Yair Schiff

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RESEARCH INTERESTS

AI for Discovery, AI for Social Good, Generative modeling, Optimal transport

WORK EXPERINCE

IBM WATSON MACHINE LEARNING, New York, NY — Aug 2019 - Present

Cognitive Software Developer

- Contribute to continuous development and testing of Watson Machine Learning products
- Facilitate weekly Cloud releases, Cloud Pak for Data platform releases, and the launch of AutoAI One Button Machine, AutoAI Time Series, AutoAI Notebooks, and Federated Learning products
- Published 4 medium.com articles about Watson Machine Learning product releases
- Received Outstanding Technical Achievement Award for work on the release of AutoAI One Button Machine
- Received CrushIT Team Excellence Award as part of the Watson Machine Learning Training team

Research Contributor to IBM Research AI Challenges — Aug 2019 - Present

- Volunteer to contribute to IBM Research AI challenges, working with the Trusted AI Department
- Member of the first-place winning team in the 2020 VizWiz Grand Challenge: Image Captioning as an Assistive Technology for the Visually Impaired
- Co-author with the Trusted AI team on several publications in the fields of Generative Modeling, Molecular Discovery, Deep Learning Generalization, and AI for Social Good

SIMON-KUCHER AND PARTNERS, New York, NY — Sept 2014 – Aug 2017

Consultant

- Advised global companies spanning various industries – including internet, media, consumer electronic goods, and chemicals – on areas for better revenue capture
- Synthesized large data sets (e.g., 300 million+ client transactions), customer research (surveys & conjoint studies sent to thousands of respondents), and secondary research to create solutions to client needs

EDUCATION

NEW YORK UNIVERSITY – COURANT INSTITUTE OF MATHEMATICAL SCIENCES, New York, NY — May 2019

MS in Computer Science, GPA: 3.97/4.00

- *Relevant Coursework:* Advanced Machine Learning, Artificial Intelligence, Computer Vision, Deep Learning, Graphical Processing Units, Machine Learning, Mathematics of Deep Learning, Predictive Analytics

UNIVERSITY OF PENNSYLVANIA – COLLEGE OF ARTS AND SCIENCES, Philadelphia, PA — May 2014

BA Summa Cum Laude with Distinction in Economics, GPA: 3.93/4.00

- *Academic Honors:* Phi Beta Kappa, Dean's list 2010-2014

RESEARCH AND PUBLICATIONS

PUBLICATIONS

Predicting Deep Neural Network Generalization with Perturbation Response Curves — NeurIPS 2021

***Yair Schiff**, Brian Quanz, Payel Das, Pin-Yu Chen*

Tabular Transformers for Modeling Multivariate Time Series — ICASSP 2021

*Inkit Padhi, **Yair Schiff**, Igor Melnyk, Mattia Rigotti, Youssef Mroueh, Pierre Dognin,*

Jarret Ross, Ravi Nair, Erik Altman

WORKSHOPS

Optimizing Functionals on the Space of Probabilities with Input Convex Neural Networks — NeurIPS Workshop 2021, *Spotlight presentation*
*David Alvarez-Melis, **Yair Schiff**, Youssef Mroueh*

Gi and Pal Scores: Deep Neural Network Generalization Statistics — ICLR Workshop 2021
***Yair Schiff**, Brian Quanz, Payel Das, Pin-Yu Chen*

Characterizing the Latent Space of Molecular Deep Generative Models with Persistent Homology Metrics — NeurIPS Workshop 2020, *Spotlight presentation*
***Yair Schiff**, Vijil Chenthamarakshan, Karthikeyan Natesan Ramamurthy, Payel Das*

Alleviating Noisy Data in Image Captioning with Cooperative Distillation — CVPR Workshop 2020
Pierre Dognin, Igor Melnyk*, Youssef Mroueh*, Inkit Padhi*, Mattia Rigotti*, Jarret Ross*, **Yair Schiff**** (*alphabetical order, equal contribution)

PREPRINTS

Augmenting Molecular Deep Generative Models with Topological Data Analysis Representations — Under review (*equal contribution)
Yair Schiff, Vijil Chenthamarakshan*, Samuel Hoffman*, Karthikeyan Natesan Ramamurthy*, Payel Das**

Image Captioning as an Assistive Technology: Lessons Learned from VizWiz 2020 Challenge — arxiv (*alphabetical order equal contribution)
Pierre Dognin, Igor Melnyk*, Youssef Mroueh*, Inkit Padhi*, Mattia Rigotti*, Jarret Ross*, **Yair Schiff***, Richard Young, Brian Belgodere*

TALKS AND PRESENTATIONS

Topological Data Analysis and Beyond Workshop — NeurIPS 2020

- Presented spotlight poster "Characterizing the Latent Space of Molecular Deep Generative Models" (video)

VizWiz Grand Challenge Workshop — CVPR 2020

- Presented winning submission to VizWiz Grand Challenge (video)
- Presented "Alleviating Noisy Data in Image Captioning with Cooperative Distillation" (video)

OPEN-SOURCE CONTRIBUTIONS

TabFormer: Tabular Transformers for Modeling Multivariate Time Series — Github.com

- Wrote code for training and evaluating GPT-like models on tabular data to generate new, synthetic data that matches the underlying distributions of the real table variables

pytorch-PPUU: Prediction and Policy-learning Under Uncertainty — Github.com

- Added a new dataset on which the self-driving policy could be trained
- Enhanced the self-driving vehicle's policy to enable dynamic lane changes

ONLINE PUBLICATIONS FOR WATSON MACHINE LEARNING PRODUCT LAUNCHES

Unlocking your data's potential with IBM Watson Studio's AutoAI feature engineering on relational data — Medium.com
Yair Schiff

Breaking the Magicians' code with IBM Watson Studio's AutoAI Notebooks — Medium.com
Yair Schiff

Peeking behind the curtain with IBM Watson AutoAI Python Client — Medium.com
Lukasz Cmielowski, ***Yair Schiff****, Przemyslaw Czuba*

Automating the AI Lifecycle with IBM Watson Studio Orchestration Flow — Medium.com
Yair Schiff, *Rafal Bigaj*

Right on time(series): Introducing Watson Studio's AutoAI Time Series — Medium.com
Yair Schiff

PAST PROJECTS

Prediction and Planning Under Uncertainty
Research Assistant in Professor Yann LeCun's lab (under supervision of Dr. Alfredo Canziani)

- Contributed to ongoing research exploring planning under uncertainty in the context of self-driving vehicles
- Incorporated large aerial traffic dataset model training and enhanced vehicle's policy to enable lane changes

SKILLS

- *Programming Languages:* C++, Java, Python
- *Deep Learning Frameworks:* PyTorch, PyTorch Lightning
- *Data Tools:* Excel, Stata, Tableau
- *Foreign Languages:* Fluent in Hebrew