

# Michael Horvath Resumé

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## SUMMARY

Born in Kansas but world-traveled and thirsty for knowledge, Michael now thrives in the quest to unravel the unknown mysteries that lay ahead with machine learning. His fierce intelligence and interest in human cognition provide an unending supply of drive and determination. Graduating summa cum laude from the University of Kansas, his Psychology and Statistics background provided him with a basic tool kit, but his current exploration and command of machine learning has ignited a torrent of passion within him, transforming his array of tools into a purposeful machine. Michael has immersed himself in this field. His latest work at github speaks for itself.

## WORK

### **Contractor**

*Data Scientist, 2017*

Developed a neural net constructor from the ground up in Elixir, to improve understanding of machine learning at its most basic level.

- ▶ Elixir, for it's utility as a concurrent, fault-tolerant design.
- ▶ Allowed for modification of all nodes, hidden layers, and activation functions.
- ▶ Included a genotypic visualizer to map out the literal neurons and connections within the neural net.
- ▶ Explored reinforcement learning methods to train neural net to solve Rubiks cube scape.

Deployed various machine learning programs, ranging from style-transfer to binary-classification, regression, and multi-class classification, on Google Cloud Computing platform to evaluate performance across various hyperparameters. Explored optimal neural net configurations and validation techniques.

- ▶ TensorFlow with nVidia Cudda libraries to accelerate processing via GPU utilization.
- ▶ Configuration of TensorFlow environment for docker, virtual environment, native, and cloud-based use.
- ▶ Explored optimal neural net configurations and validation techniques, including K-fold validation, recurrent neural nets, and convolutional neural nets.
- ▶ Python and associated machine learning libraries, including numpy, scipy, Keras, pandas and MNIST.

Explored best methods for using Long Short-Term Memory networks to predict variables from time series data.

- ▶ Predicted Bitcoin price index based on previous price indices.
- ▶ Predicted blood sugar levels based on input from continuous glucous monitor readings.

### **University of Kansas (Lawrence, KS)**

*Center for Research Methods and Data Analysis*

*Program Evaluation Consultant, 2010 - 2011*

Reconstructed the ARC Self-Determination Scale - a 72 item self-report metric for use in reporting self-determination among students with learning disabilities. Presented findings to authors and

collaborators. New version, with shortened length and increased validity and reliability is included in the latest iteration of the National Longitudinal Transition Study (NLTS-2), administered by the Department of Education.

- ▶ SAS and SPSS, tested internal reliability of scale using Cronbach's alpha.
- ▶ MPlus, used confirmatory factor analyses to determine construct validity of scale.
- ▶ Rebuilt scale including only the most reliable and theoretically valid items, following alpha testing and CFA's.
- ▶ R and MPlus, performed multiple imputation to implement planned missingness to extend usefulness of the scale.
- ▶ Power analysis and validity testing on planned missing data.
- ▶ Adherence to HIPAA compliance protocols for sensitive and secure data.
- ▶ Presented findings to original author and collaborators, as well as to Program Evaluation Team and research symposium.

Collaboration with Program Evaluation Team to assess and evaluate various inter-departmental education grants for the purpose of grant submission, evaluation, and renewal.

- ▶ Translated goals and priorities of education grant to identifiable, measurable outcomes.
- ▶ Acted as liaison between Program Evaluation Team and clientele to explain technical results and communicate project goals.
- ▶ Developed, deployed, and administered training grant evaluation surveys, gathering outcome data concerning program success and student outcomes, using REDCap.
- ▶ Data entry, cleaning, and database manipulation.
- ▶ Protocol revisioning, client intake assessment, and ticket-writing.
- ▶ Powerpoint, version control, meeting notes, proofreading.

### **MH Properties**

*Property Manager, 2009 - 2015*

Managed and maintained rental between 4 and 60 rental units. Responsibilities included leasing, advertising, accounting, and contractor oversight.

### **Benchmark Construction**

*Carpenter, 2013*

## **EDUCATION**

### **University of Kansas (Lawrence, KS)**

*BA in Psychology and Quantitative Methods, with Honors, 2006 - 2011*

- ▶ Courses in advanced statistics including multivariate power analysis, ANOVA, MANOVA, multiple imputation, linear regression, multiple regression.

### **University of Osnabrueck (Germany)**

*Semester Abroad in Cognitive Science and AI*

- ▶ Courses in philosophy of the mind, human cognition, and human categorization behavior.
- ▶ Conversationally fluent in German.

## **AWARDS**

### **CalTech Signature Award**

*CalTech, 2006*

- ▶ Innovative and Creative thinking in mathematics and sciences.

### **National Merit Scholar**

*University of Kansas, 2006 - 2011*

- ▶ Outstanding academic and extra-curricular achievement.

### **Dean's List Scholar**

*University of Kansas, 2006 - 2011*

- ▶ Outstanding academic and achievement.