Denis Kazakov

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EXPERIENCE

Columbia Journalism School – **Data Science Consultant** New York, NY; Denver, CO | Nov 2019 – current
- Studying the impact of differential privacy on the US Census accuracy (newscounts.org).
- Designed and implemented a scalable census reconstruction pipeline following Census Bureau's recommendation.

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 define requirements. Presented up to VP level.
- Researched active learning prioritization methods to improve data annotation efficiency by 23%.
- Researched and developed a graph based semi supervised learning framework to resolve Alexa defective utterances.

Michael Mozer's ML Lab – **Research Assistant** Boulder, CO | Apr 2016 – Jul 2018
- Designed a recurrent neural network (RNN) cell architecture for working with time series by incorporating self-excitatory, decaying point process (Hawkes process) to represent hidden unit memory.
- Used attractor dynamics to help recurrent networks converge on well-formed hidden representations.

hackNY Fellow @ Chartbeat – **Product & Data Science Intern** New York, NY | Summer 2017
- Developed a latent representation-based article neighbor search to refine benchmarks and reports delivered to clients.
- Identified a need for and designed a client action tracker required to map client actions to resulting readership effects.
- Reduced HTML page text extractor pipeline failure rate by 80%.

Uber – **Machine Learning Intern** Louisville, CO | Summer 2016
- Developed object positioning in the 3D space using deep learning + camera sightings.
- Started an initiative to pre-train models on internal datasets after researching transfer learning.

Standard & Poor's – **Product Management & Software Architecture Intern** New York, NY | Summer 2015
- Interviewed analysts and identified overreliance on spreadsheets in existing data analysis workflows.
- Designed and built a prototype to analyze financial data visually and statistically.

ioSemantics – **Software Engineering Intern** Golden, CO | Summer 2014
- Developed a Java platform for wrapping a COBOL parser using object oriented design.

Elizabeth Bradley's Lab – **Research Assistant** Boulder, CO | Oct 2013 – May 2014
- Helped to show that CPUs exhibit chaotic behavior by using delayed coordinate embedding on computer activity traces.

PROJECTS

PerfectFit (**1st/ 30 teams at NVC9: IT track**) – entrepreneurship competition Dec 2016 – Apr 2017
Presented a solution that addressed a $16.9 billion apparel return cost that is lost by retailers from online sales. Interviewed hundreds of shoppers, collaborated with store managers to identify pain points. Researched the market, investigated competition, and designed an ML based prototype to reduce size and fit uncertainty in online shopping.

Traffic Flow Modeling (**top 7% of 8000 papers** at Mathematical Contest in Modeling) – research study Feb 2017
A modeling & study of the effects that self-driving cars will cause and what policies would be needed.

Customer Insights – product prototype Oct 2015 – Feb 2016
Market research tool to identify discussion points about an entity (e.g. product, brand name) of interest through a deep learning based text fragments clustering algorithm.

Howard (participating team at New Venture Challenge 7) – entrepreneurship competition Oct 2014 – Apr 2015
A web platform to connect private R&D sector's problems with relevant academic researchers.

EDUCATION + PUBLICATIONS

University of Colorado, Boulder

MS in Applied Math | GPA: 3.8 2017 – 2018
- 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)*
- **Thesis** (advised by M. Mozer): *State Denoised Recurrent Neural Networks.* arXiv:1805.08394
- Talk at NIPS'17 workshop (Cognitively Informed AI): M. Mozer, D. Kazakov. *Construction of Actionable Representations.*
- T.A. for CSCI 5922: Neural Networks & Deep Learning | T.A. for APPM 1350: Calculus 1

BS in Applied Math | **BS in Computer Science** | Engineering Leadership Certificate | GPA: 3.9 2013 – 2017
- **Thesis** (advised by M. Mozer): *Incorporating Hawkes Process Memory into Neural Network Models.*
- M. Mozer, D. Kazakov, R. Lindsey. *Discrete Event, Continuous Time RNNs.* arXiv:1710.04110
- Talk at NIPS'16 workshop (RNN Symposium): M. Mozer, D. Kazakov, R. Lindsey. *Neural Hawkes Process Memory.*