Dursun Dashdamirov

PhD researcher building machine learning and computational methods for energy systems

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Education

- **The University of Texas at Austin** — Austin, TX, USA
  PhD Petroleum Engineering; CGPA: 3.8 — *Aug. 2025 - Present*
  Courses: Subsurface ML, HPC for Engineers, Advanced Petrophysics

- **George Washington University** — Washington DC, USA
  MSc in Computer Science; CGPA: 3.9 — *Aug. 2023 - May 2025*
  Courses: Artificial Intelligence, Cloud Computing, Design & Analysis of Algorithms
  Thesis: Regression on Interatomic Descriptor Data: Direct Solution Strategies for Linear Regression in CPU and Memory-Constrained Environments

- **Baku Higher Oil School** — Baku, Azerbaijan
  BSc Petroleum Engineering; CGPA: 3.4 — *Sep. 2018 - June 2023*
  Courses: Geoscience, Formation Evaluation, Reservoir Flow Simulation
  Thesis: Well Placement and Control Optimization with Numerical Optimization Algorithms

Experience

- **Elk Range Royalties** — Dallas, TX
  Software Engineer Intern — *May 2026 - Aug. 2026*
  - **Designed** a cron-scheduled Django reporting pipeline that reconciles monthly revenue against the reserve reports across tens of millions of rows and pushes a summary message and Excel file into Microsoft Teams.
  - **Integrated** LLM agents into a production app to turn legal descriptions into mapped boundaries, cutting each parcel out of a national survey grid and reducing per-parcel processing from three minutes of manual drawing to three seconds.

- **BP** — Baku, Azerbaijan
  Reservoir Engineer — *Sep. 2023 - Aug. 2025*
  - **Modeled** subsurface and production-system scenarios in the Petex suite to plan and rank well targets, integrating GAP with Python to quantify how pressure differentials drive vertical fluid allocation.
  - **Developed** a statistical Python tool on HPC servers to post-process ensemble simulation output and perform Monte Carlo simulations on production profiles. The tool provides controls for project and well delivery schedules, enabling sensitivity analysis in minutes instead of days.
  - **Mentored** an intern developing an ML model to correct three-phase relative permeability predictions using a log-to-PTA scaling factor.
  - **Ambassador** for Generative AI adoption and integration into workflows.

  Reservoir Engineer Intern — *June 2022 - Feb. 2023*
  - **Analyzed** tracer data to assess sweep efficiency, influencing drilling decisions valued at $4M.
  - **Estimated** surfactant flood opportunities for a mature brownfield, identifying potential for recovery through advanced chemical EOR techniques.

- **ei-Link Research and Development Center** — Baku, Azerbaijan
  Research Assistant — *Mar. 2021 - June 2022*
  - **Comprehensive Literature Review** of expert systems and pattern recognition algorithms.
  - **Architected and developed** the backend for a web application toolkit featuring extensive reservoir engineering calculations, visualization capabilities, and a built-in data mining module.
  - **Boosted performance** of the app by 220% with integration of multithreading and caching mechanisms.

Teaching Experience

- **Teaching Assistant at UT Austin.** Facilitating office hours for Reservoir Engineering (PGE 323M) class, guiding students through commercial simulator projects and coding challenges, *Aug. 2026 – Present.*
- **Machine Learning Instructor.** Lectured on Statistics, Feature Engineering, and ML algorithms in collaboration with non-profit organizations such as BHOS SPE and SEG Student Chapters, *Feb. 2023 - Apr. 2026.*
- **Academic Content Creator.** Translated and edited Physics content at Khan Academy to support free and accessible education, *Jul. 2020 - Jan. 2021.*

Research

- **Dashdamirov D., Merzoug A., Foster J. T., and Pyrcz M. J.,** "CGANMatch: Conditional Generative Adversarial Networks for History Matching of Scenario-Based Ensemble Subsurface Models", *Preprint*, 2026.
- **Dashdamirov D., Belivanis D., Zhao P., Stewart J., Foster J. T., and Pyrcz M. J.,** "Where Will They Drill? Random Survival Forests for Spatially Dependent Event Prediction", *Geoenergy Science and Engineering*, Preprint
- **Dashdamirov D.,** "Comparative Analysis: Violence Recognition from Videos using Computer Vision," *2024 IEEE 18th International Conference on Application of Information and Communication Technologies (AICT)*, Turin, Italy, 2024, pp. 1–6, doi: 10.1109/AICT61888.2024.10740414.

Projects

- **SlugGuard – Expert System for AI-Driven Slugging Detection in Wells** A framework for detecting slugging in wells. The framework includes the end-to-end architecture of the system, including mimicking live sensor data, a database to store the features and labels, a rule-based decision agent, and a notification system.
  Tech: Python, Experta, SQL
- **Overfit Potential of ANNs and its diagnosis** Demonstrated the susceptibility of neural networks to overfitting and designed multiple diagnostic and model-checking strategies to evaluate true generalization beyond conventional validation metrics.
  Tech: Python, PyTorch, TensorFlow, OpenCV
- **ePattern** A web-based customizable visualization tool developed at ei-Link R&D. The app enables engineers to analyze data beyond standard visualization, evaluate reservoir health across areas, and perform detailed diagnostics of key parameters.
  Tech: C#, SQL, Angular, REST APIs, Statistics

Honors and Awards

- Awarded a fellowship by the Cockrell School of Engineering and the UT Austin Graduate School in recognition of academic achievements and research potential
- Awarded a Government Scholarship for a dual-degree MSc in Computer Science and Data Analytics at GW
- Winner of "Play to win 2024" award at BP for innovative projects and adding efficiency to workflows
- Graduated with honors from a Machine Learning traineeship program offered by ABB Innovation Center
- Received a Government Scholarship in recognition of academic achievement during 2019–2023
- Ranked in the top 3% of Azerbaijani university entrants based on admission exam scores

Skills

- **Languages:** Python, C#, R, Julia, SQL, Bash
- **Frameworks:** TensorFlow, PyTorch, Scikit-learn, OpenCV, openpyxl, Django, Dask
- **Tools & Platforms:** CMG, Eclipse, OPM, IPM Suite, Spotfire, Power BI, Docker, Git
- **Soft Skills:** Active listening, decision-making, teamwork, agility