Benjamin Draves

I am a Ph.D. candidate in Statistics with a research focus in network analysis. I am seeking a challenging internship experience where I can utilize my academic background and data science consulting experience to address business problems with data-driven techniques.

Experience

Data Science Lead Consultant **2016 – Present**

Freelance & Boston University, Boston, MA.

- Oversaw team of 14 Masters students working in BU's consulting center.
- Provided consulting services to clients in industry and academia.

Sample Project 1

- Built a recommender system for college students selecting courses.
- Fit GMM and ℓ_2-regularized logistic regression models (R/Python). Built an interactive app (R-Shiny) for easy use.

Sample Project 2

- Predicted no. of visits and duration of treatment for concussion patients using ℓ_1-regularized GLMs (R-glmnet).
- Results identified indicators for concussion severity and informed treatment.

Sample Project 3

- Clustered geographic regions by species assemblage using dim. reduction (NMDS, R-vegan) and clustering techniques (K-means, R).
- Results identified distant regions with similar species composition.

Sample Project 4

- Predicted changes in cerebral blood flow in (un)injured mice using generalized additive mixed effects models (R-lme4).
- Identified differences in test/control groups using likelihood ratio tests.

Data Analyst Intern **Jun - Aug 2017**

National Interstate Insurance, Richfield, OH

- Predicted claim frequency and severity using boosted regression trees (R-TDboost/SQL).
- Enabled team to utilize ensemble techniques resulting in increased confidence in traditional modeling approaches.

Education

Ph.D., Master of Arts: Statistics **2017-Present**

Boston University - Boston, MA

- GPA: 3.98. Qualifying exams passed.
- Relevant Coursework: Machine Learning, Non/Semi-Parametric Data Modeling, Computational Statistics, Generalized/Linear Models, Bayesian Statistics & Computation, Network Analysis & Algorithms.

Bachelor of Science: Mathematics **2014 - 2017**

Lafayette College - Easton, PA

- GPA: 3.90. Graduated summa cum laude with honors and thesis.

Contact

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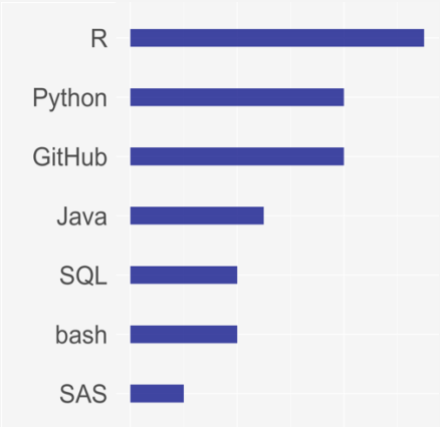
GitHub
github.com/dravesb

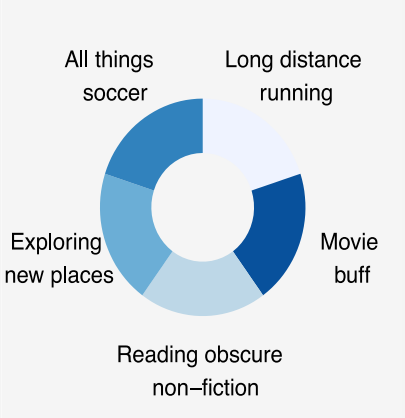
Software



Leadership & Awards

- BU Student Chapter of the ASA Board Member
- Network Seminar Organizer
- BUSCASA peer mentor
- Barge Oratorical Prize – most compelling thesis defense
- Mitman Math Award – most outstanding math major

Hobbies & Interests



Research Publications & Projects

Spectral Embeddings of Multiple Networks **2018 – Present**

- Proved concentration inequalities and central limit theorems for node embeddings. Developed framework for unsupervised learning on networks. Tasks included community detection, network clustering, dimensionality reduction, and hypothesis testing.
- Work presented at Joint Statistical Meetings 2019, 2020. Slides: here. Presentation: here.
- Manuscript submitted. Preprint: here. Repository: here.

Denoising Sparse Covariance Matrices **2016 – Present**

- Developed method for ℓ_1-regularized covariance estimation. Methods implemented in R and applied to refining relatedness estimation in GWAS.
- Work presented at Movarian Undergraduate Mathematics Conference. Slides: here.
- Manuscript under revision. Repository: here.

Teaching Experience

Graduate Student Instructor **2018 – Present**

- Led discussion and lab sessions for 30 undergraduate/graduate students. Created weekly lectures, exercises, and group activities to reinforce concepts introduced in the main lecture.
- Courses include: *Intro. to Statistics I*, *Intro. to Computer Science I*, *Graduate Stochastic Processes*.