Ellis L. Brown II *Curriculum Vitae*

CONTACT INFORMATION

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EDUCATION

Columbia University, New York, NY — Jan. 2019 – **May 2019**
Non-degree Graduate Student, Computer Science — GPA: 4.3/4.0

Vanderbilt University, Nashville, TN — Aug. 2013 – **May 2017**
Osage Nation Higher Education Scholarship
Bachelor of Science, Computer Science — CS GPA: 3.6/4.0
Bachelor of Arts, Mathematics

RESEARCH INTERESTS

AI Safety • ML Interpretability • Probabilistic ML • Reinforcement Learning • Deep Learning • Decision making under uncertainty • Computational Cognitive Science

PAPERS

Brown, E. L., II*, Manko, M.*, Matlin, E.*. Modeling Uncertainty in Bayesian Neural Networks with Dropout: The effect of weight prior and network architecture selection. *Technical paper* (*equal contribution)

Brown, E. L., II, Park, S., Warford, N., Seiffert, A., Kawamura, K., Lappin, J., and Kunda, M. (2018). An Architecture for Spatiotemporal Template-Based Search. *Advances in Cognitive Systems, 6*, 101-118. [pdf]

PRESENTATIONS

Brown, E. L., II*, Manko, M.*, Matlin, E.* (2019, Oct. 10). *Modeling Uncertainty in Bayesian Neural Networks with Dropout: The effect of weight prior and network architecture selection*. Abstract and Poster presentation, American Indian Science and Engineering Society National Conference, Madison, WI. (*equal contribution)

Brown, E. L., II, Park, S., Warford, N., Seiffert, A., Kawamura, K., Lappin, J., and Kunda, M. (2018, Aug. 20). *An Architecture for Spatiotemporal Template-Based Search*. Oral presentation at the Sixth Annual Conference on Advances in Cognitive Systems, Stanford, CA.

Brown, E. L., II, Seiffert, A. E., Warford, N., Park, S., & Kunda, M. (2017, Sep. 21). *Computational Cognitive Systems to Model Information Salience*. Abstract and Oral presentation, American Indian Science and Engineering Society National Conference, Denver, CO. [slides] [link]

INDUSTRY EXPERIENCE

BlackRock AI Labs – New York, NY
Machine Learning Engineer — Jan. 2019–present
Working on strategic firm-wide projects to optimize business processes and generate alpha. Big Data: Spark, Hadoop, EMR. ML: SparkML, PyTorch, SageMaker. Advised by Stephen Boyd & Mykel Kochenderfer.

BlackRock, Aladdin Product Group – New York, NY
Data Engineer, Data Science Core — Aug. 2018–Dec. 2018
Built a compliance rule classifier for Investment Management Agreements (IMAs) using Tesseract OCR and spaCy textcat. Currently 30+ FTEs manually locate and transcribe rules into Aladdin's compliance system; this is the first step to automating this process.

Rotational Software Engineer Jul. 2017–Jul. 2018

- Built a Storm topology to distributedly process 10k+ mutual fund reference records per day into Aladdin.
- Built a Swing UI to facilitate the AML/KYC process for onboarding new clients.

Software Engineering Intern Summer 2016

- *Intern Hackathon Winner* (Team of 4) – Prototyped an NLP system using NLTK to automate contract term extraction from legal documents during new client onboarding, a business process demanding >10k man-hours per year.

OPEN-SOURCE PROJECTS

SSD.PyTorch | GitHub:// amdegroot/ssd.pytorch 75 3.1k 1.2k Mar. 2017
Co-authored the canonical PyTorch implementation of Single Shot MultiBox Detector (W. Liu et al., 2016), a real-time object detection framework using a single network.

BNN-Uncertainty | GitHub:// ellisbrown/BNN-Uncertainty May 2019
Keras implementation of a Bayesian Neural Network with dropout

- Experiments investigating the effect of weight prior selection and network architecture on uncertainty estimates.

Name2Gender | *Blog Post* | GitHub:// ellisbrown/name2gender Dec. 2017
Gender Inference from Character Sequences in Multinational First Names

- Implemented Naive Bayes (NLTK) & Char-RNN (PyTorch) approaches

DeepGenres.Torch | GitHub:// amdegroot/deepgenres.torch Feb. 2017
Music genre classification from audio snippets using CNNs, built in Torch/Lua.

RESEARCH EXPERIENCE

Artificial Intelligence and Visual Analogical Systems Lab Dec. 2016–Aug. 2018
Maithilee Kunda's group, Vanderbilt University

- Developed a computational cognitive architecture used to model and understand human visual attention in the context of visual search for a spatiotemporal target (MATLAB). "SpatioTemporal Template-based Search" (STTS).
- Helped create and test a novel image classification dataset "EMMI" from the viewpoint of toddlers playing with toys, described in Xiaohan Wang et al. [ICCV-17].

TEACHING

Teaching Assistant, under Gerald Roth Fall 2015
Program Design & Data Structures, Vanderbilt University School of Engineering

PROGRAMMING LANGUAGES

Scala • Python • Java • MATLAB • C++ • Bash • LaTeX
PyTorch • Keras • Spark • scikit-learn • NLTK • AWS

AWARDS

3rd Place, Graduate Poster Presentation, American Indian Science & Engineering Society National Conference 2019
Academic All-American, USA Water Polo 2012, 2013

EXTRA-CURRICULAR ACTIVITIES

Mentor, Code/Interactive (C/I) 2018

- Met with an underprivileged high school student biweekly to help him learn web development fundamentals and create a personal website.

Tour Guide, Vanderbilt Admissions 2014-16

- Led weekly campus tours to groups of 10-50+ prospective students.

Elected *Social Chairman*, Kappa Sigma Fraternity (Kappa Chapter) 2014-16

- Managed $45k semi-annual budget; served on chapter's Executive Council.

USA Water Polo 2010-13

- Competed in Junior Olympics. 2012, 2013
- Trained in Olympic Development Program. 2010-13