Denis Kazakov

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EXPERIENCE

Altana AI – **NLP Data Scientist** New York, NY | July 2022 – Jan 2023

- Leading AI implementation and strategy. Identifying and addressing key team needs. Mentoring a junior data scientist.
- Led model development and serialization, worked with the engineering team to ship critical customer-facing models.
- Introduced best ML practices to the company: dashboard reporting to enable QA analysts, reproducible pipelines for ML model artifact generation, benchmarking performance in Mlflow, model explainability, scalable model training (1B+ points).

Bark – **Senior Data Scientist** New York, NY | Jan 2021 – July 2022

- Built customer retention model. Forecast is consumed by business planning and targeted marketing campaigns.
- (NLP) Built models for comment tagging. Used by other ML models and is helping the Creative team understand customers.
- One-off projects: price elasticity analysis/testing, shipment optimization analysis.
- Extensive experience in A/B testing.
- Developing a new recommendation engine for add-ons at Bark. Robust and containerized deployment.
- Built a model explainability tool (SHAP and CausalML) to explain models to stakeholders, and surface insights.

Columbia University, Brown Institute – **Machine Learning Engineer** Freelance | Nov 2019 – Dec 2020

- Built data tools to help newsrooms better understand their readers and content. Modeled user state from site interactions.
- Studied the impact of differential privacy on the US Census accuracy. Reconstructed US census at block level for a research group.

Amazon, Alexa AI – **NLU Applied Scientist** Boston, MA | Oct 2018 – Oct 2019

- Fixed accuracy gap reporting, improved modeling change impact assessment through evaluation metric debiasing methodology. Worked with science and business teams to elicit requirements. Presented up to VP level.
- Researched active learning prioritization methods to improve data annotation efficiency by 23%, saving millions in annotation budget.
- Researched and developed a graph based semi supervised learning framework to resolve Alexa defective utterances.
- Studied Alexa usage drift on 3 billion user requests for an internal report.

Michael Mozer's ML Lab – **Research Assistant** Boulder, CO | Apr 2016 – Jul 2018

- Improved recurrent neural networks (RNN) convergence on well-formed hidden representations by using attractor dynamics.
- Helped design a RNN cell architecture for time series processing by using Hawkes point process dynamics to represent cell memory.

SKILLS

- **Development**: Agile, Jira, CI/CD, Docker, Linux, git, Flask, Airflow, FastAPI.
- **Data Science/ML**: LangChain, LLM, GPT, deep learning, NLP, research design, Keras, Spark, data visualization, AWS, A/B testing, SQL/NoSQL, spaCy, NetworkX, SHAP, CausalML, model serialization.
- **Product Ownership**: requirements elicitation, market/customer research, lean startup, solution/system design, UML
- **Languages**: Python (*preferred*)
- **Language fluency**: English, Russian

INDIE HACKING

Repo.dog Apr 2023 - current
GPT bot augmented with codebase retrieval. LangChain's Retriever pattern.

Scope AI Mar 2023 - current
Building LLM Ops tools to help companies launch AI-driven experiences.

VidTag Feb 2023 - current
Automated person re-identification in video editing. YOLO-CNN, unsupervised.

Design Reading Group Dec 2019 – Aug 2020
Started a reading group to discuss design of things and systems.

PerfectFit ($1^{st}/30$ **teams at NVC9: IT track**) – entrepreneurship Dec 2016 – Apr 2017
Designed a solution that addressed a $16.9 billion online apparel sales return cost. Interviewed shoppers, collaborated with store managers, designed an ML prototype to reduce size and fit uncertainty in online shopping.

EDUCATION & PUBLICATIONS

University of Colorado, Boulder

MS in Applied Math | GPA: 3.8

- **Thesis**(advised by M. Mozer): *State Denoised Recurrent Neural Networks.* arXiv:1805.08394
- A. Lamb, J. Binas, A. Goyal, S. Subramanian, I. Mitliagkas, D. Kazakov, Y. Bengio, M. Mozer. *State-Reification Networks: Improving Generalization by Modeling the Distribution of Hidden Representations* (ICML'19)
- M. Mozer, D. Kazakov. *Construction of Actionable Representations.* (invited talk, NIPS'17: Cognitively Informed AI workshop)
- **Teaching Assistant** for: CSCI 5922 (Neural Networks & Deep Learning), APPM 1350 (Calculus 1)

BS in Applied Math | **BS in Computer Science** | Engineering Leadership Certificate | GPA: 3.9

- **Thesis**(advised by M. Mozer): *Incorporating Hawkes Process Memory into Neural Network Models.* arXiv:1710.04110
- M. Mozer, D. Kazakov, R. Lindsey. *Neural Hawkes Process Memory.* (invited talk, NIPS'16: RNN Symposium workshop)