# Rufat Asadli

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## Education

- **ETH Zurich [5.22/6.00]** *2023-Present*
  *MSc in Statistics*
- **Charles University [1.00/1.14]** *2019-2022*
  *BSc in Economics and Finance*
  - Recipient of **Merit Stipend for Outstanding Academic Achievements** for 2 years awarded to **top 10%** students across all institutes.

## Experience

- **Rycolab, ETH Zurich** *Apr'24 - Present*
  *Student Researcher, Supervised by Prof. Dr. Ryan Cotterell and Dr. Alex Warstadt* Zurich, Switzerland
  - Building a **text-only model** to simulate communicative feedback by having a speaker to summarize privileged information for a listener, optimizing the listener's **question-answering performance** via PPO.
  - Performed Bayesian hyperparameter search with GPT-2 as speaker model and T5 as listener model, to test for enhanced **summary coherence and grammaticality** for increased listener comprehension.
- **Kapital Bank OJSC** *Oct'22 - Present*
  *Leading Data Scientist* Baku, Azerbaijan
  - Developed a **prediction pipeline of daily loan sales** with synthetic feature-engineering using GRU networks and constrained optimization of ensemble learning predictions.
  - Simulated sales potentials for 56 branches using Gaussian Processes and Bayesian Optimization in order to **identify over-/underperforming branches** for targeted insights.
- **PASHA Insurance OJSC** *Apr'21 - Aug'21*
  *Data Science Intern* Baku, Azerbaijan
  - Developed a simulation of **optimal full-time equivalent (FTE)** allocation using tree-based methods.
  - Prepared a draft of **contingency plan for high-risk stress cases** via scenario-based simulations.

## Projects

- **Does Catastrophic Forgetting Happen in Tiny Subspaces? [Code] [Report]** *Fall'24*
  *For Deep Learning, ETH Zürich*
  - Investigated how the **loss Hessian subspace structure impacts catastrophic forgetting in continual learning**, demonstrating through experiments and ablation studies on benchmark datasets that task-specific learning and forgetting occur primarily in subspaces associated with small eigenvalues.
- **TARMAC: Conversational AI Dispatcher** *Jul'24 - Dec'24*
  *Startup Project*
  - Contributed to the development of a **logistics planning application** for truck load dispatch by building named-entity recognition based SQLChain pipeline on top of Llama 3 models to generate conditional SQL queries from user prompts and present truck data on the chat interface.
- **Project Caliber [Code]** *2022*
  *AI and Data Science Center of Excellence (CoE), Kapital Bank OJSC*
  - Developed a **high-frequency probabilistic prediction model** using a CatBoost regressor with a rigorous feature-engineering pipeline (e.g., cyclical transforms and lags), and optimized initial batch predictions through MCMC simulation of the training error distribution.

## Skills

- **Programming Languages:** Python, HTML, CSS
- **Packages and Softwares:** PyTorch, TensorFlow, Keras, Transformers, NLTK, LangChain, NumPy, Selenium, Git, Bash, SQL, Docker, LaTeX

## Awards and Achievements

- Recipient of State Program scholarship to study Master's degree abroad (Azerbaijan) *2023*
- TensorFlow Developer Certificate *2022*