

Yair Schiff

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RESEARCH INTERESTS

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



WORK EXPERIENCE

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
*David Alvarez-Melis, **Yair Schiff**, Youssef Mroueh*

[NeurIPS Workshop 2021](#)
Spotlight presentation

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

[ICLR Workshop 2021](#)

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

[NeurIPS Workshop 2020](#)
Spotlight presentation

Alleviating Noisy Data in Image Captioning with Cooperative Distillation
Pierre Dognin, Igor Melnyk*, Youssef Mroueh*, Inkit Padhi*, Mattia Rigotti*,
Jarret Ross*, **Yair Schiff****

[CVPR Workshop 2020](#)
*(*alphabetical order,
equal contribution)*

PREPRINTS

Augmenting Molecular Deep Generative Models with
Topological Data Analysis Representations
Yair Schiff, Vijil Chenthamarakshan*, Samuel Hoffman*,
Karthikeyan Natesan Ramamurthy*, Payel Das**

[Under review](#)
*(*equal contribution)*

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

[arxiv](#)
*(*alphabetical order
equal contribution)*

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
Yair Schiff

[Medium.com](#)

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
*Lukasz Cmielowski, **Yair Schiff**, Przemyslaw Czuba*

[Medium.com](#)

Automating the AI Lifecycle with IBM Watson Studio Orchestration Flow
Yair Schiff, Rafal Bigaj

[Medium.com](#)

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

[Medium.com](#)

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