Dr. Kelsey Scharnhorst

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DATA SCIENCE & MACHINE LEARNING EXPERIENCE

Pandas | NumPy | Scikit-Learn | Data Visualization | Time-series Analysis | Natural Language Processing (NLP) | TensorFlow | Deep Learning | Random Forest | K-means | Support Vector Machine (SVM) | Naive Bayes | Neural Networks (CNN, RNN, LSTM) | Unsupervised Learning (Clustering, PCA) | Web Scraping | Model Training

INDUSTRY KNOWLEDGE

Technical Consulting | Real-Time Video Style Transfer | Statistical Analysis | Data Visualization | Training Development | Creative Technology | Intellectual Property (IP) Landscaping

EXPERIENCE

Keon Research, Seattle, WA - *Consulting Scientist*
JUNE 2020 - APRIL 2021

- Utilized k-means clustering and statistical analysis to classify experimental measurements of different materials for a key Fortune 100 client.

Yu and Co (Digital Innovation Studio), Los Angeles, CA - *Data Scientist*
OCTOBER 2018 - DECEMBER 2019

- Achieved real-time video style transfer using a 9-layer CNN, TensorFlow, and GPU computing. Trained models on 10 local artist styles, using a 350K image database.

UCLA, Los Angeles, CA - *Doctoral Student Researcher*
JANUARY 2014 - JUNE 2019

- Fabricated brain inspired microchips and used regression, clustering, and data visualization to investigate spatial/temporal correlations and signal transformations.
- Analyzed 10GB data sets to characterize stem cell beat frequency, amplitude, and spatial propagation of waves through time.

EDUCATION

University of California, Los Angeles CA | PhD Chemistry | SEPT 2013 - DEC 2018
Dissertation: "Beyond Moore neuromorphic chips: harnessing complexity in atomic switch networks for alternative computing" Advisor: Dr. James Gimzewski

Western Washington University, Bellingham WA | BS Chemistry | DEC 2010 - JUN 2013

TALKS

- TEDx Talk, "Say Yes to A.I.," 2018 (https://www.youtube.com/watch?v=8hm15WRbVLA)
- Mind & Machine Podcast/YouTube-Channel, "Neuromorphic Computing, A.I. Chips Emulating the Brain," 2018 (https://www.youtube.com/watch?v=NM7hdDZN2YI)

SELECTED PUBLICATIONS

- *K. Scharnhorst*, J. Carbajal, R. Aguilera, E. Sandouk, M. Aono, A. Stieg, J. Gimzewski, "Atomic switch networks as complex adaptive systems," Japanese Journal of Applied Physics, Volume 57, 2018
- *K. Scharnhorst*, W. Woods, C. Teuscher, A. Stieg, J. Gimzewski, "Non-temporal logic performance of an atomic switch network," IEEE/ACM International Symposium on Nanoscale Architectures, 2017
- Huanqi, Z., *K. Scharnhorst*, A.Stieg, J. Gimzewski, I. Minami, N. Nakatsuji, H. Nakano, A. Nakano, "Two-dimensional electrophysiological characterization of human pluripotent stem cells derived cardiomyocyte system," Nature Scientific Reports, 2017