IBM Research Africa Presents:

Mobile Phone-Based Credit Scoring & Pattern Detection on Hidden Layers of Neural Networks

SKYLER SPEAKMAN

Thursday, July 26 @ 12:00pm
Seminar Room, NYU CUSP

ABOUT THE EVENT:

IBM Research Africa is IBM's 12th lab worldwide and is located in both Nairobi, Kenya and Johannesburg, South Africa. Research staff members are tasked with tackling Africa's Grand Challenges while also pushing their respective fields forward. Therefore, this presentation will cover two diverse topics: Mobile Phone-based Credit Scoring and Pattern Detection on Hidden layers of Neural Networks.

Transfer Learning for Mobile Phone Credit Scoring:

Mobile money platforms are gaining traction across developing markets as a convenient way of sending and receiving money over mobile phones. Recent joint collaborations between banks and mobile-network operators leverage a customer's past mobile phone transactions in order to create a credit score for the individual. In this work, we address the problem of launching a mobile-phone based credit scoring system in a new market without the marginal distribution of features of borrowers in the new market. This challenge rules out traditional transfer learning approaches such as a direct covariate shift. This work was recently presented at ACM COMPASS 2018.

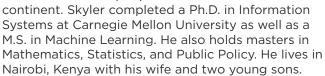### Pattern Detection on Hidden Layers of Neural Networks:

The motivating theme for this work is to view neural nets as data-generating systems and then detect patterns in that generated data with the overall goal of increasing the explainability of the models . One approach to this problem is to identify anomalous subsets of neurons that have higher-than-expected activations. The subset scanning approach to anomalous pattern detection has been applied in multiple domains including disease outbreak detection, crime prediction, customs monitoring, network intrusion detection, and bias detection in criminal sentencing (Event & Pattern Detection Lab https://epdlab.heinz.cmu.edu). This is the first work to apply subset scanning techniques to data generated within neural networks.

A promising application of this methodology is detecting and characterizing adversarial noise that has been added to images in order to 'trick' neural networks into misclassification. We will present early results in this domain and then follow up with possible extensions to continue the work.

SPEAKER HIGHLIGHT:

Skyler Speakman is a Research Scientist at IBM Research - Africa. He is the technical lead for A.I. at the Kenya lab. His projects use data science and machine learning to impact the lives of millions of people on the continent. Skyler completed a Ph.D. in Information Systems at Carnegie Mellon University as well as a M.S. in Machine Learning. He also holds masters in Mathematics, Statistics, and Public Policy. He lives in Nairobi, Kenya with his wife and two young sons.

TIME & LOCATION:

Thursday, July 26th at 12:00pm
Seminar Room at NYU CUSP
370 Jay Street, 12th Floor
Brooklyn, NY 11201

RSVP:

For more information and to RSVP, please visit:
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