Jeffrey Benjamin Brown

Curriculum Vitae

CONTACT INFORMATION

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SUMMARY

I am the author of Digraphs with Text, an open-source Haskell toolkit for semantic data. I am one of the authors of Semantic Synchrony, an open-source distributed knowledge graph server and Emacs client.

I was a programmer and statistical analyst for Precision Health Economics, which publishes in (often top) peer-reviewed journals of economics and medicine. I worked for the Congressional Budget Office, building a model for forecasting foreclosure rates. I have roughly ten years of experience teaching economics, mathematics and statistics.

Unifying my work in economics and technology is an overarching interest in the generation, organization and distribution of knowledge. The information environment has outpaced many citizens' ability or willingness to stay informed, resulting in widespread cynicism, distrust in insitutions such as the media, academia and government, ignorance of policy and business practices, and tribalism (a political heuristic). My hope is that good research, educational outreach, policies of transparency, and new technologies for navigating and sharing information will help to create a more robust electorate and a more just society.

SKILLS

Areas of expertise	Graphs and networks. Semantic data. Statistics and econometrics. Estimation and prediction. Modeling and simulation. Symbolic computation. Economics and game theory. Signal processing. Many kinds of math.
Programming Languages	Haskell. Python. R. C/C++. Java. Lisp. Bash. Mathematica. Javascript. Octave. Gauss.
DSLs	SPSS. Stata. SAS. Max/MSP. LaTeX.
Other technologies	Unix, Linux. Docker. Emacs. Git. Subversion. Make.
Natural Languages	English (native). Spanish (fluent).

PUBLICATIONS

GRAPHS AND SEMANTIC DATA

The Semantic Synchrony documentation
Motivation, instructions for installation and use, video tutorials, more.

The Reflective Set of Labeled Tuples
Introduces the data structure underpinning my Digraphs with Text software, described below under "Work experience".

The Hash Language
A DSL for reading and writing arbitrary-arity, arbitrarily-nested knowledge graph relationships. It requires no programming experience, and (in addition to English or some other language) the user only needs to learn one symbol. For use with Digraphs with Text.

ECONOMETRICS

(These were dissertation chapters toward the Ph.D. in Economics at Michigan State University.)

Decomposing the partial effects in switching regressions.
Received a revise and resubmit from Economics Letters.

Maximum simulated likelihood estimation in models with continuous outcome variables: Feasibility and practicality.

Copula-based likelihood estimation for a seemingly unrelated regressions framework.
Incomplete.

TALKS

The Semantic Synchrony video documentation

Using Haskell's Functional Graph Library to implement the Reflective Set of Labeled Tuples

WORK HISTORY

Coauthor July 2016 – Present
Semantic Synchrony

Semantic Synchrony is an open-source knowledge graph server and client, written in Java and Emacs Lisp. I contribute to the Docker environment, the Bash scripts for managing a shared knowledge base in Git, and the front-end. I wrote most of the documentation, and am the sole contributor to the Haskell codebase, the Haskell conversion scripts, and smsn-why, a collection of essays regarding its value to individuals and groups.

Author April 2014 – present
Digraphs with Text

Digraphs with Text is a toolkit for semantic data, written in Haskell. It implements the Reflective Set of Labeled Tuples, a data structure I discovered ("invented") that makes knowledge graphs both more expressive and easier to read and write. Unlike those in traditional "flat" knowledge graphs, RSLT relationships can have arbitrary arity and arbitrary

nesting. Moreover they are easier to use: any speaker of English (or another natural language) can read and write to a knowledge graph. I presented (an earlier version of) DWT to the Santa Monica Haskell User Group at Brainium.

Developer and Statistician Oct 2012 – April 2014
Precision Health Economics

PHE produces health economics outcomes research, much of it published in peer-reviewed journals. We used health and economic data from hospitals, insurers, government agencies and other sources, collecting and harmonizing across changes in language and format. From that we generated and analyzed statistics and regressions. My work involved SAS, Stata, Bash scripting, R, and Python.

Consultant and Tutor Aug 2010 – Nov 2012
Independent

Mathematics, statistics, econometrics, computer programming and economics, for undergraduate and graduate (including Ph.D.) students, in person and via video conference.

Instructor, Principles of Microeconomics May 2011 – Aug 2011
Michigan State University

Handled all aspects of lectures, communication, administration and grading.

Consultant for Prof. (of economics) Lisa Cook Aug 2009 – Dec 2009
Michigan State University

Provided economic and statistical feedback for her working papers, particularly focusing on the interpretation of regression output.

Graduate Assistant, Economics Department Aug 2006 – Aug 2011
Michigan State University

Taught economics, statistics and math. Twice, for a semester, led a team of eight or more teaching assistants for a large (1100+) microeconomics class.

Summer Associate May 2009 – Aug 2009
Congressional Budget Office

For the Macroeconomic Analysis Division, I wrote software to forecast state-level foreclosure rates in a regression framework. Scraped some of the data from other federal agencies' websites. The suite initially used Mathematica, Python and Stata; I then ported it all to R.

Instructor, Labor Economics May 2008 – Aug 2008
Michigan State University

EDUCATION

A.B.D. (discontinued Ph.D.) in Economics 2006-2011
Michigan State University

My dissertation committee included Jeff Wooldridge, Gary Solon and Peter Schmidt – a dream team.

Master's Degree in Economics 2006-2007
Michigan State University

My coursework specialized in empirical microeconomics, particularly the labor market.

Bachelor's Degree in Economics 2004-2005

California State University at Northridge

(no degree conferred) Spring 2000
Budapest Semesters in Mathematics
Graph theory. Functional analysis. Real analysis and measure theory. Topology. Homology.

REFERENCES

Available upon request