2020 ANCC Doctoral Conference Naples, FL

Emory University Nell Hodgson Woodruff School of Nursing

Innovation and AI

January 31,2020

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3 GOALS for Innovation and AI (Artificial Intelligence)

1. **Leadership**
2. **Innovation**
3. **Center for Data Science**
4. **AI in doctoral programs**

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1. MAJOR leadership
    1. Dean
    2. Practice
    3. Funding
    4. Vision
    5. Metrics

Dean Linda McCauley, PhD, RN, FAAN
Emory University
Nell Hodgson Woodruff School of Nursing

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1. MAJOR leadership
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    4. Vision
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Sharon Pappas, PhD, RN, FAAN,
System Chief Nurse Emory
Healthcare

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Center for Data Science-
Co-Director and Founder
(World Famous) Dr. Vicki Herzberg
PBS- where to sit on an airplane
And Dr. Roy L. Simpson (Co-Director)

Andrea Plotsky
Masato Yoshihara
Jennifer Paul
BSN honors student Emily Newell
DNP student student Courtney Omary
PhD students
    Jasmine Nakayama
       (NEF and RWJ Scholar)
    Daniel Smith
    Tommy Flynn (NEF Scholar)
Ramya Govindarajan
Rebecca Mitchell
Great graduate students at 10 now
    Computer science and public health

1. **MAJOR leadership**
   1. **Dean**
   2. **Funding**
   3. **Vision**
   4. **Metrics**

Advancing Health Through Science
Smart and connected Health (SCH) Principal Investor Meeting
National Science Foundation
Washington DC
January 6-7,2020

Take a ways from my "do you want to be a PI"

Word search for first round of review

The staff work better if you have sent them something to read, don't ask is this of interest unless you have sent something for the staff to react to in a meeting with you if you are seeking guidance

Reach people who are in need of smart technology

Some gaps in research applications- the patient, nurse and consumer

Microbiomes in the gut

FONT Changes- really key to collaboration
    Remember Collaboration is not only MDs, but undergraduate liberal arts, computer science and math, plus anything you can give credibility to....

Take aways from my "do you want to be a PI"

Joint review panel needs to be active- must clarify relationship

Areas of research needing focus"
infrastructure
Contributions by multiple parties
Writer from inception needs to tie it all together
Evaluation component
Technology reliability, usability and impact
Really takes at least 6 months to start the review process once submitted

Finances- sign up bonus, need student funding ask for it, salary support

Website for further information:

WWW.NSF.GOV

1. MAJOR leadership
   1. Dean
   2. Funding
   3. <u>Vision</u>
   4. Metrics

Count the number of F's

FINISHED FILES ARE THE RESULT OF YEARS OF SCIENTIFIC STUDY

COMBINED WITH THE EXPERIENCE OF YEARS.

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Principal Component Analysis

Technique to find underlying variables (PCAs)
that best differentiate your data points. PCAs are
dimensions along your data points and spread-

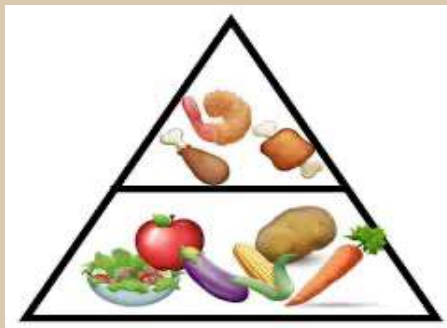## An Example with Food Groups

Pictures from Internet images

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Here is the problem-

Imagine you are a nurse exploring nutrition for AI. What is the best way to differentiate the food groups? By Vitamin? Protein? Or both? Or whatever?
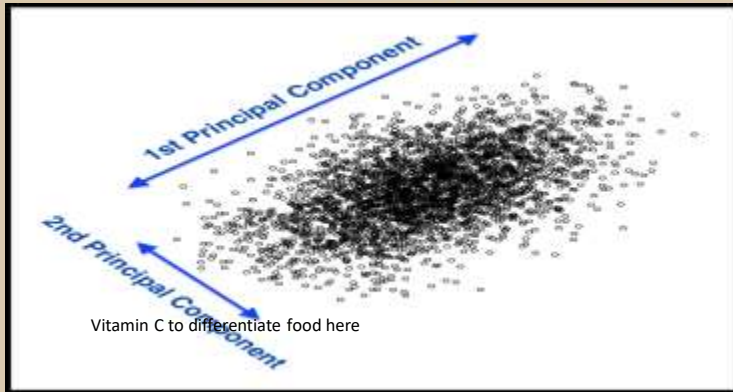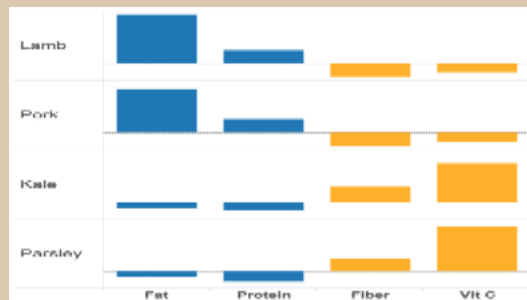
VISUALIZATION OF PROTEIN

Vitamin C to differentiate food here

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Fat and Protein move in same direction

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Fiber- Systematic computation

	PC1	PC2	PC3	PC4
Fat	-0.45	0.66	0.58	0.18
Protein	-0.55	0.21	-0.46	-0.67
Fiber	0.55	0.19	0.43	-0.69
Vitamin C	0.44	0.70	-0.52	0.22

APPLYING PCA TO FOOD DATASET RESULTS IN PRINCIPAL COMPONENTS

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Height of Stack

Diameter of Pancake
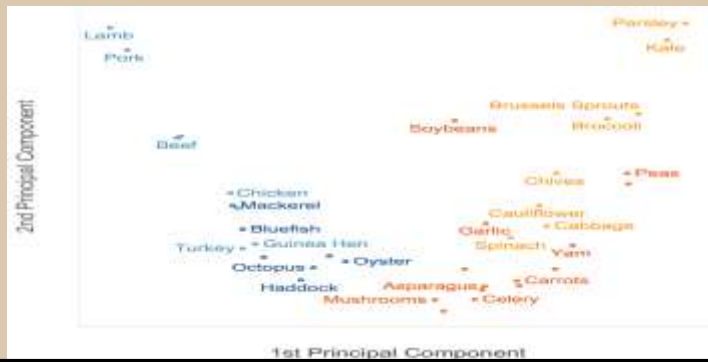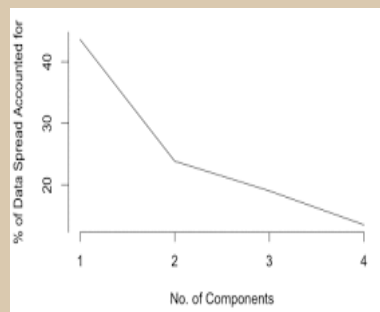
23

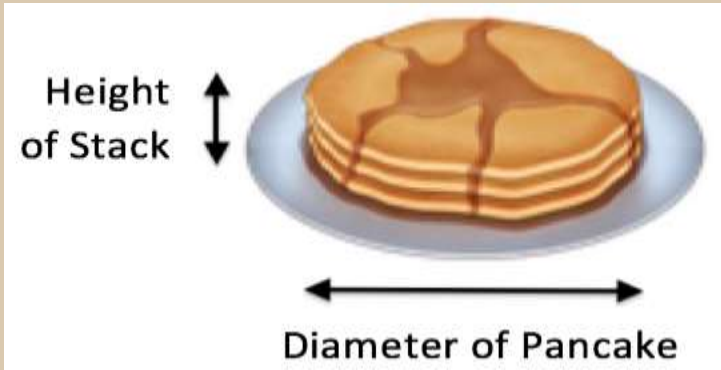# Why We Are Doing All This

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Center for Data Science

Folks- Future conference on Data Science for doctoral degrees- Thank you for attending.