Cara Van Uden

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Education	**Dartmouth College, Hanover, NH**	*Sept 2015 - June 2019*

BA in Computer Science & BA in Cognitive Science
Thesis (high honors): Residual and recurrent CNNs learn brain-like visual representations (**PyTorch, Python**)
GPA: 3.87/4.00
Courses: Algorithms for Data Science (graduate course with citation for academic excellence), Computational Neuroscience (graduate course), Applications of Data Science, Machine Learning, Artificial Intelligence, Computational Linguistics, Software Design & Implementation, Algorithms, Database Systems, Cognition (citation for academic excellence)

Papers

Van Uden, C. E.*, Nastase, S. A.*, Connolly, A. C., Feilong, M., Hansen, I., Gobbini, M. I., & Haxby, J. V. (2018). "Modeling semantic encoding in a common neural representational space." *Frontiers in Neuroscience.*

Projects

- Google text normalization with a seq2seq LSTM encoder/decoder (**Keras, Tensorflow**)
- Spotify playlist recommendation with neural collaborative filtering (**Keras, Tensorflow**)
- Pokemon generator with StyleGAN (**Tensorflow**)

Experience
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- Spotify playlist recommendation with neural collaborative filtering (**Keras, Tensorflow**)
- Substance abuse prediction from Instagram captions/comments with LSTM ensemble (**Torch**)
- Parkinson's disease and cardiovascular disease diagnosis SVMs (**R, Python**)

Data Scientist, Visual Similarity and Computer Vision - Wayfair, Boston, MA   *Aug 2019 - present*
- Leveraged image embedding (**multitask Siamese CNN**), image type prediction (**EfficientNet**), and object detection (**YOLOv3**) models to incorporate environmental imagery into the visually similar product recommendation pipeline. Increased product and product-option coverage by >10%, with a projected incremental yearly revenue of >$10M. Also implemented pipeline optimizations to reduce memory footprint and decrease inference time from 12 hours to <2 hours.
- Implemented efficient large-scale (>1M images) unsupervised dimensionality reduction (**PCA**) and clustering (**Birch, Faiss**) of image embeddings, with applications for large-scale catalog search and visually similar product cluster recommendations. Won the Wayfair 2019 hackathon with this work.

Machine Learning/Cognitive Science Research Intern - Haxby Lab, Dartmouth College
Sept 2017 - June 2019
- Used hyperalignment (fMRI data aggregation technique) and cross-validated ridge regression to predict neural responses to naturalistic video stimuli across people (**Python**).
- Our method improves the spatial specificity and accuracy of predicting a completely new person's neural responses to novel naturalistic visual stimuli as compared to classic within- and between-subject models (see above paper).

Machine Learning/Cognitive Science Research Intern - Just Lab, Carnegie Mellon University
Summer 2018

Skills
- Decoded the content of neural representations of emotion in resting state fMRI data from 330 people and investigated how these representations change over time.

Awards

- Implemented a multivariate time-point change detection algorithm to partition neural responses (**MATLAB**) and characterized emotional content of these responses using Gaussian Naive Bayes (**MATLAB**), Random Forest (**MATLAB**), and a one-shot Siamese neural network (**Keras**).

Pharmaceutical Data Science Intern - Celgene, San Francisco, CA   *Summer 2016*
- Built a preliminary data analytics and visualization tool (**R** front-end, **SQL** back-end) for gene expression and drug response datasets.
- Tool used site-wide by translational development scientists for straightforward, easy-to-interpret analysis and visualization for early-stage drug discovery decisions.

Computer Science Teaching Assistant - Dartmouth College   *Mar 2016 - Mar 2019*
- For the classes Introduction to Computer Science (introduction to programming, core algorithms, and data structures) (**Python**) and Foundations of Applied Computer Science (linear algebra and optimization/modeling) (**MATLAB**).
- Held office hours (4 hours/week), led programming sections for 10-15 Dartmouth students, and created and graded assignments and exams.

Python (NumPy/SciPy, Pandas, Scikit-Learn, Keras, Tensorflow, PyTorch, Jupyter), R, MATLAB, SQL, Hadoop/Hive, MongoDB, Redis, Kafka, Docker, Kubernetes

Wayfair Hackathon Winner (2019), Phi Beta Kappa (2019), Senior Thesis with High Honors (2019), Neukom Award for Outstanding Undergraduate Research in Computational Science (2019), Cognitive Science Academic Achievement Award (2019), Neukom Research Scholar (2018), Rewriting the Code Fellow (2017-2019), Presidential Research Scholar (2017)