Michael Phillips

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EDUCATION

Cornell University — Ithaca, NY
Master of Professional Studies in Computing & Information Science — May 2021

East Tennessee State University — Johnson City, TN
Bachelor of Science in Mathematics; minor in Computer Science, ***summa cum laude*** — May 2006

EXPERIENCE

Tradeweb Markets, Inc. — New York, NY
Data Science Intern — Aug 2020 – Dec 2020

- Created a machine learning model to predict acceptance rate in bond sweep trading session.
- Used Python with Jupyter, scikit-learn, and pandas to interact with millions of records in the client's SQL database to create a Random Forest model that improved performance over existing model by 40% on unseen test data.

Cornell University Dept. of Food Science — Ithaca, NY
Research Support Specialist (Data Science) — 2018 – 2020

- Modernized and improved database system including writing GUI software to automate data entry saving 100s of worker hours per month. (Python with Qt, SQL, Access)
- Initiated a major new project using a network of Raspberry Pi-based sensors on an Internet of Things cloud framework to create a real-time decision support system to track spread of bacteria in an animal hospital. (Python, Azure)
- Led a team using Monte Carlo simulation techniques to create new machine learning models to predict spoilage of dairy products as part of the new Cornell Initiative for Digital Agriculture. (R language)

Cornell University & Memorial Sloan Kettering Cancer Center — Ithaca, NY & New York, NY
Research Assistant — 2007 – 2011

- Researched microRNA function and confirmed that the microRNA* arm - long thought to be a simple carrier strand that quickly degraded - has function and plays an important role in microRNA evolution and diversification (Python)
- Forged collaboration between two labs to create a cross-disciplinary research environment and communicated findings to a diverse team from many different fields.
- Analyzed large data sets of small RNA clones and created a simple, novel model to test and confirm our hypotheses as well as large-scale data mining and pattern matching to focus on target molecules to study experimentally.
- Created, improved, and maintained complex processing pipelines used to prepare and store the large data sets, as well as to perform statistical analysis in an efficient manner on a linux cluster.
- Designed computational experiments; analyzed large data sets; conducted large-scale data mining & pattern matching using Python, SQL, Pandas, scikit-learn, and C++ in a Linux environment.

Institute for Quantitative Biology, ETSU — Johnson City, TN
Undergraduate Research Assistant — 2004 – 2006

- Created a new mathematical model showing system-wide complexity of self-organization in wasp nest construction. and wrote in-depth simulation with real-time data analysis and visual presentation using C#.

SKILLS

- Programming languages: Python, R, Java, C++, JavaScript, SQL
- Libraries: D3.js, Pandas, scikit-learn, numpy, Jupyter, node.js, express.js, jQuery, React, Qt
- Experience with AI and machine learning techniques such as neural networks, support vector machines, Bayesian network/graphical models, hidden markov models and MCMC.
- Strong academic writing and data visualization skills. Experience communicating to experimentalists and non-scientists as well as leading groups with diverse educational backgrounds.

Publications: www.mikedphillips.com Code Samples: www.github.com/MikeDPhillips