Ilya X Valmianski

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Immigration Status: U.S. Citizen

EDUCATION

Ph.D. Physics 2017
University of California, San Diego
B.S. Biophysics 2009
Summa Cum Laude
University of California, San Diego

EXPERTISE

Natural Language Processing
Transformers, recurrent neural networks, n-gram models
Discrete Data Processing
Deep learning with heterogenous data, boosting and other tree models, linear models
Machine Learning in Healthcare
Supervised and unsupervised modeling of clinical progress notes, analysis of discrete EHR data, explainable machine learning model decisions for clinicians

OTHER INTERSTS

Semisupervised learning
Causal inference
Computer vision

LANGUAGES/LIBRARIES

Python	●●●●●
tf.keras	●●●●●
numpy/pandas/sklearn	●●●●●
matplotlib, seaborn	●●●●○
flask/jinja	●●●●○
sqlalchemy	●●●○○
SQL	●●●●○
Matlab	●●●●○
Linux CLI	●●●○○
C/C++	●●○○○

AWARDS AND HONORS

Inamori Fellowship 2014
Inamori Foundation
Awarded for outstanding physical science graduate research

Provost Award of Excellence 2009
Warren College, UC San Diego
Awarded to the top graduating undergraduate student of the Warren College

EXPERIENCE

Kaiser Permanente

Lead Data Architect (Machine Learning) 2019 – Present
- Leading the development of a symptom checker driven by ML models trained on finding diagnoses extracted from ambulatory progress notes.
- Developing models for converting patient free text responses to discrete medical concepts.
- Developing models for clinical decision support by combining patient responses with discrete patient history timeseries.

Data Architect (Machine Learning) 2018 – 2019
- Developed a deep learning model for segmenting contextual structure ("sections") in clinical notes. Model deployed to production doing real time inference on >100M clinical notes per year.
- Developed discrete data HCC diagnoses evidence models (predicting thousands of ICD-10 diagnostic codes). Models deployed to production analyzing KP Medicare and ACA patient populations (>1M patients).
- Developed a deep learning model for simultaneous parsing and sentence chunking of clinical notes.
- Developed boosting ensemble models for in-patient readmission

University of California, San Diego

Postdoctoral Research Fellow 2017
- Image processing and segmentation of magnetic domains in Ni/V_2O_3
- Finite element methods modelling of V_2O_3 nanodevices

Graduate Research Assistant (Physics) 2011 – 2017
- Growth and characterization of correlated metal oxides
- Statistical analysis and simulation of X-ray and electrical transport data
- Monte Carlo simulations of phase coexistence in vanadium oxides
- Growth and characterization of organic semiconductor devices

Graduate Research Assistant (Neuroscience) 2009 – 2011
- Developed a MATLAB software package to identify neurons in real time and construct a near-optimal path for laser scanning in live two-photon imaging experiments on rat neo-cortex
- Developed a 3D reconstruction of rat brain from reconciled 2D brain atlas

SELECTED PUBLICATIONS

I Valmianski, *et al* "Evaluating robustness of language models for chief complaint extraction from patient-generated text" *NeurIPS 2019 ML4H Workshop* https://arxiv.org/abs/1911.06915
I Valmianski, *et al* "Microscopy image segmentation tool: robust image data analysis", *Rev. of Sci. Inst.* 85 (3) pp 33701 (2014)
I Valmianski, *et al* "Automatic identification of fluorescently labeled brain cells for rapid functional imaging", *J. Neurophys* 104 (3) pp1803-1811 (2010)

Overall metrics: 26 publications, 305 citations, h-index: 10
Google Scholar: https://scholar.google.com/citations?user=HsOak4YAAAAJ

Multilingual fluency: English, Russian
Hobbies: hiking, blues dancing