



Veterans Analytics Course

September 16-17, 2020

Provided by: CANA Advisors



Course Welcome

Instructors

Walt DeGrange –Director of Analytic Capabilities

- ▶ 20 years of experience in scoping, performing and implementing analytic solutions
- ▶ 21 years Naval Logistics experience
- ▶ Graduate level teaching at NPS, University of Arkansas, and NC State University
- ▶ Current Course Director for the Military Operations Research Society (MORS) Critical Skills for Analytics Professionals
- ▶ Location: North Carolina



Instructors

Jason Fincher – Principal Logistics Analyst

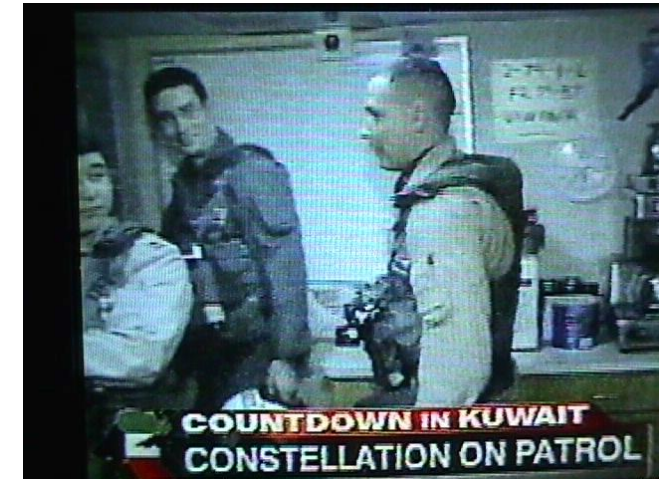
- ▶ 23 years of military logistics operations and supply chain support analysis
- ▶ Current president and founder of the Association of Marine Corps Logisticians (AMCL)
- ▶ Location: Virginia



Instructors

Connor McLemore – Principal OR Analyst

- ▶ 12 years of experience in scoping, performing, and implementing analytic solutions.
- ▶ Graduate-level teaching in NPS Operations Research department
- ▶ Published author on artificial intelligence and machine learning
- ▶ Chair of National Security Applications at ProbabilityManagement.org
- ▶ Location: Nevada



Instructors

Roque Graciani – Senior OR Analyst

- ▶ 22 years of military experience
- ▶ 12 years of experience as a U.S. Marine Corps Logistics Officer
- ▶ Over 9 years experience as an operations research practitioner
- ▶ Military Operations Research Society Member
- ▶ Location: New York



Introductions

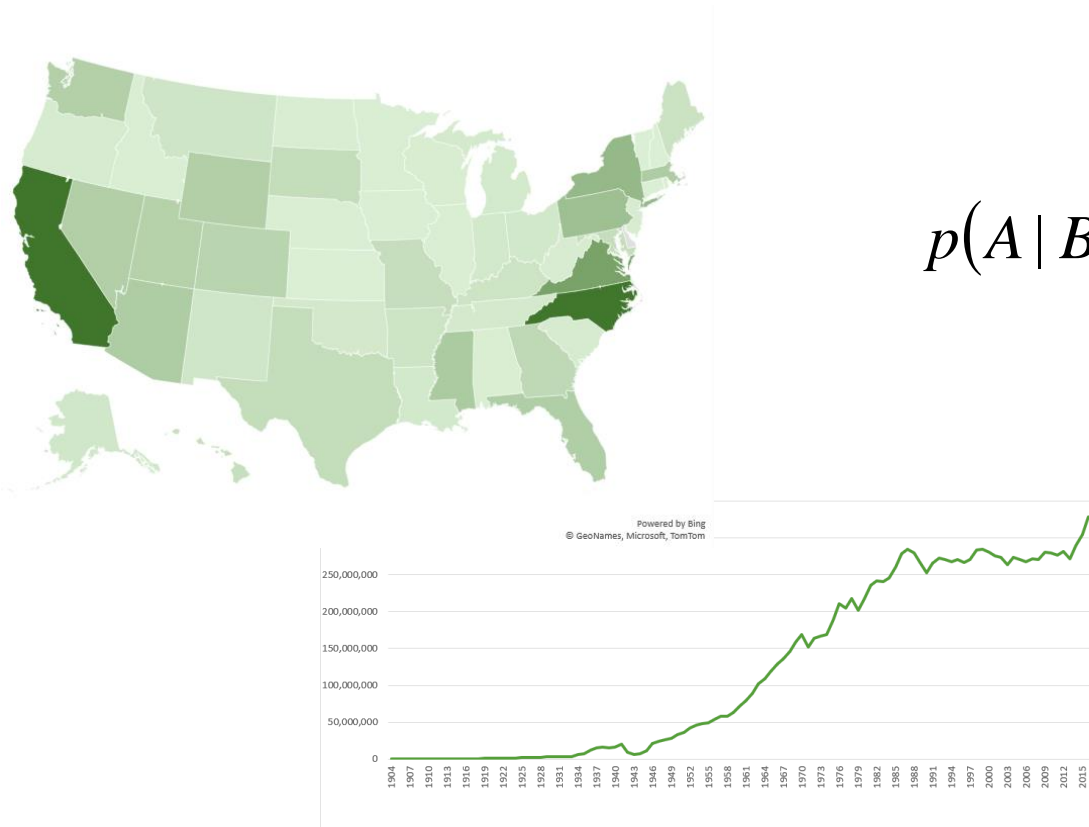
- ▶ Name
- ▶ Current role
- ▶ Where are you located?
- ▶ Why did you take this course? What do you hope to learn by the end of this course?

Course Overview

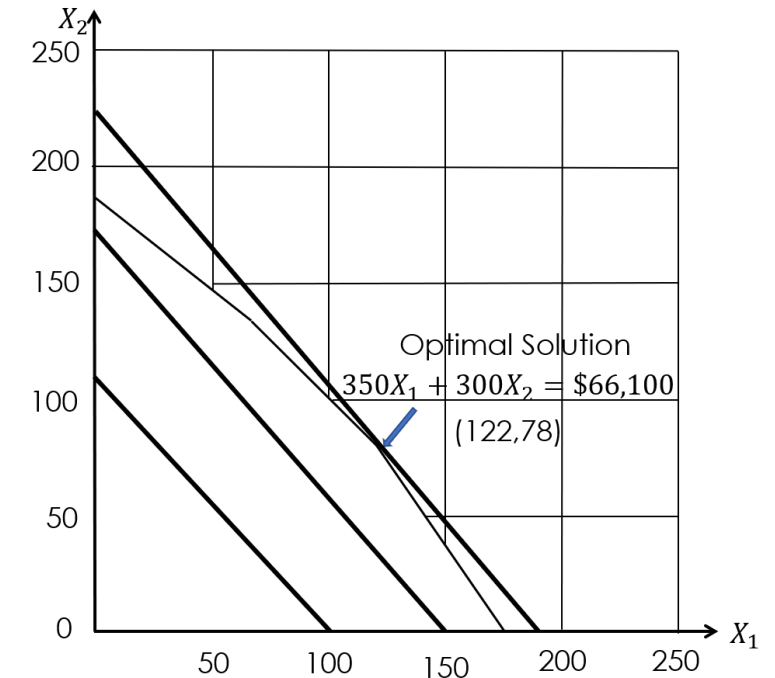
- ▶ Wednesday, September 16
 - Module 1: Showcasing Your Analytics
 - Module 2: Descriptive Analytics and Data
- ▶ Thursday, September 17
 - Module 3: Probability and Predictive Analytics
 - Module 4: Prescriptive Analytics and Optimization
 - Panel Discussion

Course Overview

- ▶ A look at what we'll explore in this class:



$$p(A|B) = \frac{p(A \cap B)}{p(B)}$$



“Cooking show” method

- ▶ In this course, we’ll work through many real-world examples in Excel
- ▶ To access the data, view alternate implementations of these problems, check out our repository on GitHub:
- ▶ <https://github.com/canallc/Training-Resources>



VETERANS IN ANALYTICS PANEL DISCUSSION

September 17, 2020 – 6:00 pm EDT



**John Alexander
Harris**
Full-Stack Data
Scientist
Boxelder Analytics



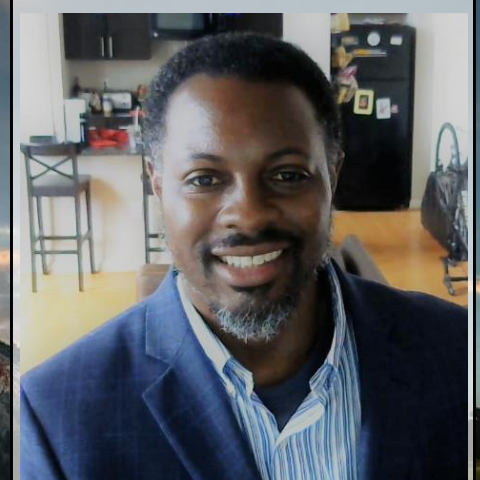
Randi VanNyhuis
Commercial
Intelligence Manager
The Walt Disney
Company



Joshua Wilson
Corporate
Relationship Manager
America's Warrior
Partnership



Dan Hudson
Chief Technology
Officer | Chief Data
Scientist
ReefPoint Group LLC



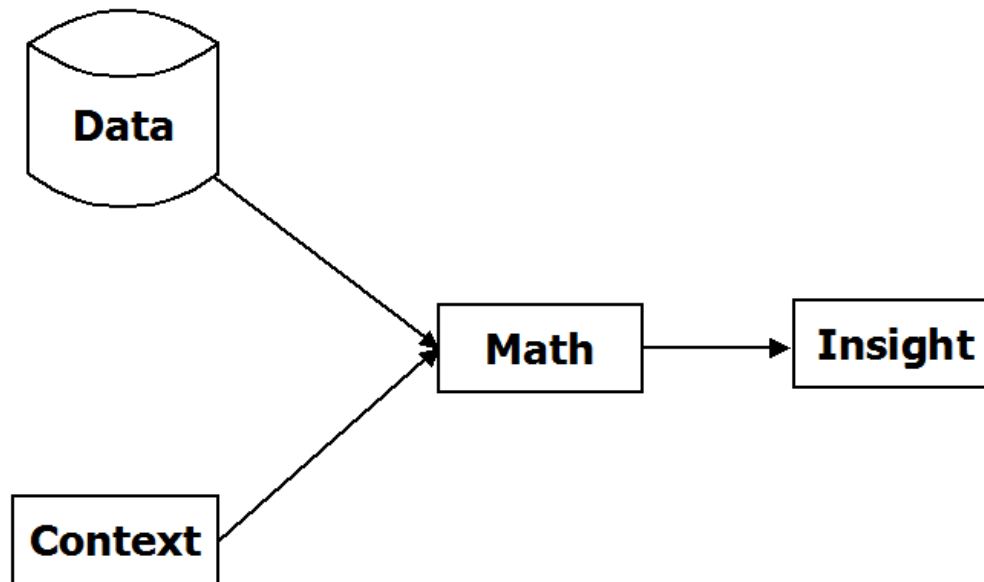
Jerome Dixon
Senior
Operations
Research Analyst
CANA Advisors



What is Analytics?

Analytics

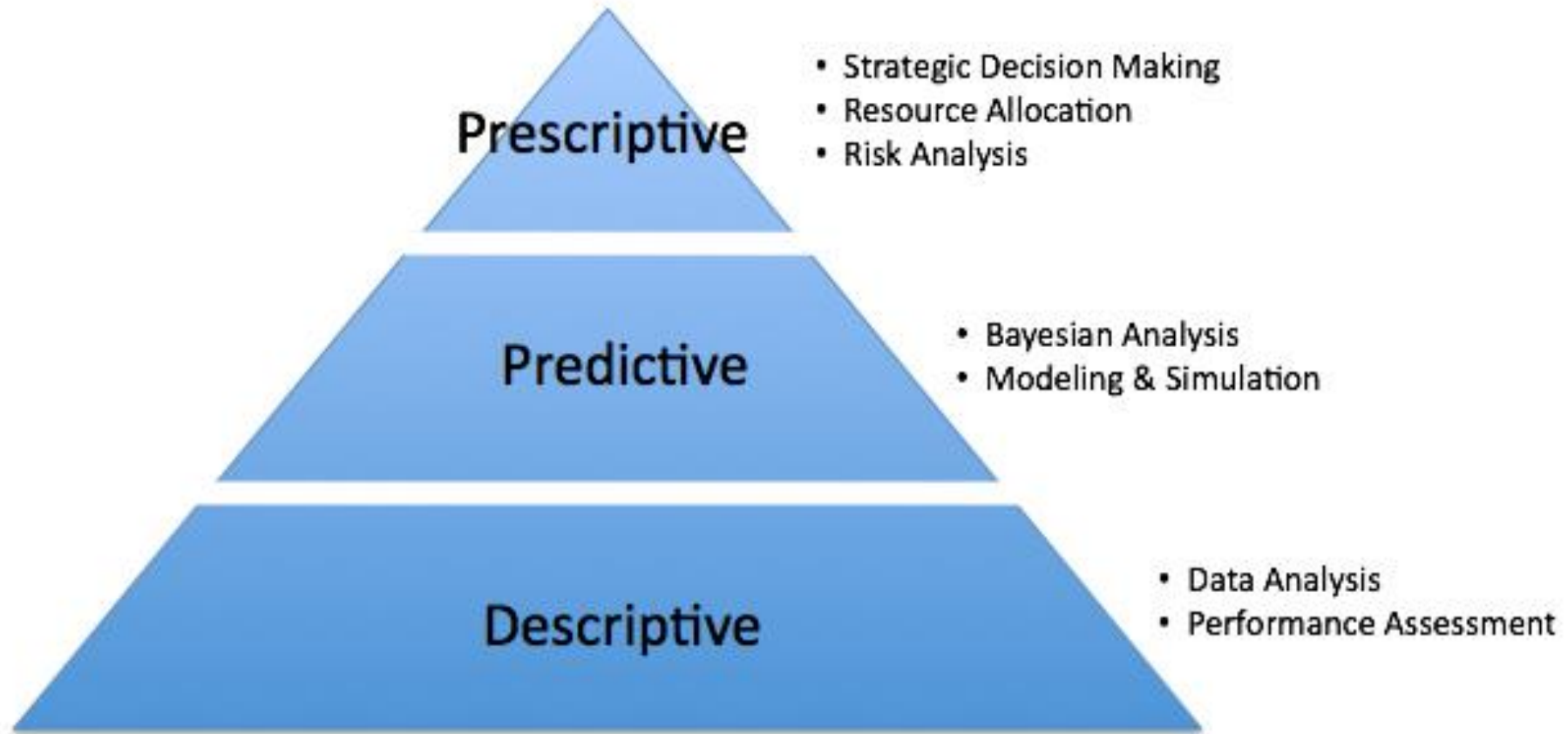
- ▶ The **systematic, computational** analysis of data or statistics.
- ▶ Information resulting from the aforementioned analysis.



Analytics Application



Analytics Pyramid



History

- ▶ WWII – Anti-Aircraft Guns on Merchant vessels
 - Morse and Kimball
- ▶ Should Merchant vessels be armed with Anti-Aircraft guns?
 - The argument against - these guns score very few ‘kills’ against enemy aircraft
 - Does this matter?



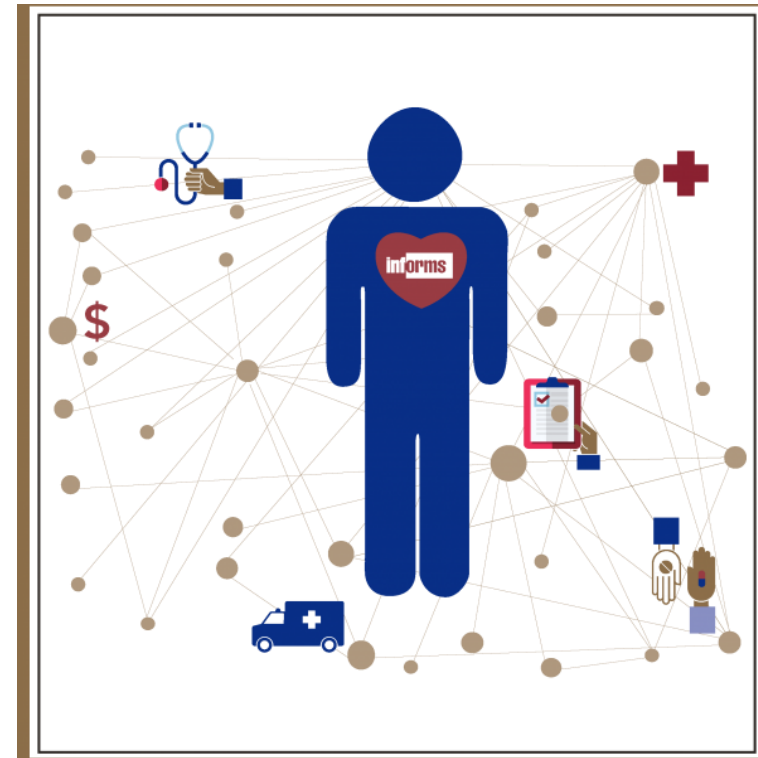
What is an Analytics Profession?

- ▶ Operations Research*
- ▶ Industrial Engineering
- ▶ Systems Engineering
- ▶ Statistician
- ▶ Data Engineer
- ▶ Data Scientist
- ▶ Applied Mathematician
- ▶ Others...

** Your instructors for this course count Operations Research as their 'home' discipline.*

Future Directions – Application Areas

- ▶ Healthcare
- ▶ “Internet of Things”
- ▶ Additive Manufacturing
- ▶ Transportation
- ▶ Banking
- ▶ Supply Chain
- ▶ Sports
- ▶ Utilities



So you want to be an Analytics Professional?



50 Best Jobs in America for 2020

	Job Title	Median Base Salary	Job Satisfaction	Job Openings
1	Front End Engineer	\$105,240	3.9/5	13,122
2	Java Developer	\$83,589	3.9/5	16,136
3	Data Scientist	\$107,801	4.0/5	6,542
4	Product Manager	\$117,713	3.8/5	12,173
5	DevOps Engineer	\$107,310	3.9/5	6,603
6	Data Engineer	\$102,472	3.9/5	6,941
7	Software Engineer	\$105,563	3.6/5	50,438
8	Speech Language Pathologist	\$71,867	3.8/5	29,167
9	Strategy Manager	\$133,067	4.3/5	3,515
10	Business Development Manager	\$78,480	4.0/5	6,560

50 Best Jobs in America for 2019

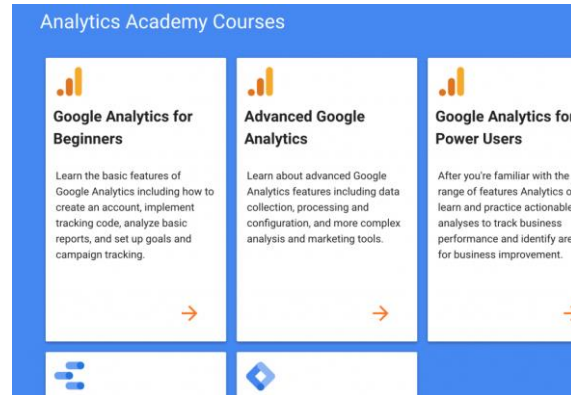
	Job Title	Median Base Salary	Job Satisfaction	Job Openings
1	Data Scientist	\$108,000	4.3/5	6,510
2	Nursing Manager	\$83,000	4/5	13,931
3	Marketing Manager	\$82,000	4.2/5	7,395
4	Occupational Therapist	\$74,000	4/5	17,701
5	Product Manager	\$115,000	3.8/5	11,884
6	Devops Engineer	\$106,000	4.1/5	4,657
7	Program Manager	\$87,000	3.9/5	14,753
8	Data Engineer	\$100,000	3.9/5	4,739
9	HR Manager	\$85,000	4.2/5	3,908
10	Software Engineer	\$104,000	3.6/5	49,007



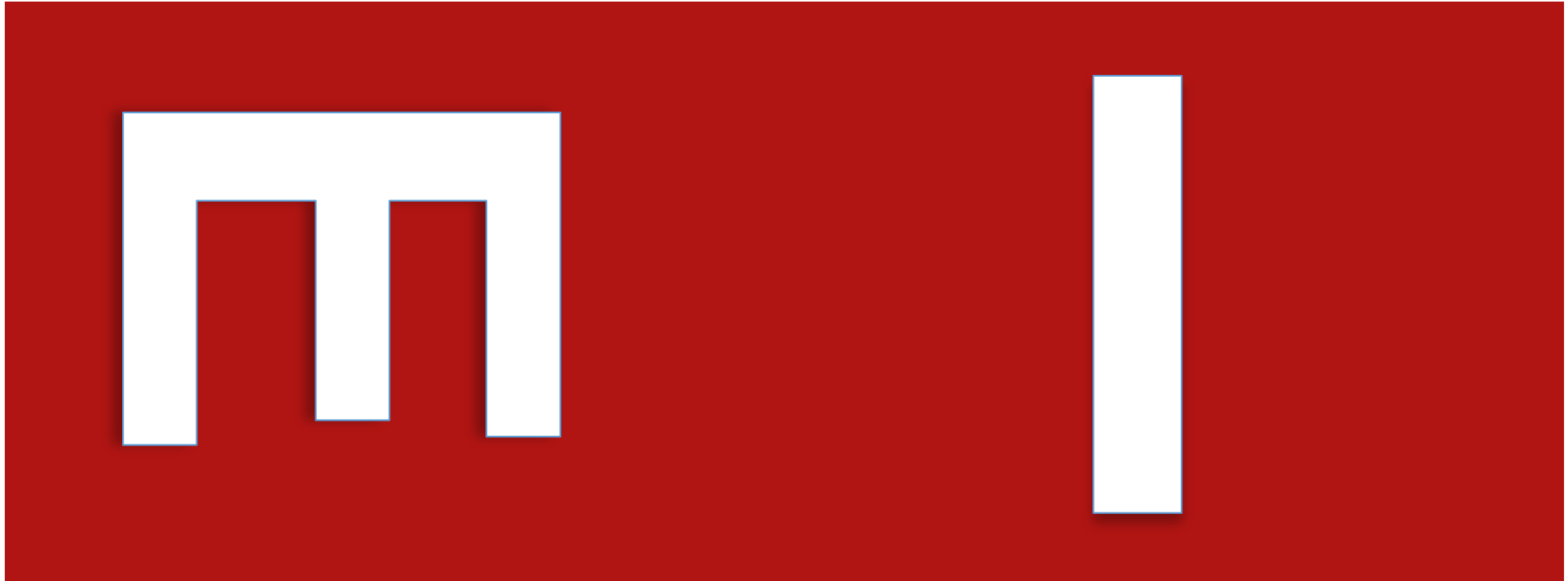
How to Become an Analytics Professional?

Learning Analytics

**DATA
SCIENTIST
BOOTCAMP**



E vs I



Different flavors of analytics expertise

Analytics Professional Organizations

- ▶ **INFORMS**

- Institute for Operations Research and Management Sciences
www.informs.org

- ▶ **MORS**

- Military Operations Research Society www.mors.org

- ▶ **American Statistical Association**

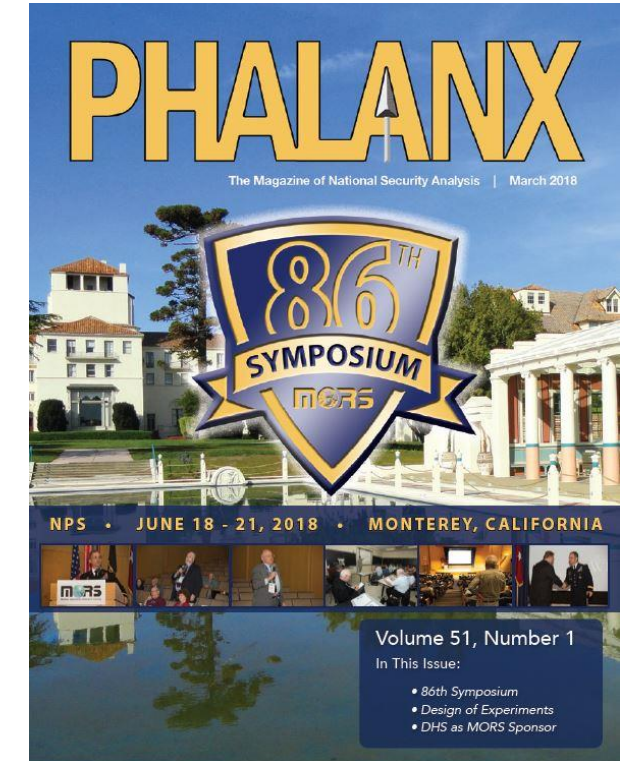
- ▶ **Royal (UK) Statistical Society**

- ▶ And, others

Publications

- ▶ OR/MS Today
- ▶ Analytics Magazine
- ▶ INTERFACES*
- ▶ MORS Phalanx
- ▶ SIGNIFICANCE
- ▶ AMSTAT News

* Or, its successor name



Analytics Meetups

The screenshot shows the Meetup website interface. At the top, the Meetup logo is in the upper left corner. A dark blue banner contains the text "Find your next event" and "49 events in your groups • 1,164 events near you". Below this is a search bar with "analytics" entered, followed by "within 50 miles of Chapel Hill, NC". To the right of the search bar are buttons for "Groups" and "Calendar". Below the search bar, the results are sorted by "Recommended". The first result is "Analytics.Club Raleigh" with 610 Data Scientists and 1 friend. The second result is "Digital Analytics Association - Raleigh Chapter" with 335 Members. To the right of these is a dashed box for "START THIS GROUP" for the "Chapel Hill Predictive Analytics Meetup Group" with "Over 50 interested >". Below these are three more results: "Big Data Analytics and Cloud Career Meetup" (76 Members), "Data Analytics For Startups and Small Businesses" (45 Members, marked as NEW), and "Raleigh-Durham BI & Data Analytics User Group" (392 Members).

A vertical strip of various analytics meetup event thumbnails, showing a grid of different event posters and logos, including "DIGITAL ANALYTICS", "Big Data Analytics", and "Data Analytics For Startups".

Analytics Conferences

▶ **MORS Symposium**

- Annually, June. Classified level meeting of National Security Professionals.

▶ **INFORMS Annual Meeting**

- October/November annual meeting. Massive meeting with ~80 parallel tracks.

▶ **INFORMS Business Analytics Conference**

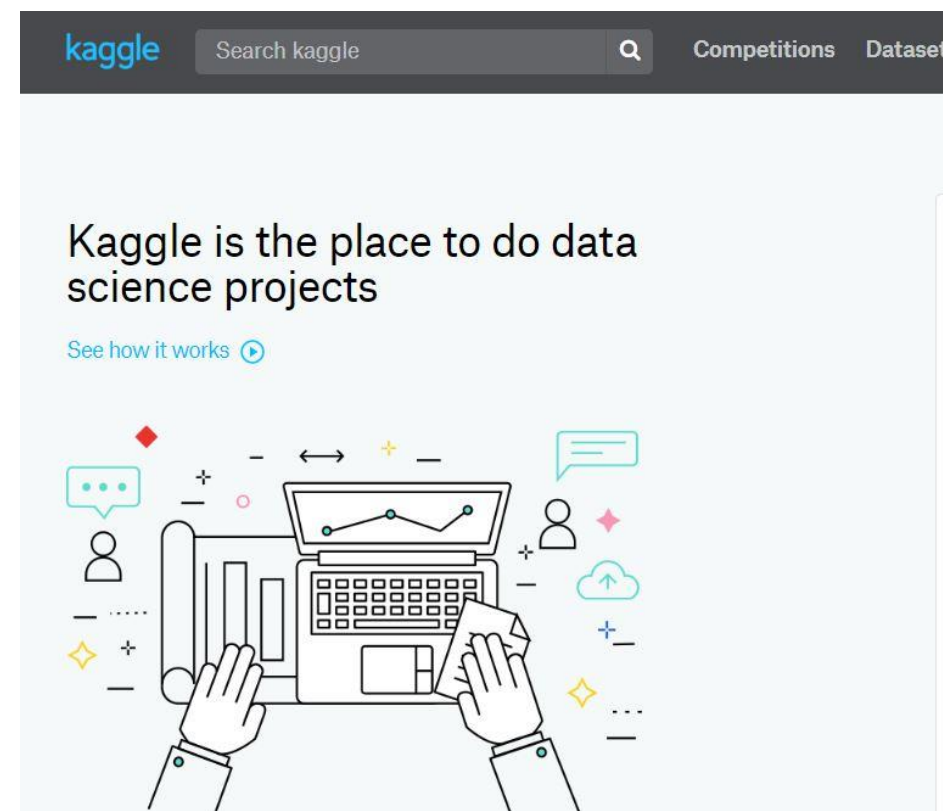
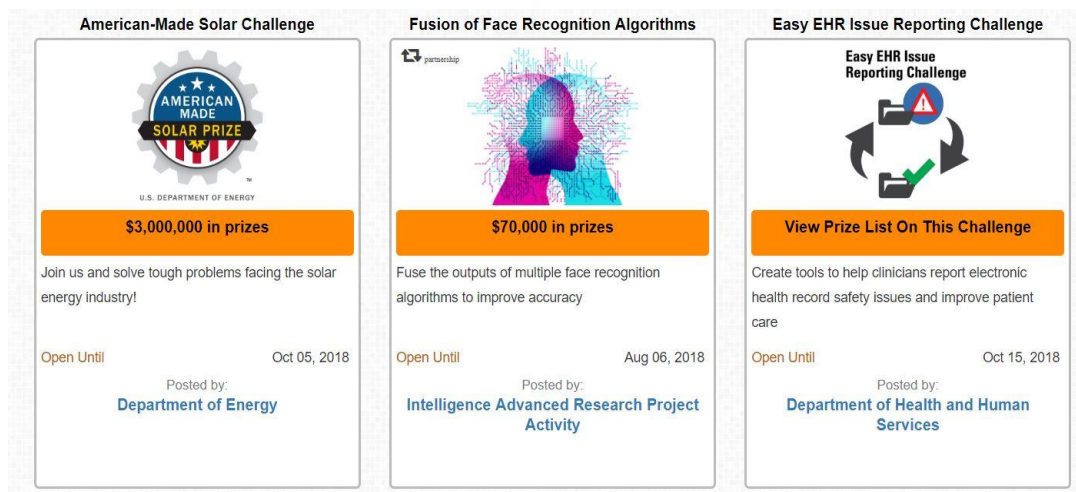
- Annually, Spring. A top-tier event.

▶ **Open Data Science Conference**



Online Challenges

- ▶ Kaggle
- ▶ Challenge.gov



Coding Language



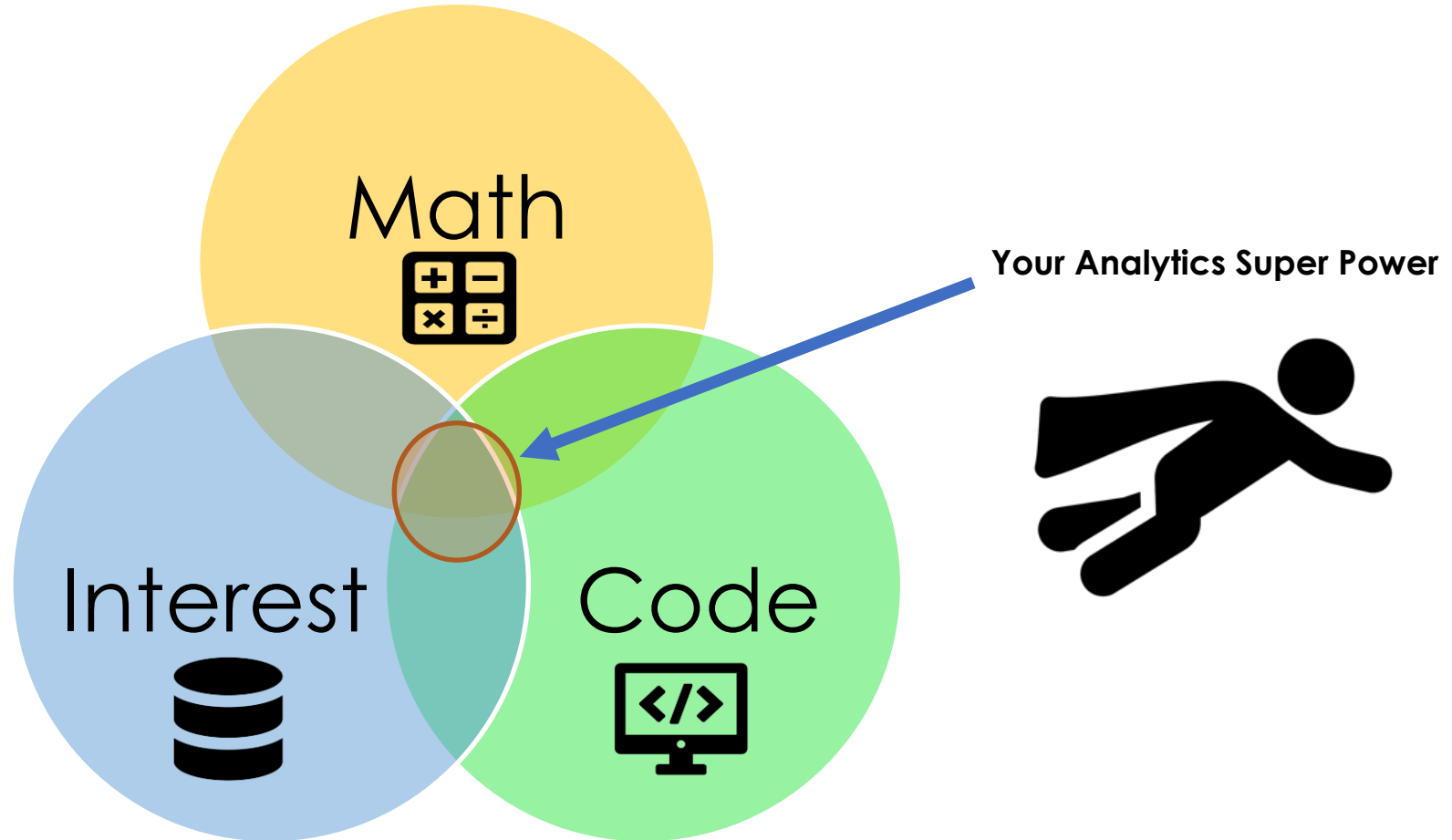
THE
POWER
TO KNOW®



The Truth About Coding



What is Your Analytics Super Power?



Self-directed, project-based learning

- ▶ What do you want to learn?
- ▶ Incorporate that into your project
 - New programming language
 - New language
 - Soft Skills
 - Writing
 - Speaking
 - Selling



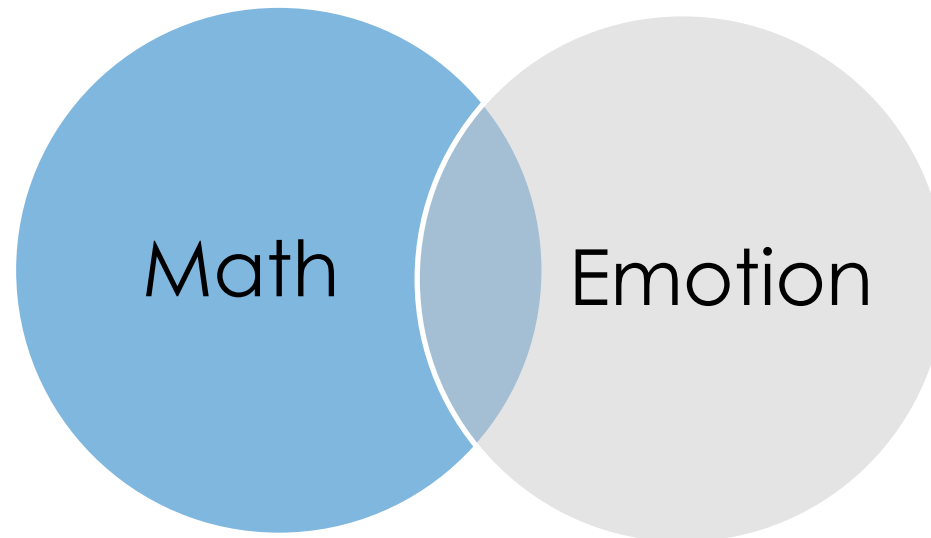
No matter what the outcome of the project you learned new skills

Selling Analytics

Trust + Experience + Effective Communication + Analysis > Convince Me



**Highly Correlated
with Time**



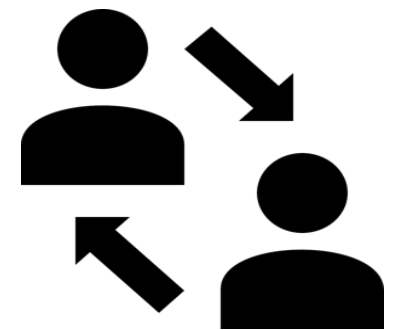
Challenges in Analytics

- ▶ Depth vs range
 - Industry or methodology
- ▶ Data quality
 - Lots of time to shape data into analysis format
- ▶ Data understanding
 - This is an Analytical Professional's value add

Interesting and challenging career field

Day in the Life Analytics Professional

- ▶ Research – 10%
- ▶ Coding – 10%
- ▶ Marketing – 15%
- ▶ Communications – 25%
- ▶ Project Management – 30%
- ▶ Breaks – 10%
 - Run
 - Cycling
 - Walk



Everyday is different

What I am looking for in an Analytics Professional

- ▶ Curiosity
 - ▶ Self Motivated
 - New methodologies
 - New techniques
 - Propose a lunch and learn during an interview
 - ▶ Evidence of successful and implemented models
- Watch one, Do one, Teach one, Write one**
- ▶ Writing
 - Blogs
 - Reports
 - Emails
 - Articles
 - ▶ Presenting (Improv)
 - Client
 - Conferences
 - Local meetings
 - Internal
 - ▶ Selling

Success Enablers

- ▶ Professional societies
- ▶ Local meetups
- ▶ Alumni association
- ▶ Volunteer
 - Pro Bono – \$0 pay for acknowledged deliverable
- ▶ Lifelong learning



Expand your influence, connections, skills

Improving Soft Skills

- ▶ **Read consistently**

- ▶ The Economist
- ▶ FiveThirtyEight
- ▶ Others?



- ▶ **Write consistently**

- ▶ **Co-author**

- ▶ Begin as “wingman” for a more experienced writer!






Publishing & Presenting You

Github ReadMe Project

The screenshot shows the GitHub profile of Walt DeGrange (Itwalt). The profile header includes a search bar, navigation links (Pull requests, Issues, Marketplace, Explore), and a user avator. The profile section features a circular profile picture, the name "Walt DeGrange", the username "Itwalt", and a bio "Loves sports analytics and logistics." Below this is an "Edit profile" button and statistics: "1 follower · 6 following · 2 stars". The profile lists affiliations: "CANADA Advisors", "Chapel Hill, NC", "Itwalt@gmail.com", and a LinkedIn link. A "Highlights" section shows "Arctic Code Vault Contributor" and "PRO" status. The "Organizations" section lists "CANADA". The main content area shows a README for "Itwalt / README.md" with a "Send feedback" button. The README text includes a greeting and a list of interests: "I'm currently working on ... Analysis on the impact of analytics on professional sports", "I'm currently learning ... Machine learning testing techniques", "I'm looking to collaborate on ... Anything interesting", "I'm looking for help with ... Implementing analytics", "Ask me about ... Micro education", "How to reach me: ... Itwalt@gmail.com", "Pronouns: ... Mega-Fun", and "Fun fact: ... I have spotted for several race car teams IRL". Below the README is a "Popular repositories" section with three items: "espnsports" (HTML, 2 stars), "academic-kickstart" (Shell), and "rduflights17" (R, forked from triangle-r/rduflights17). The bottom of the profile shows "202 contributions in the last year" and a "Contribution settings" link.

Search or jump to... Pull requests Issues Marketplace Explore

Overview Repositories 22 Projects Packages

 Walt DeGrange
Itwalt
Loves sports analytics and logistics.
Edit profile
1 follower · 6 following · 2 stars
CANADA Advisors
Chapel Hill, NC
Itwalt@gmail.com
https://www.linkedin.com/in/waltdegra...
Highlights
* Arctic Code Vault Contributor
PRO
Organizations
CANADA
202 contributions in the last year
Contribution settings

Itwalt / README.md
Send feedback

Hi there 🙌

Here are some ideas to get you started:

- 🔧 I'm currently working on ... Analysis on the impact of analytics on professional sports
- 📖 I'm currently learning ... Machine learning testing techniques
- 🤝 I'm looking to collaborate on ... Anything interesting
- 🙋 I'm looking for help with ... Implementing analytics
- 💬 Ask me about ... Micro education
- 📧 How to reach me: ... Itwalt@gmail.com
- 🗨 Pronouns: ... Mega-Fun
- ⚡ Fun fact: ... I have spotted for several race car teams IRL

Popular repositories



espnsports
This repo is an ongoing analysis to quantify the effects of analytics on the big four US professional sports teams. The ESPN Great Analytics Rating in 2015
http://www.espn.com/espn/feature/story/_/...
HTML 2 stars


academic-kickstart
Shell

rduflights17
Forked from triangle-r/rduflights17
An R data package containing all out-bound flights from RDU in 2017
R





Itwalt

Webpage, Blog, CV

Walt's World [Home](#) [Posts](#) [Publications](#) [Contact](#) [CV](#)  



Walt DeGrange
CANA Advisors Director of Analytics Capabilities
[CANA Advisors](#)
[NC State Poole School of Managment](#)
[University of Arkansas](#)



Biography

Walt DeGrange is the Director of Analytics Capabilities for CANA Advisors. He recruits, develops, and enables a team of analytics professions to produce high level analytics products across federal and commercial domains including: operations research studies & analysis, analysis of logistics systems, sports analytics, data and information-based decision support solutions, and data quality & analytic assessments. He is also a faculty member at the University of Arkansas in the Operations Management graduate program, an MBA Executive Practicum Advisor at the NC State University Poole School of Management, and the Chairperson for the INFORMS SpORts Section. His analytics projects include work with the Navy, Marine Corps, St Louis Blues (NHL), and Atlanta Blaze Major League Lacrosse (MLL) team. Walt has a Bachelors in Electrical Engineering from Vanderbilt University and a Masters in Operations Research from the Naval Postgraduate School.

Interests

- Operations Research
- Optimization
- Simulation
- Machine Learning

Education

-  MS in Operations Research, 2005
Naval Postgraduate School
-  BE in Electrical Engineering, 1992
Vanderbilt University

Connect via LinkedIn



The image shows a LinkedIn profile for Walt DeGrange. The background banner features a blue-toned graphic with a bar chart and a line graph, with the word 'Money' visible on the left. The profile includes a circular headshot of a smiling man, his name 'Walt DeGrange', and his title 'Director of Analytics Capabilities at CANA Advisors - Analytics & Logistics Operations experts'. It also shows his location 'Raleigh-Durham, North Carolina Area' and '500+ connections'. To the right, there are two organizational logos: 'CANA Advisors' and 'The United States Naval Postgraduate School'. At the bottom right, there is a 'Facebook' link with an external icon.

Walt DeGrange
Director of Analytics Capabilities at CANA Advisors -
Analytics & Logistics Operations experts
Raleigh-Durham, North Carolina Area · 500+ connections

 CANA Advisors - Analytics & Logistics Operations experts

 The United States Naval Postgraduate School

 Facebook 



Questions?