processing scripts for point cloud/vector/raster data sets in GDAL and OGR command line functions.
- Extracted and manipulated data from consultant and internal databases using Python and R to drive insights into forest inventory and growth modeling efforts.
- Automated the simulation process for generating parameters for growth and yield optimization modeling in Python.
- Quantified probability of adverse management events under varied intervention strategies using logistic regression.

PROJECTS, OPEN SOURCE CONTRIBUTION, & SPEAKING

- **ForestBiometrics.jl** (GitHub) Authored a Julia package for various forest mensuration and biometrics.
- **Inventory Error ML Solutions** (GitHub) Project contributor. Explore ML solutions to common forest data issues.
- **FIAPI** (GitHub) Contributor to a Python library that makes interacting with FIA data easier.
- **Connective C++** (GitHub) Contribute to multiple C++ projects with the Connective C++ team.
- Speaking engagements: Introduction to LiDAR, Inland Northwest R Users Group, Open Source Tooling & Development in Forestry, Intermountain Forestry Cooperative, Introduction to QGIS, Spokane PyData.

SKILLS

Python, R, Julia, Microsoft SQL Server, Access, PostgreSQL, SQLite, Linux, Git, ESRI ArcGIS, QGIS, SAGA, GRASS, Google Earth, GDAL, OGR, Sampling Design, Regression, ANOVA, Time-Series, Clustering, Random Forest, Variable Selection

EDUCATION

M.S. Natural Resources - Forestry, University of Missouri

B.S. Environmental Science, (Magna Cum Laude, Program Distinction), Stockton University