

# Utility Analytics and the Big Data Revolution - Recognizing the Intelligent Energy Future

"Cumulative global spending on smart-grid-related analytics [will] top \$20.6 billion between the years 2012 and 2020, with an annual spend of \$3.8 billion globally in the year 2020. We estimate that for utilities deploying these technologies, the achieved return on this investment will exceed \$121.8 billion globally over the same nine-year period."

-- GTM Research, "The Soft Grid 2013-2020: Big Data & Utility Analytics For Smart Grid"



# UTILITY ANALYTICS: THE BIG DATA REVOLUTION

**TRANSFORMING THE UTILITY INDUSTRY BY IMPROVING CUSTOMER  
ENGAGEMENT, PREDICTING ENERGY DEMAND, MINIMIZING  
RISK AND INCREASING THE LIFETIME VALUE OF THE CUSTOMER**

**JANUARY 13-15, 2015 • SAN DIEGO, CA**

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# UTILITY ANALYTICS: THE BIG DATA REVOLUTION

## Key Topics to be Covered Include:

- Employing advanced analytics including data quality, meter data analytics, predictive maintenance, customer engagement and grid optimization
- Overcoming issues and challenges facing utilities, energy providers, hardware and software vendors and consumers as data generation, collection, analysis and applications
- Increasing predictive solutions and developing real-time business data through data analytics
- Interpreting customer behavioral analytics to maximize customer satisfaction while gathering the most accurate energy usage and demand insight
- Utilizing data analytics to overcome challenges, minimize risk and improve asset performance and capability
- Using analytics for customer segmentation and profiling to determine who to target with pilots and initial deployments of technologies (in-home displays, smart meters, etc.) and identify the best customers to develop and offer the most optimal rate structures
- Understanding the most lucrative ROI opportunities for big data, analytics, and cloud-based infrastructure/services as applied to current and future distribution grid investments
- Closing the gap between the value of utility analytics and the lack of preparation for its implementation
- Studying best practices, latest technologies and trends relating to the engaging software tools for the utility industry

## Invited Speakers Include:

**Dr. Gary Dorris**, President & CEO  
**ASCEND ANALYTICS**

**Joel Austin**, Vice President & Chief Information Officer  
**ONCOR**

**Bob M. Genezcko**, Retired, VP Customer Services  
**PPL ELECTRIC UTILITIES**

**Marina Thiry**, Director, Strategic Marketing – Data Centers  
**ABB, INC.**

**Robert Eastman**, Research Manager  
**IDC ENERGY INSIGHTS**

**Natasha Balac**, Ph.D., Director, Predictive Analytics Center of Excellence, Director of Data Application and Service  
**SAN DIEGO SUPERCOMPUTER CENTER (SDSC)**

**Sinnott Murphy**, Senior Research Associate  
**CALIFORNIA CENTER FOR SUSTAINABLE COMMUNITIES AT UCLA**

**Jeremy Johnson**, Director, SilverLink Business  
**SILVER SPRING NETWORKS**

**Mallik Angalakudati**, Vice President, Financial and Resource Management  
**PACIFIC GAS AND ELECTRIC COMPANY**

**Scott Zoldi**, Vice President for Transaction Analytics  
**FICO**

**Aram Shumavon**, Director  
**DISTRIBUTED ENERGY CONSUMER ADVOCATES (DECA)**

**Chris Marnay**, Staff Scientist  
**LAWRENCE BERKELEY NATIONAL LABORATORY**

**Lauren A. Preston**, Director of Customer Service  
**DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

**Abhradeep Guha Thakurta**, Research Scientist  
**YAHOO LABS**

**Audrey Lee**, Energy Advisor to the President  
**CALIFORNIA PUBLIC UTILITIES COMMISSION**

## Who Should Attend:

### TARGET AUDIENCE:

This conference is researched and designed for:

- Chief Utilities Officers and Executives
- Engineers and Operations Specialists
- Utility Industry Regulators
- Federal, Provincial and Municipal Government and Agencies

Including:

- CIOs, CTOs, COOs, Directors of IT
- Customer Services Executives
- Regulatory, Policy and Standards Administrators
- Academic and Research Professionals
- Compliance and Consumer Protection Agents

Also:

- Vendors and Product Service Providers:
  - Analytics Platforms & IT Solutions
  - Smart Grid/Soft Grid Developers
  - Automation, Hardware & Software Infrastructure
  - Storage and Security
- Management and Technology Consultants

# UTILITY ANALYTICS: THE BIG DATA REVOLUTION

## Pre-Conference Workshop · January 13, 2015:

This highly interactive pre-conference session have been designed to translate winning strategies from leading experts and develop them into tangible benefits that you can take away and implement within your own company. Take advantage of these resourceful workshops to enhance your conference experience and expertise in Utility Analytics. Please note, these workshops generally are SOLD OUT. Early registration is encouraged to reserve your space.

### 2:30PM - 3:00PM REGISTRATION AND EXHIBITS

### 3:00PM - 5:00PM UTILITY 2.0 – POTENTIAL DISRUPTIVE CHALLENGES & CRITICAL ANALYTICS

This presentation will touch on exciting and important topics as the electric industry makes strategic changes. The presentation will educate decision-makers on how to evaluate and substantiate the most promising investments in this new landscape of energy supply – Utility 2.0.

**Topic of interest:** Utility 2.0 provides new investment opportunities and more distributed means of energy supply that need to be fairly evaluated. New utility investments range closer to the end user and the electrical system back bone including extension of energy efficiency measures with an eye toward load control, energy storage, distributed generation and advanced grid technology programs. The intent is for utilities to provide additional infrastructure that ultimately integrates the end-use customer as a supply and load balancing resource.

How does an organization evaluate the impact of Utility 2.0 to their service area?

#### Key review criteria presented in the form of a case study:

1. Evaluation—how does the utility effectively evaluate and substantiate strategic investment opportunities that are designed to empower end use customers?
2. Demand response – as Utility 2.0 gains acceptance, enrollment in load control programs could double or triple
3. Energy efficiency – efficiency programs will be granted to a wider target audience, with greater economic incentives
4. Renewable energy – expansion of both solar and geothermal in targeted geographic areas, creating services areas that are fragmented by micro-grids and distributed generation while wind expands on-shore and off-shore
5. Impacts to current projects – changes add competitive options to traditional large scale capacity expansion and favor flexible resources
6. Key participants – Utility 2.0 may remove barriers to non-utility entities participating in energy service markets

#### Essential presentation ideas and topics of discussion:

- Short-term planning – understanding the systems and controls to effectively integrate end use customers as dynamic system resources
- Long-term planning – how to improve the analytic insights on impacts to current projects, PPAs, and hedge positions
- Load impacts – how to quantify the potential for load variability, valuing full-requirement contracts, and impact to the demand curve & price elasticity
- Weather – the need to integrate weather variables (solar, wind, temperature, etc.) will become greater; what are the best methods for applying both short-term weather forecasts, and utilizing stochastic models for long-term weather uncertainty

#### Workshop Leader:

**Dr. Gary Dorris**, President & CEO

#### **ASCEND ANALYTICS**

*Gary Dorris, Ph.D., President, Ascend Analytics has been a pioneer of innovative solutions for energy planning and risk. For the last dozen years, Dr. Dorris has introduced utilities to new solutions to model and analyze planning portfolios. His analytic innovations and expertise are sought by industry leaders including expert testimony in some of the most prominent resource planning and risk management proceedings in the country. His company's software solutions are used by 3 of the top 5 utilities in America and many COOPs and municipalities. He has established industry standards for model validation, monetization of risk, portfolio selection, and performance metrics. In 2001, Dr. Dorris won distinguished recognition from the IPE for contributions to the field of energy risk management. Dr. Dorris holds a Ph.D. in applied economics and finance from Cornell University and a BS in mechanical engineer and BA in economics with Magna Cum Laude distinction also from Cornell University.*

## Conference Day One · January 14, 2015:

### 8:00AM - 8:45AM REGISTRATION, CONTINENTAL BREAKFAST AND EXHIBITS

### 8:45AM - 9:00AM CHAIRPERSON'S OPENING ADDRESS

### 9:00AM - 10:00AM THRIVING IN THE BIG DATA EXPLOSION: CAPITALIZING ON THE ANALYTICS VALUE SPACE

Breakthrough analytics has never been so readily available and necessary to capture value for your business. The utility industry has a tremendous opportunity with the big data explosion to capitalize on the analytics value space. With this level of information we're able to do so much more with it. Utilizing big data will lead to enhanced customer service and better operations.

Attendees will learn to source breakthrough ideas to:

- Evolve operations, regulatory relationships and customer service
- Seize opportunities to generate value for customers and employees
- Emulate successful tactics deployed by major players
- Comprehend the value proposition of analytics and hone your competitive edge

**Joel Austin**, Vice President & Chief Information Officer

#### **ONCOR**

*Joel Austin is the Vice President and Chief Information Officer of Oncor, the sixth largest electric Transmission and Distribution Company in the United States. As head of Oncor's Information Technology organization, Austin is responsible for strategy, information security, new systems development and production operations and management of Oncor's extensive sourcing relationships. He has more than 26 years of experience in the energy, finance and software industries at Informix, ENSERCH, Deloitte & Touche and the Texas Utility companies, where he has held a number of business operations, IT and leadership roles. Austin serves on several educational and civic boards, including the Information Technology Operations Management Advisory Board at Southern Methodist University and Treasurer, and Board Member for the North Texas Business Council for the Arts. Austin holds a bachelor's degree in accounting and business administration from the University of Kansas and a master's degree in business from the University of Missouri in Kansas City*

# UTILITY ANALYTICS: THE BIG DATA REVOLUTION

**10:00AM - 10:30AM MORNING REFRESHMENT BREAK AND EXHIBITS**

## **10:30AM - 11:15AM OUR CASE FOR ADVANCED ANALYTICS: DATA ANALYTICS AND CUSTOMER SERVICE**

Who in your utility “owns the customer”? Do you believe that alignment with the customer will result in lower costs? Does distributed generation, rooftop, solar, and battery technology have the potential to compete with both the generation and wires businesses? Will superior customer service make a difference? These and other questions/issues will be discussed in light of how we rally resources to contribute to utilities future success.

Key issues to be covered include:

- The elements of what PPL Electric Utilities considers essential for future
- Hurdles, especially funding, that we will need cross in order to proceed
- Analytics planning

**Bob M. Geneczko**, Retired, VP Customer Services

### **PPL ELECTRIC UTILITIES**

*Bob Geneczko retired from PPL Electric Utilities in July Of 2014 with just over 40 years of experience, with the last 12 focused within the Customer Services functions. Prior experience includes strategic planning, system/operational planning, engineering and operations with both field and staff experience and various roles on PJM intercompany committees. He also led PPL's gas and propane operations prior to their sale*

## **11:15AM - 12:00PM HOW TO INTEGRATE DATA CENTER PERFORMANCE METRICS INTO YOUR BUSINESS OPTIMIZATION STRATEGY**

Amid the Big Data din of 2014, a profound change in today's energy-driven market place quietly emerged: Enterprises have begun integrating their 'back office' data center performance metrics—including energy consumption—into their 'front office' bottom line business strategies. This session does not focus solely on sustainability or efficiency initiatives. Instead, this session introduces how forward thinking enterprises are now using their data center performance metrics to analyze profit, adjust pricing, and to better understand how products and services are sold to and used by customers. Attendees will learn some of the key principles and methodologies to help develop a business optimization strategy for today's energy-driven market place, such as:

- How to use energy consumption and other data center performance metrics as leading indicators of business performance
- What is a data center infrastructure management (DCIM) system and how it provides insight into enabling a more agile business (and not just a more efficient data center)
- Examples of which data center 'inputs' get processed to produce business forecasting 'outputs' in the form of decision support dashboards and reports

**Marina Thiry**, Director, Strategic Marketing – Data Centers

### **ABB, Inc.**

*Marina Thiry leads marketing for data center infrastructure management (DCIM) in North America, chairs The Green Grid's Operations and DCIM Work Groups, and is dedicated to helping data center professionals achieve operational excellence with Decathlon for Data Centers, ABB's DCIM system.*

## **12:00PM - 1:15PM LUNCHEON FOR DELEGATES AND SPEAKERS**

## **1:15PM - 2:15PM BENCHMARKING UTILITY MATURITY IN THE APPROACH TO BIG DATA AND ANALYTICS**

How can IT facilitate the deployment of an enterprise analytics to be useful to the needs of distribution, customer operations, customer engagement, load research and planning? In this workshop, IDC Energy Insights will present the results of a recent survey of utilities in North America on the quantifiable benefits that they have achieved from pursuing a analytics strategy. The assessment gauges utility maturity in the areas of intent, data, process, and technology. Participants will learn the what attributes make utilities successful in each of these areas and how to get to the next level.

**Robert Eastman**, Research Manager

### **IDC ENERGY INSIGHTS**

*Robert Eastman is responsible for research on the application of information technology in the context of the Utility business for IDC Energy Insights. He will also be supporting IDC Retail Insights and IDC Manufacturing Insights IT Strategies practices. Robert will be covering topics such as IT budget and strategy, penetration and use cases for cloud, mobility, big data and analytics and social business, within the industry context. Previously, Robert has worked closely with private and public sector Fortune100 to Fortune1000 clients in the Utility, Aerospace & Defense, Automotive, Consumer Electronics, CPG, Energy, General manufacturing, High Tech, Industrial, Life Sciences, and other industries. He was a senior analyst at Technology Evaluation Centers and Calyptus Consulting, where he was responsible for working with public sector clients. Robert cofounded SMB Research, a technology analyst firm serving the small-to-medium business (SMB), mid-sized, and enterprise business sectors. Robert has an MBA from Babson College, is a Certified Industry Analyst Professional (CIARP) and has been quoted on a range of technology and business topics by such publications as SupplyChainBrain, Channel Pro magazine, Biztech magazine, and FOX Business News Network.*

## **2:15PM - 3:15PM PREDICTIVE ANALYTICS AND BIG DATA: ON OUR UCSD MICROGRID AND SMART CITY SAN DIEGO PROJECTS**

The San Diego Supercomputer Center (SDSC) at UC San Diego launched the Predictive Analytics Center of Excellence (PACE) to leverage SDSC's data-intensive expertise and resources. PACE offers innovative programs to fill an important niche - educating and training data scientists - to help inspire the 21st century workforce of data researchers by leading a collaborative, nationwide education and training effort among academia, industry, and government.

- UCSD microgrid
- Smart City San Diego project

**Natasha Balac**, Ph.D., Director, Predictive Analytics Center of Excellence, Director of Data Application and Service

### **SAN DIEGO SUPERCOMPUTER CENTER (SDSC)**

*Natasha Balac, Ph.D. is the Director of Predictive Analytics Center of Excellence at the San Diego Supercomputer Center (SDSC) encompassing many data mining projects including collaborations with UC San Diego Medical School and UC San Diego 's Smart Energy Grid. Natasha received her Ph.D. in Computer Science from Vanderbilt University with an emphasis in Machine Learning from large data sets. She has been with SDSC since 2003 leading multiple large projects and collaborations across a wide range of organizations in industry, government and academia including the Centers for Medicare and Medicaid Services (CMS), National Science Foundation (NSF), National Institutes of Health (NIH), and the California Energy Commission (CEC).*

# UTILITY ANALYTICS: THE BIG DATA REVOLUTION

**3:15PM - 3:30PM AFTERNOON REFRESHMENT BREAK AND EXHIBITS**

**3:30PM - 4:30PM CASE STUDY: LEVERAGING HIGH RESOLUTION UTILITY DATA TO IMPROVE ENERGY MANAGEMENT IN LOS ANGELES**

This presentation will discuss the ongoing work of the California Center for Sustainable Communities at UCLA to improve understanding of patterns of energy consumption in Los Angeles County. Through the creation of a flexible relational database linking a multi-year census of monthly electricity and natural gas consumption data to information on socio-demographic, land-use, building-stock, and climate characteristics, this work provides actionable information that can improve energy policy. This presentation will describe the creation of the relational database and present early results.

- Describe energy data, linked explanatory datasets, and relational database
- Present early mapping results and their implications
- Present early descriptive results and their implications

**Sinnott Murphy**, Senior Research Associate

**CALIFORNIA CENTER FOR SUSTAINABLE COMMUNITIES AT UCLA**

*Sinnott Murphy has graduate degrees in Resource Economics and Transportation Technology & Policy from UC Davis. His primary research interest is improving the sustainability of urban environments as a means of mitigating global climate change. His current work focuses on the analysis of large utility energy datasets for Los Angeles County. Prior to coming to the Center, his research focused on understanding motivations for municipal adoption of climate change policies.*

**4:30PM - 5:00PM CAPTURING THE VALUE OF NETWORKED SENSOR DATA**

Utilities have reached a crossroads where top-down operating models and disconnected silos simply won't meet the needs of the next generation. Faced with challenges including financial constraints, grid complexity, a growing percentage of distributed generation and changing consumer expectations, utilities must make some fundamental changes to deal with these pressures, unlock more innovation, and deliver more choice and value for their customers. Real-time, smart grid data analytics are the catalyst needed to help utilities rethink the traditional utility model enterprise and provide new services and applications.

This presentation will provide a framework to help the audience:

- Develop a culture and mindset of a constant evolution
- Assess the best platforms to quickly adapt to the future
- Re-think procurement / partnership strategy
- Leverage best practice from other progressive utilities

**Jeremy Johnson**, Director, SilverLink Business

**SILVER SPRING NETWORKS**

*Jeremy Johnson is a Director in Silver Spring's SilverLink Sensor Network Business. Jeremy brings over 15 years' experience in networking, infrastructure management, IT architecture, smart grid applications and services, and data center management to Silver Spring Networks. Prior, he was Director of Operations at Sony Online Entertainment, the Founder and Principal Architect of NetVmg, and held senior network engineering roles with Excite@Home and AT&T. Jeremy is passionate about creating and operating technology that provides a great experience for the user. He is also the author of several technology patents for Excite@Home, NetVMG and Silver Spring.*

**5:00PM CHAIRPERSON'S CLOSING /END OF DAY ONE**

## Conference Day Two • January 15, 2015:

**8:00AM - 8:45AM REGISTRATION, CONTINENTAL BREAKFAST & EXHIBITS**

**8:45AM - 9:00AM CHAIRPERSON'S OPENING ADDRESS**

**9:00AM - 10:00AM RISK BASED MAINTENANCE OPTIMIZATION: PG&E ATMOSPHERIC CORROSION CASE STUDY**

Risk based modeling can be used to gain insights into utility asset behavior and optimize asset maintenance programs. In this session, we will explore this possibility using a case study focused on gas meter assets.

All PG&E gas meter assets are required to be inspected every 36 months for atmospheric corrosion (AC), which may be too frequent for most of PG&E's service area. The converse may be true for meters in highly corrosive environments.

PG&E is partnering with MIT's Leaders for Global Operations (LGO) program to develop a statistical model to relate atmospheric corrosion to underlying drivers such as asset characteristics, meteorological data such relative humidity and atmospheric pollutant levels. The model will be shared during the session and a potential opportunity to optimize the meter asset maintenance based on the model predictions will be explored.

**Mallik Angalakudati**, Vice President, Financial and Resource Management

**PACIFIC GAS AND ELECTRIC COMPANY**

**10:00AM - 10:30AM MORNING REFRESHMENT BREAK AND EXHIBITS**

**10:30AM - 11:15AM ANALYTIC TRANSFORMATION — WHAT THE UTILITIES INDUSTRY CAN SHOW US**

From demand response and dynamic pricing to smart grids and improving the customer experience, utilities are challenged on how to harness increasing volumes of data to serve the demands of customers and a dynamic regulatory environment. Sound familiar? Like banks, insurers and other firms facing similar challenges, utilities are turning to predictive analytics to address the demands of their business. Learn how applications of technologies such as self-learning outlier models, cluster analysis, scorecard models and others are applied to energy theft fraud, electricity network outage and integrity monitoring, energy savings, attrition prevention and customer experience.

**Scott Zoldi**, Vice President for Transaction Analytics

**FICO**

*Scott Zoldi is vice president for transaction analytics in FICO's Analytic Science group. He has responsibility for the analytic development of FICO's transaction analytics products and solutions, including the FICO™ Falcon® Fraud Manager product. While at FICO, Scott has been responsible for authoring over 30 patent applications related to fraud and transaction analytics. He is actively involved in the development of FICO's new Falcon 6 product, which includes new analytic innovations such as adaptive analytics, global intelligent profiles, self-calibrating analytics and enterprise analytics. Before joining FICO, Scott was a director's fellow at Los Alamos National Laboratory. Scott received his Ph.D. in theoretical and computational physics from Duke University and was a DOE computational science graduate fellow.*

# UTILITY ANALYTICS: THE BIG DATA REVOLUTION

## 11:15AM - 12:00PM SPOOL: UNWINDING THE BIG DATA KNOT FOR POLICY MAKERS

A demonstration of the SPOOL GIS platform for energy policy analysis. Walk through geographic analysis of energy market data. Describe how said data are changing energy procurement planning. Describe how those changes will minimize environmental externalities and empower end use consumers.

**Aram Shumavon**, Director,

### **DISTRIBUTED ENERGY CONSUMER ADVOCATES (DECA)**

*Aram Shumavon spent over a decade at the California Public Utilities Commission as an advisor to a Commissioner and as the lead staffer on Long Term Resource Adequacy and Procurement Planning. Upon leaving the Commission he founded DECA – Distributed Energy Consumer Advocates, a technology neutral consumer advocacy organization focused on end use customer investments in energy infrastructure, and consulting work related to high penetration renewables futures.*

## 12:00PM - 1:15PM LUNCHEON FOR DELEGATES AND SPEAKERS

### 1:15PM - 2:15PM INCREASING ACCESS TO ENERGY DATA WHILE PROTECTING PRIVACY

In favorable locations, numerous electric vehicle (EV) batteries may become available to provide ancillary services (AS) to the buildings where they charge and to the wider grid. This prospect has created excitement and enthusiastic predictions of benefit streams that can accrue to EV owners and offset higher initial cost. A demonstration at the Los Angeles Air Force Base aims to replace the entire Base fleet with EVs, and for them to participate in the California Independent System Operator (CAISO) Regulation Markets. Providing this AS requires tight control of individual vehicle states of charge, forecasting of fleet operations, and market analysis for both AS and energy, possibly at both wholesale and retail levels. Further, the response time requirements for regulation are in the order of 4 s, or less, so on-the-fly optimization is impractical because of communication latency. Capturing the potential benefits of EV battery storage will require sophisticated data collection, analysis, forecasting, and charge-discharge control, all aimed at considering uncertainty in market conditions, EV duty cycles, and other key variables.

Topics to be covered include:

- Understand the CAISO regulation market and the potential role of EVs in it
- Estimate the revenue potential of EV fleets in this market, as well as the benefits of energy arbitrage
- Explore the software development challenges to create systems for such complex fleet management

**Chris Marnay**, Staff Scientist,

### **LAWRENCE BERKELEY NATIONAL LABORATORY**

### 2:15PM - 3:15PM A COMPREHENSIVE ANALYSIS OF CUSTOMER SERVICE RELATED DATA TO IMPROVE SERVICE, REDUCE COSTS AND SECURE REVENUE

DC Water uses a comprehensive analysis of detailed customer service related data to improve service to customers, reduce costs, and secure revenue that might otherwise be lost. This presentation will discuss their high usage notification alert system, which allows customers to be notified of potential plumbing problems in the home before they get an unexpectedly high bill. This presentation will also discuss a revenue assurance project in which analyzed account conditions suggested lost or unbilled revenue to correct the accounts. Applications developed using GIS and work management tools to manage mandatory maintenance on water and sewer assets such as catch basins, hydrants and other equipment will be discussed.

**Lauren A. Preston**, Director of Customer Service

### **DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY**

*Lauren A. Preston is the Director of Customer Service for the District of Columbia Water and Sewer Authority (DC Water). She is responsible for DC Water's customer services, which include metering, billing, credit and collections, and customer services. Ms. Preston has 20 years of experience in public utilities, most of those in the executive ranks. She served as Division Head and Vice President of Washington Gas prior to joining DC Water. There she led the teams responsible for the same activities as she now provides for DC Water, as well as support for regulatory affairs. She also held senior-level positions with NSTAR Electric and Gas in Customer Service. Ms. Preston holds a Master of Business Administration from Boston College and a Bachelor of Science in Business Management from the University of Massachusetts, where she graduated magna cum laude.*

## 3:15PM - 3:30PM AFTERNOON REFRESHMENT BREAK AND EXHIBITS

### 3:30PM - 4:30PM BIG DATA: FROM STABILITY TO DIFFERENTIAL PRIVACY

This presentation will establish a connection between some notions of algorithmic stability and differential privacy. The main thesis is that a stable algorithm (under certain notions of stability) can be transformed into a differentially private algorithm with good utility guarantee. In particular, we discuss two notions of stability: i) perturbation stability, and ii) sub-sampling stability. Based on these notions of stability, we provide two generic approaches for the design of differentially private algorithms.

In the second part of the talk, we use the generic approaches designed in the first part to the problem of sparse linear regression in high-dimensions. We show that one can design differentially private model (feature) selection algorithms for the above problem. Moreover these algorithms have (nearly) optimal sample complexity. We use the celebrated LASSO estimator as our basic building block.

**Abhradeep Guha Thakurta**, Research Scientist

### **YAHOO LABS**

# UTILITY ANALYTICS: THE BIG DATA REVOLUTION

## 4:30PM - 5:00PM INCREASING ACCESS TO ENERGY DATA WHILE PROTECTING PRIVACY

The CA Public Utilities Commission (CPUC) has led the country in tackling energy data access and privacy issues. Big energy data, granular in time and space, has immense potential for energy policy evaluation and improvement and can fuel the development of new services and products we cannot even imagine today. Ratepayers have funded the collection of this data and should benefit from it. The challenges to using the data for ratepayer benefit while protecting customer privacy exist but can be solved.

- CPUC Decision on customer privacy (2011)
- CPUC Decision on customer data access via Green Button Connect (2013)
- CPUC (Proposed) Decision on energy data access
  - o Jurisdiction under CA Information Practices Act
  - o Use cases for energy data – requester, type of data, purpose
  - o Requestors: local governments, researchers, companies, government agencies, non-profit organizations and advocates
- Vision for a centralized energy data repository in CA

**Audrey Lee**, Energy Advisor to the President

### CALIFORNIA PUBLIC UTILITIES COMMISSION

*Audrey Lee advises the President of the California Public Utilities Commission on energy data, demand response, smart grid, transmission infrastructure, and grid-related research and development. Before joining the Commission, Audrey led economic and policy analysis at the Office of Policy and International Affairs at the U.S. Department of Energy, the International Energy Agency, the Massachusetts Department of Energy Resources, and the Harvard Kennedy School of Government. She holds a B.S. in applied physics from the California Institute of Technology and a Ph.D. in electrical engineering from Princeton University.*

## 5:00PM - 5:15PM CHAIRPERSON'S CLOSING/END OF CONFERENCE

### Venue Information:

#### Handlery Hotel San Diego

950 Hotel Circle North

San Diego, CA

(619) 298-0511

Located in America's Finest City the Handlery Hotel San Diego offers guests the perfect travel experience. As a 4th generation family owned hotel, we create great experiences for our guests by offering comfortable rooms, a warm atmosphere and personal service. Ideally located in San Diego's Hotel Circle offering easy access to all major points of interest.

The Handlery Hotel San Diego offers a wide variety of extras coupled with warm service only a family owned hotel can offer. We are ideally located, set adjacent to Riverwalk Golf Course in Mission Valley, the heart of San Diego and just ten minutes from San Diego International Airport (SAN).

*"To have every guest not question why they stayed here, but to question why they didn't stay here before"*

- Harry Handlery, Founder, 1928



### About ACI:

**Active Communications International (ACI)** is a leader and innovator in strategic business conference planning and production. With offices in Chicago, London, Pune, Portland, Poznan and Milwaukee, we produce world-class events focusing on areas of most relevance to our served industry sectors. We are dedicated to deliver high-quality, informative and value added strategic business conferences where audience members, speakers, and sponsors can transform their business, develop key industry contacts and walk away with new resources.

**Mission Statement:** ACI's mission is to unite key industry influencers and leaders to build strong relationships and enable our clients to achieve operational efficiencies, maintain competitive advantage in the marketplace, and increase their profitability.

**Quality:** ACI invites senior-level executives and key industry leaders to share their insights and real-life working experiences with our audience. Our unique conference format offers an intimate and time-efficient educational development platform where our attendees can meet one-on-one with the people that can assist them in achieving their goals.

**Research:** ACI offers cutting-edge conferences that are developed through extensive research and development with industry experts to bring you the latest trends, forecasts, and best practices.

**Experience:** Our team of experienced conference producers and managers know you and your business demands. ACI has the resources, knowledge, and experience to create the events you need to remain on the forefront of your industry.

