Darren Lund

Forward Deployed Engineer

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Forward deployed engineer with an applied mathematics background and about four years of professional experience. Works alongside stakeholders in ambiguous problem spaces, ships internal tools and production services, and uses AI-assisted development to move from requirements to working software. Experience across cloud infrastructure, CI/CD, and applied machine learning.

Professional Experience

IT Specialist (Senior Developer)

Mar. 2026 – Present

US Treasury Dept. | Remote

Senior developer on a 4–10 person team, specializing in internal tools, workflow automation, cloud infrastructure, and end-to-end product delivery.

- Designed and ran a semi-automated data collection and transformation workflow spanning 10 teams, 341 data sets, and more than 1M records.
- Built and maintained CI/CD pipelines and cloud infrastructure, including Terraform-managed AWS resources and ECS-based deployments.
- Led and participated in requirements discovery and stakeholder collaboration in ambiguous problem spaces, identifying workflow needs, project priorities, and practical implementation paths.
- Designed and coordinated DNS configurations supporting application functionality, including MX, SPF, DKIM, and CNAME records.
- Diagnosed and resolved application, infrastructure, CI/CD, deployment, and network issues across development and production environments.
- Co-owned product development from initial concept through implementation, validation, delivery, and ongoing improvement.

- Build services and applications in Go, Vue, and Terraform HCL, containerized with Docker and deployed on AWS.
- Applied AI-first development (Codex) to navigate requirements, debug issues, iterate rapidly on ideas, and quickly pick up new languages and techniques, accelerating team delivery.

Challenger

June 2025 – Aug. 2025

Gauntlet AI | Austin, TX

- Designed and built 10 projects in an intensive program (80–100 hrs/week) using AI tools and AI-first development processes, including **Math Invaders** , **CritChat** , **Campaign Composer** , **Glyph** , **Echo Sigil** , **Knowledge Curator** , and **Spool** .

Consultant

May 2023 – May 2025

Torana AI | Remote

- Advised an early-stage startup on the design of education metrics for a new learning management system (LMS) and social learning platform.
- Consulted on mathematical modeling and AI approaches for measuring student learning and engagement (design and strategy only, no implementation).

Software and Machine Learning Engineer

Nov. 2020 – Feb. 2023

Echo Mind AI | Remote

- Developed a data collection algorithm in Python, OpenCV, and Linux that gathered business-critical data for a health-tech startup's proof of concept.
- Designed and built a proof-of-concept app and presentations in Java, Android Studio, XML, and Jupyter Notebooks to show product and business feasibility in sales and investor pitches.
- Engineered backend and frontend features and unit tests in Python, Django, ReportLab, HTML, and CSS, following Agile, for a telesonography ultrasound scan submission portal serving 10 major clients.
- Caught and corrected major design and data architecture errors by rethinking backend variables and go-to-market strategy, saving about 12 weeks of development time.

- Principal Investigator for an NSF SBIR Phase I grant (Aug. 2022 – Feb. 2023). Led research into which acoustic measurements were and were not useful for the company's ultrasound technique, and built an ML model generator (Python, scikit-learn, TensorFlow, OpenCV, Jupyter) that rapidly creates convolutional neural networks (CNNs) for research, evaluation, and business-critical analysis.

Machine Learning Engineer

Aug. 2020 – Mar. 2021

Messner Reeves LLP | Remote

- Analyzed more than 6,000 billing entries with Python, Pandas, and Jupyter to find and correct key billing mistakes, which led to adjustments.
- Developed an XGBoost and NLP model in Python that predicted adjusted bills over a quarter.

Graduate Teaching Assistant

June 2019 – April 2021

BYU Math Dept. | Provo, UT

- Taught calculus to 3 classrooms of about 30 students twice a week, answering targeted questions and giving personalized feedback to reinforce core concepts.
- Taught with online math software, including WebAssign and Derivita.
- Graded tests and homework for ACME, Calculus, and Cryptography courses, giving feedback that guided and measured student understanding.
- Held office hours and individual meetings, giving students ample chances to ask questions and get feedback.
- Created personalized analogies for commonly misunderstood concepts by drawing on students' interests and experiences, boosting confidence and understanding.

Math Tutor

Sept. 2015 – April 2021

BYU Math Dept. | Provo, UT

- Tutored college students in differential equations, linear algebra, single and multivariable calculus, and proofs by identifying misunderstandings and giving personalized instruction.
- Strengthened co-workers' teaching ability by presenting common student misunderstandings, with proven explanations, at weekly trainings.

Education

Master of Science, Applied Mathematics

April 2021

Brigham Young University

Thesis: "Fourier Decompositions of Graphs with Symmetries and Equitable Partitions," published in Linear Algebra and its Applications, Vol. 627, pp. 199–226 (Oct. 2021). DOI: 10.1016/j.laa.2021.05.019

Bachelor of Science, Mathematics

2019

Brigham Young University

Emphasis in Applied and Computational Mathematics (ACME); concentration in Computer Science

Publications

Fourier Decompositions of Graphs with Symmetries and Equitable Partitions
Linear Algebra and its Applications 627 (2021): 199–226
DOI: 10.1016/j.laa.2021.05.019

Using Survey Data and Mathematical Modeling to Prioritize Water Interventions in Developing Countries
Water Resources Management 35(2) (2021): 745–756
DOI: 10.1007/s11269-020-02761-8

Technical Skills

Languages

Python · Go · Terraform HCL · Vue · TypeScript · Java · C++ · C · SQL · MATLAB · HTML/CSS · XML · Swift · Dart/Flutter

Cloud and DevOps

AWS (ECS) Terraform CI/CD pipelines Docker Linux Git DNS (MX, SPF, DKIM, CNAME) Firebase

ML and AI

scikit-learn TensorFlow XGBoost NLP OpenCV CNNs computer vision RAG LangGraph AI-first development agentic coding tools (Codex)

Data

Pandas Jupyter PostgreSQL SQL data collection and transformation workflows

Frameworks and Platforms

Django ReportLab Flutter Firebase Android Studio Godot Plone

Practices

Agile rapid iteration requirements discovery stakeholder collaboration product ownership

Project Work

Optimizing Water Interventions | Mathematics Researcher

May 2017 – May 2018

Published paper

- Used survey data to find the best location for a water intervention in developing countries.
- Engineered and cleaned data from 3 sources in Python and Jupyter Notebooks, enabling the core model and computations.
- Wrote, tested, and debugged Python programs that identify the best water intervention from the data.
- Published as "Using Survey Data and Mathematical Modeling to Prioritize Water Interventions in Developing Countries," Water Resources Management, Vol. 35, Issue 2, pp. 745–756 (2021). DOI: 10.1007/s11269-020-02761-8

Wordle Assistant Tool | Solo Developer

Dec. 2020

- Built a Python command-line program that uses statistical probabilities to pick the most probable word in Wordle.

Leadership + Awards

Principal Investigator, NSF SBIR Phase I Grant, Echo Mind AI (EMAI) | Aug. 2022 – Feb. 2023

CRLA Certified Tutor, BYU Math Dept. | Dec. 2016