

Mixed integer linear programming
 Distribution analysis
 Analysis of variance
Gradient boosting
 Multivariate processes in modeling
 Categorical data analysis
 Predictive analytics
image recognition
 Survey
 Control
 Charts
 Survival analysis
 Sampling and analysis
 Mixed models

Regression
 Cluster analysis
 Image Recognition
 Random forests
 Structural equations
 Exact methods
 Missing value imputation
Artificial Intelligence
 Singular spectrum analysis
 Discrete event simulation
 Regression

Decision trees
 Gradient boosting
 Reliability analysis
 Image Recognition
Design of experiments
 Logistic regression
 Categorical data analysis
Optimization
 Principal component analysis
data mining
 Link analysis
 K-means
 Random forests
 Control Charts
 Time series modeling
 Mixed models

Spatial analysis
 Mixed models
Structural equations
 Gradient boosting
 Survival analysis
 Decision trees
 Sequence analysis
statistics
 Linear programming

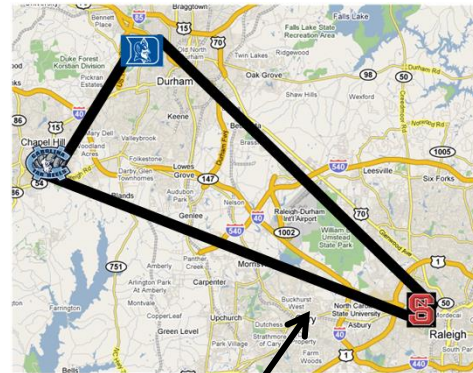
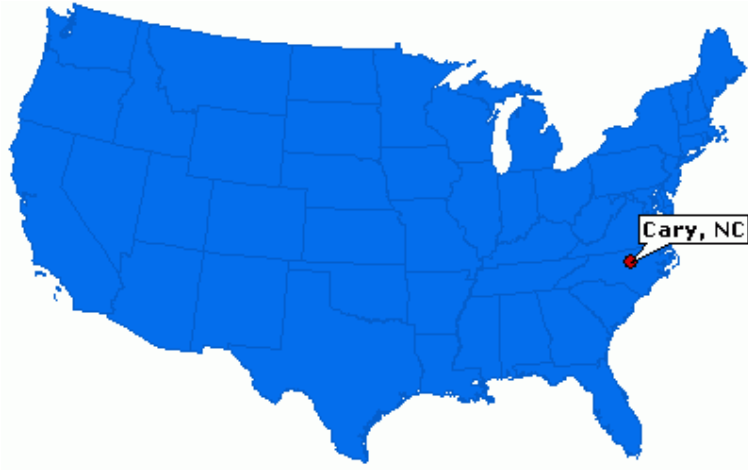
Network Optimization
 Structural equations
transfer learning
 Descriptive statistics
Deep Learning
 Natural language understanding
 Spatial analysis
 Linear regression
 Boosting
 Bayesian econometric models
internet of things
 Exact methods
 Bayesian analysis
 Mixed models

text analytics
 Support vector machines
 Mixed integer linear programming
edge analytics
 Regression
 Mixed models
 Bayesian networks
 K-means
 Survival analysis
 Distribution analysis
 Sequence analysis
 Survival analysis
 Linear regression
 Deep Learning
 Regression

forecasting
 Bayesian networks
transfer learning
 Distribution analysis
 Sequence analysis
 Survival analysis
 Linear regression
 Deep Learning
 Regression

Structural equations
 Natural language processing
data wrangling
 Survey
 Sampling and analysis
 Gradient boosting
data mining
statistics
 Multivariate processes in modeling
 Categorical data analysis
 Predictive analytics
 Discrete event simulation
 Neural networks
 Mixed integer linear programming
 Distribution analysis

SAS Institute Inc is located in Cary, North Carolina



Cary, NC

Cary is part of the Research Triangle

* Duke, UNC Chapel Hill, and NC State Univ

SAS World Headquarter in Cary, North Carolina





Company History

- SAS began at North Carolina State University as a project to analyze agricultural research.
- The acronym stood for "statistical analysis system".
- As demand for such software grew, SAS was founded in 1976 to help all sorts of customers – from pharmaceutical companies and banks to academic and governmental entities.



Old punch cards



Early Building, 1980



PC Version

Who is SAS?

- 14,000 Employees Worldwide
- Offices in 59 Countries
- 92 of the Top 100 Companies on the 2018 Fortune Global 1000 List are SAS Customers
- 30.8% Market Share in Advanced Analytics Space



ANALYSTS RANK SAS AS A LEADER IN:



ANALYTICS



MACHINE
LEARNING



BIG DATA



DATA SCIENCE
PLATFORMS



REAL-TIME
MARKETING



DATA
INTEGRATION



DATA
QUALITY



FRAUD
DETECTION



RISK
MANAGEMENT



STREAMING
ANALYTICS



RETAIL
ANALYTICS



TEXT
ANALYTICS

TECHNOLOGY HAS CHANGED. AND SO HAVE WE.

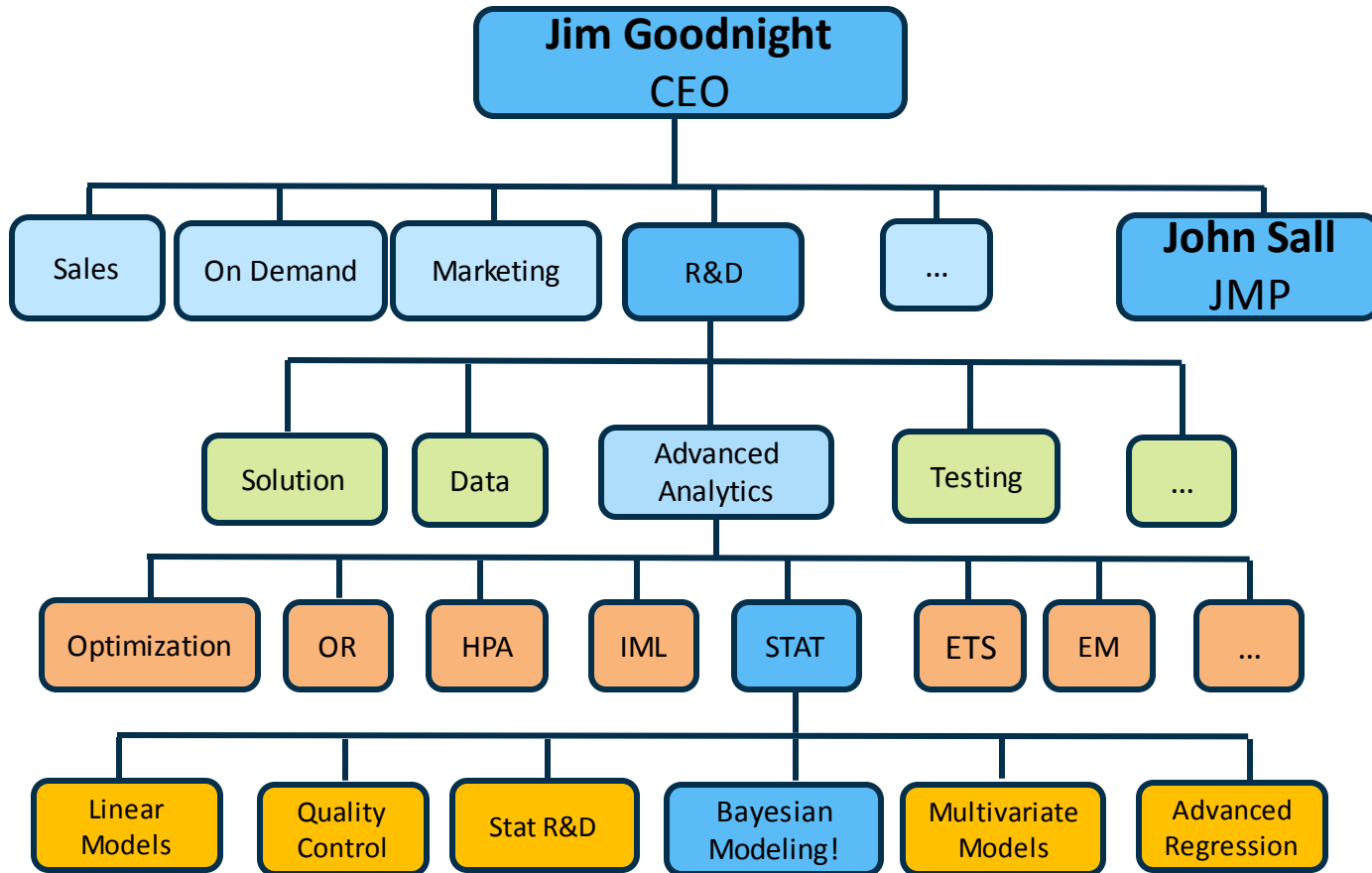
The SAS® Platform integrates with open-source technologies.

Programming languages
such as Python and R

Data frameworks such as
Hadoop

Changing physical
and virtual hardware
environments

Can deploy in all major
clouds



The SAS/STAT Product is Responsible for Developing Statistical Modeling Tools

| Motivation | Recent Development |
|--------------------|--|
| Complex data | Extensions of linear models, Bayesian models, structural equation models, quantile regression, nonparametric regression, survival analysis, spatial analysis |
| Missing data | Imputation, Bayesian and weighted methods |
| Messy data | Outlier detection, robust methods |
| Observational data | Methods for controlling confounding, causal inference |
| Planned data | Survey methods, interim analysis, sample size computation, design of experiments |
| Large data | Model selection, predictive models, scalable algorithms, parallel and distributed processing |

1. What are the job opportunities for statisticians in your organization?
2. Describe the range of skills statisticians need to succeed in your organization?
3. What is the career path for statisticians in your organization?
4. Is your organization currently hiring statisticians?
5. What advice would you give to students based on your experience?

What are the job opportunities for statisticians in your organization?

- Research Statistician Developer (PhD)
- Consultant (Master's Degree or Extensive Industrial Experience)
 - In many different fields: Risk, Retails, Banking, Fraud, etc.
- Data Scientist (Experience in data analysis, modeling, and programming)
- Internship Opportunities
 - Year around or summer positions (colleague or graduate students)

Describe the range of skills statisticians need to succeed in your organization?

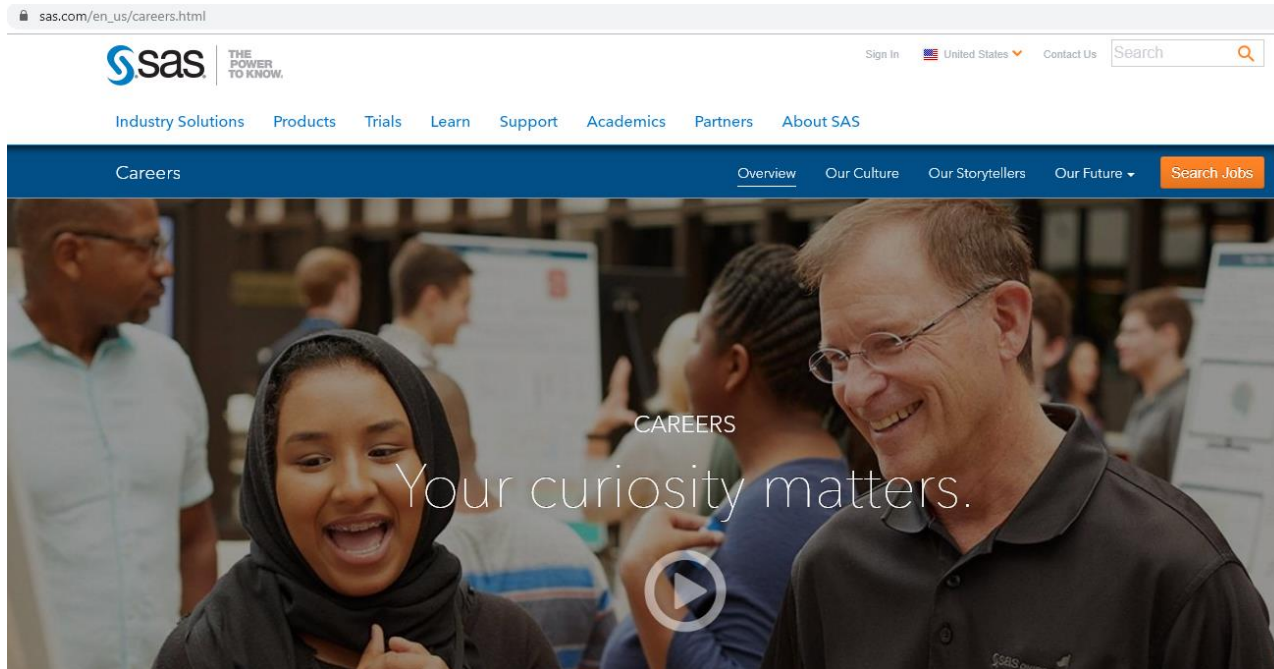
- In-depth statistical knowledge in some areas (modeling and statistical computing)
- Experience writing large, complex programs in C or C-like scientific programming language
- Written and verbal communication skills

What is the career path for statisticians in your organization?

- Technical Track
 - Research Statistician Developer
 - Sr Research Statistician Developer
 - Principle Research Statistician Developer (career track)
 - Distinguished Research Statistician Developer
- Management Track
- Different groups have separate categories:
 - Software Developer, OR Specialist, Analytical Consultant, Data Scientist, etc.

Is your organization currently hiring statisticians?

- Yes, in various departments.
- The best place to search for jobs is www.sas.com/jobs.



What advice would you give to students based on your experience?

- Flexibility
- Efficiency
- Willingness to program
- Communication and leadership awareness
- Publications