NOAH S. PETTINATO

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EDUCATION

OREGON STATE UNIVERSITY, Department of Mathematics, Corvallis, OR **June 2025**

B.S. in Applied and Computational Mathematics; Minor in Computer Science

***Relevant Coursework**: Advanced Calculus I & II, Linear Algebra I & II, Probability, Numerical Analysis, Numerical Partial Differential Equations, Applied Ordinary Differential Equations, Mathematical Modeling, Matrix Algebra, Data Structures, Algorithms, Web Development, Discrete Mathematics*

TECHNOLOGY

Programming and Scripting Languages: Python, MATLAB, SQL, Java, JavaScript, HTML, R, C#

Data and Statistical Tools: NumPy, Pandas, Tableau, Power BI, Microsoft Excel (formulas, macros), Crystal Reports

Development and Collaboration Tools: VS Code, GitHub, Git, LaTeX, Salesforce, Playwright

Technical Skills: ETL pipelines, web scraping, AWS, workflow automation, data visualization, model tuning, runtime benchmarking, dashboard creation, AI training and research, dataset curation, solution validation

PROFESSIONAL EXPERIENCE

WAGNER ENGINEERING, Data Operations Intern, (Remote Part-Time) **Oct 2025 – Present**

- Automate extraction, cleaning, and structuring of Texas SmartBuy procurement data with Python, Playwright, and pandas. Develop cloud ETL pipelines integrating web scraping and data transformation for workflow automation.

MERCOR, Mathematics Expert, (Remote Part-Time, Contract) **Sept 2025 – Present**

- AI training and research: Curate and author advanced undergraduate and master's-level mathematics problems, evaluate and refine AI-generated solutions for rigor and clarity, and provide subject matter expertise to strengthen datasets powering next-generation large language models.

OREGON STATE UNIVERSITY, Undergraduate Research Assistant, Mathematics Dept., Corvallis, OR **April – July 2025**

- Developed PDE solvers in MATLAB, including Newton solvers with analytic Jacobians, adaptive damping, and finite difference methods for steady-state and time-dependent nonlinear problems with flux-based Robin boundary conditions.
- Modeled radiative heat transfer with stepwise parameter updates, iterative convergence tracking, and evaluation of solver accuracy vs. convergence tradeoffs.
- Applied data mining to identify patterns in simulation outputs and documented algorithms, assumptions, and code structure for reuse.

PETTINATO & ASSOCIATES, Data and Research Intern (Seasonal), Sacramento, CA **June 2019 – July 2025**

- Extracted, transformed, and loaded claim data in SQL Server using multi-table joins and relational queries to integrate multi-source datasets.
- Generated Crystal Reports and SQL queries to streamline workflows, ensure compliance, and improve reporting; maintained accurate records by verifying data, correcting address mismatches via public databases, and prioritizing high-value claims for efficiency.

CLASS PROJECTS

NUMERICAL SOLVER FOR HEAT EQUATION, Numerical PDEs **Spring 2025**

Developed MATLAB solver for transient heat conduction using finite difference methods. Structured code with custom classes and optimized data containers for efficient, modular computation. Validated accuracy through test case comparisons and analyzed thermal diffusion to interpret time-evolving system behavior.

ALGORITHMIC SOLVER SUITE, Analysis of Algorithms **Winter 2024**

Built Python solutions for optimization problems using recursive, greedy, dynamic programming, and introductory machine learning (e.g., regression). Assessed performance tradeoffs via time complexity and runtime benchmarking. Applied insights to select algorithms optimized for scalability, efficiency, and interpretability in data-driven contexts.

INDEPENDENT PROJECTS

AAPL STOCK FORECASTING WITH ARIMA **Spring 2025**

Forecasted AAPL stock prices using Python and ARIMA on 7 years of historical financial market data, tuning models via AIC/BIC and residual diagnostics. Compared forecasts to actual prices and analyzed key statistics (mean, median, mode) for accuracy. Built interactive dashboards in Tableau, Power BI, and Excel with automated macros and preprocessing.

MATE INTERNATIONAL ROV COMPETITION **2015 – 2016**

Led development of underwater ROV placing 2nd internationally out of 30+ teams by integrating real-time sensor-actuator feedback with custom control systems. Directed testing, documented failures, and refined performance using reliability metrics and ROI analysis. Coordinated technical sub-team to manage milestones and deployment logistics.