Statistics & Data Science Internships at P&G

P&G

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Director, Data Science & AI
Procter & Gamble

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Statistician, Advanced Consumer Modeling & Statistics
Procter & Gamble

Procter & Gamble Facts

➢ Established in 1837 (Initially a Soap and Candle Company, Cincinnati, Ohio)

James Gamble & William Procter

P&G Today

Procter & Gamble Business Units and Brands

Baby	Feminine Care	Family	Fabric	Home	Hair	Skin & Personal Care	Grooming	Oral	Personal Health Care

Corporate Functions

CES and Smart Products

IT Data Science

Work on compelling business problems
USING DATA TO IDENTIFY OPPORTUNITY

1. **MARKETING SPEND**
2. **RETAIL EXECUTION**
3. **SUPPLY CHAIN OPTIMIZATION**

BRIEF

P&G's sales jump as ad spending shrinks, data-driven marketing ramps up

P&G cuts annual ad spend by $350M as it targets 'smart audiences'

P&G Data Science
Cincinnati Geneva Guangzhou Singapore Beijing Germany London

R&D Statistics & Data Science Organization

- **50+ Statisticians (Ph.D., MS and BS)**

- **50+ Data Scientists (Ph.D., MS and BS)**

US Based Statistics & Data Science at P&G

➢ Cincinnati

➢ Boston
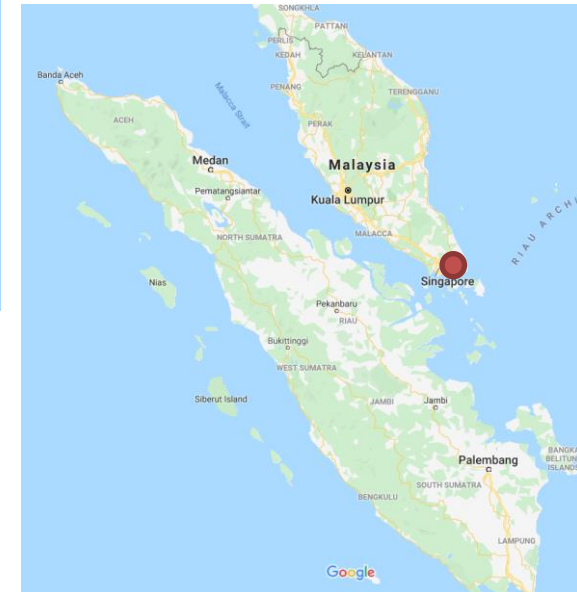
Statistics & Data Science at P&G

Europe
- UK
- Germany
- Belgium

Statistics & Data Science at P&G

Asia

➤ Beijing

➤ Singapore

Application Areas

Consumer Research

Product, Package and Process Development

Clinical Research

Application Areas

Claims

Biotech

Product Safety

Natural Language Processing & Generation

➤ **Gain Consumer Insight on Unstructured Text Data**
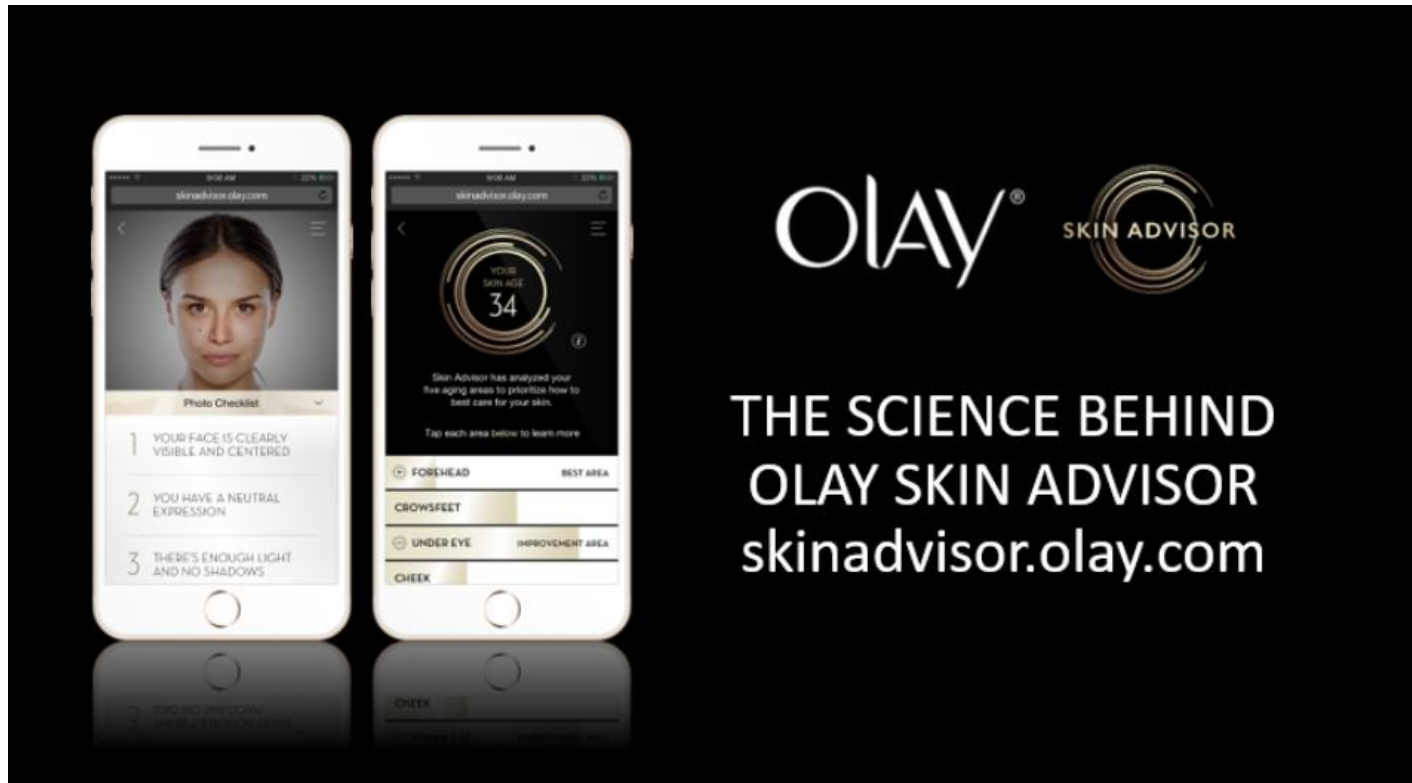➤
   - *Survey of a Consumer Study*
   - *Product Ratings & Reviews*
   - *Consumer Complaints*

- BERT based NLP models
- Chatbots (GPT-3)

Consumer Education and Product Recommendation
Olay Skin Advisor

Design and Analysis of Experiments
for Product, Package and Process Development

Develop a new laundry formulation with improved consumer benefit

Develop a new bottle design
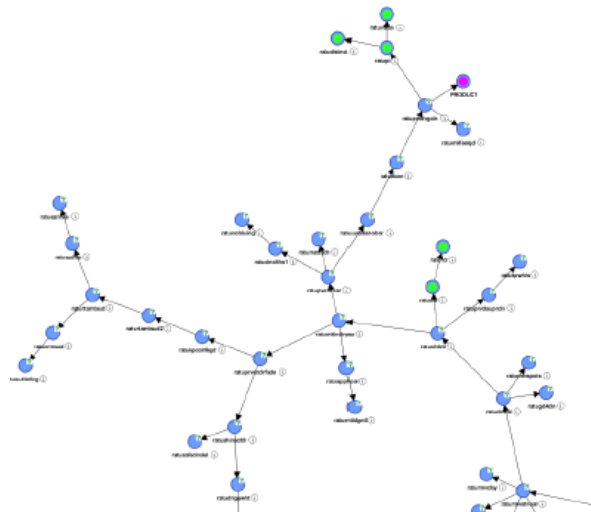

Develop a new optimal process

Understanding Consumers Using Statistical Models

➢ **Conjoint Analysis:**

Measure consumers' likes & dislikes using choice-based questions rather than ratings

Brand	Tide	Gain
Price	$20	$15
Benefit	Clean	Scent
Your Choice	X	

➢ **Bayesian Belief Network**

Packaging Development via Computer Simulation

Business Problem: Reduce the cost for expensive creation of prototypes and testing for new bottle development
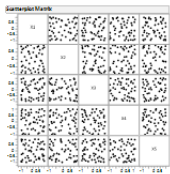
Statistical Method/Tool: Design & Analysis of Computer Experiments
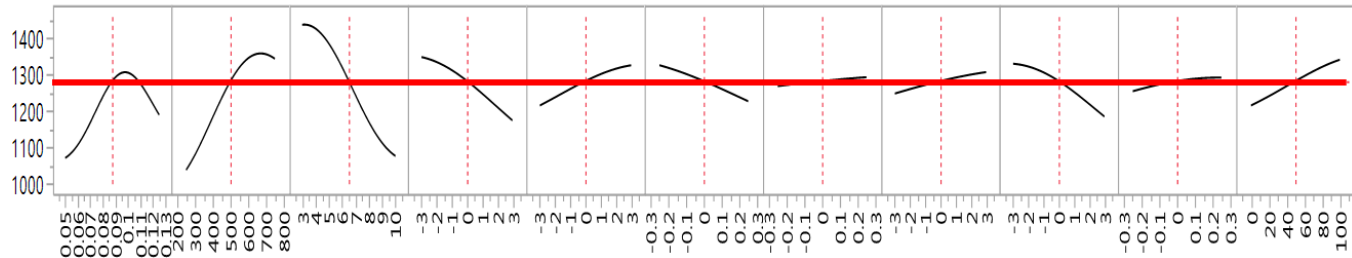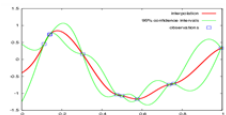
Technical Skills

➢ **Design and Analysis of Experiments**
  - o   Physical Experiments
  - o   Computer Experiments
  - o   Discrete Choice

➢ **Explanatory and Predictive Modeling**
  - o   Linear Models, Generalized Linear Models and Non-linear Models
  - o   Response Surface Methodology
  - o   Statistical/Machine Learning, Deep Learning
  - o   Multivariate methods, Partial Least Squares (PLS)
  - o   Reliability Modeling

➢ **Other Areas**
  - o   Bayesian Methods
  - o   Multivariate Methods
  - o   Natural Language Processing and Generation
  - o   Internet of Things
  - o   Recommendation Engines
  - o   Computer Vision
  - o   Statistical Process Control
  - o   Evaluating Measurement Systems (Gauge R&R)

➢ **Programming** – R, Python, SAS etc.

My Thoughts on Internships

- Critical part of building your future

- Assess a career path and company/institution

- Build professional network, mentors

- We select the problem to match business needs with skills

- Successful internships often lead to full time offers

Reflect on Ji's Internships

- Critical part of building your future
- Successful internships often lead to full time offers
  - I went back to Cincinnati and joined P&G
- Assess a career path and company/institution
  - US corporate culture vs. academic
- Build professional network, mentors
  - I met my PhD advisor there
- We select the problem to match business needs with skills
  - 2009: SAS programmer (plots and tables)
  - 2011: GLMM
  - Get ready to learn

Ji's Learning on Seeking Internships

- Evaluate yourself against your peers and know your strength
  - Good at programming?
  - Good at "real world" projects?
- Effectively communicate to show your strength (STAR method)
  - Situation
  - Task
  - Action
  - Result
- Showcase your own research
  - the ability to learn and develop

Open Internships Summer 2023

For all full time and intern positions, please go to *pgcareers.com*

Full time and Internship positions

Day in the life of a P&G Data Scientist:
https://www.linkedin.com/feed/update/urn:li:activity:6993645198845104128/

For more information about P&G, please go to us.pg.com