

# Hilary Parker

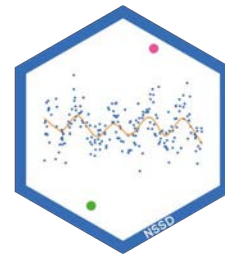
Data Scientist, Stitch Fix



JOHNS HOPKINS  
BLOOMBERG  
SCHOOL of PUBLIC HEALTH



Etsy



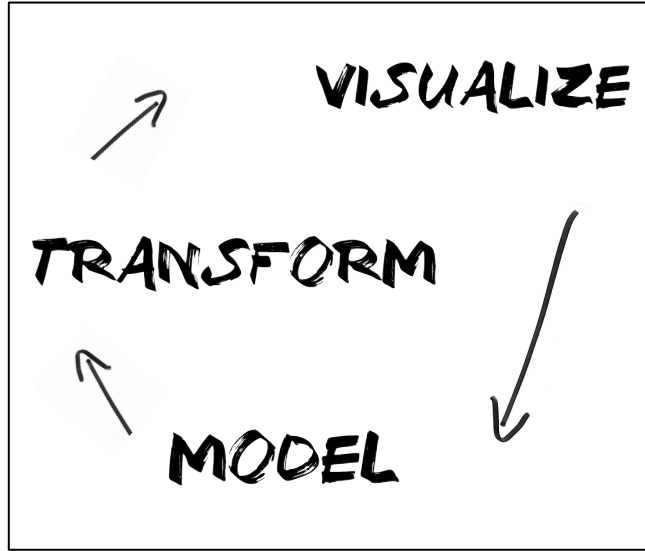
STITCH FIX



DESIGN THINKING  
FOR DATA SCIENCE

Things you need to do  
your job well that no  
one tells you about

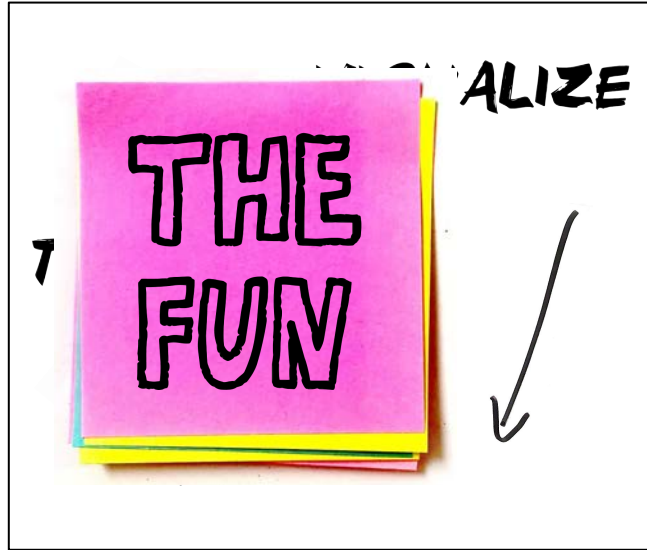
IMPORT → TIDY →



→ COMMUNICATE

EXPLORE

IMPORT → TIDY →



EXPLORE

→ COMMUNICATE

TIDY



EXPLORE

→ COMMUNICATE

**DATA  
COLLECTION**



TIDY



→ COMMUNICATE



# DESIGNING A SYSTEM

DATA  
COLLECTION








TIDY



→ COMMUNICATE

"Design impacts everyone, but does everyone understand good design? If they read this book, they will."  
SAM AGUILLANO, executive director, Design Museum Foundation

**H**  **W**  
**DESIGN**   
**MAKES**   
**THE**   
**WORLD** 

SCOTT BERKUN

Nigel Cross

Designerly Ways  
of Knowing

 Springer



“Can you redesign this chair to be more compact?”



# STITCH FIX

YOUR PARTNER IN PERSONAL STYLE

Try the personal styling service for everyone! No matter your age, size or budget we've got styles for you.

WOMEN →

MEN →

KIDS →





CREATE YOUR  
STYLE PROFILE



GET 5 HAND  
PICKED ITEMS



KEEP WHAT YOU LIKE  
SEND THE REST BACK



DANIEL RAINN  
Anders Split Neck Blouse

SIZE: XS

\$64

SIZE

Too small	Just right	Too big
-----------	------------	---------

FIT/CUT

Hate it	Just ok	Like it	Love it
---------	---------	---------	---------

[Any specific issues?](#)

STYLE

Hate it	Just ok	Like it	Love it
---------	---------	---------	---------

QUALITY

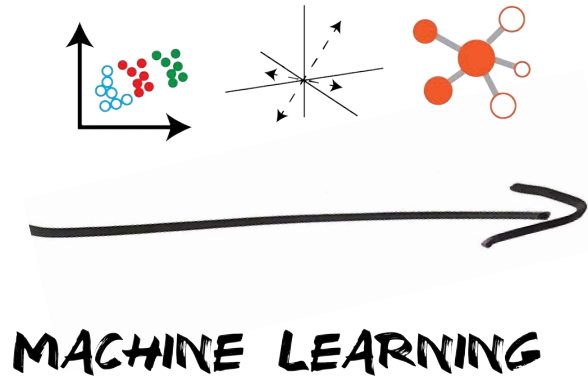
Poor	Average	Great
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PRICE

Too high	Just right	A steal
----------	------------	---------

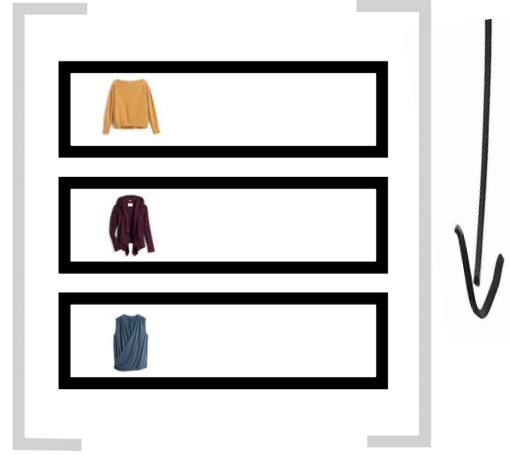
COMMENTS?

# INVENTORY



# MACHINE LEARNING

# ALGORITHMIC RECOMMENDATIONS







**CHALLENGE:**

**WE ONLY GET STYLE RATINGS  
ON THE 5 ITEMS SENT**



# STYLE SHUFFLE

5:30

LTE

STITCH FIX

ACCOUNT



HILARY

STYLE PROFILE

MY ITEMS

REFER

STYLE SHUFFLE



Is this your style?



Adding a note for your stylist can be a big help in getting a great Fix.

Tell your personal stylist about upcoming occasions, the type of items you'd love to add to your closet or any other input you think might be helpful.





Designing new  
products will give you  
the biggest wins

**DATA  
COLLECTION**



TIDY



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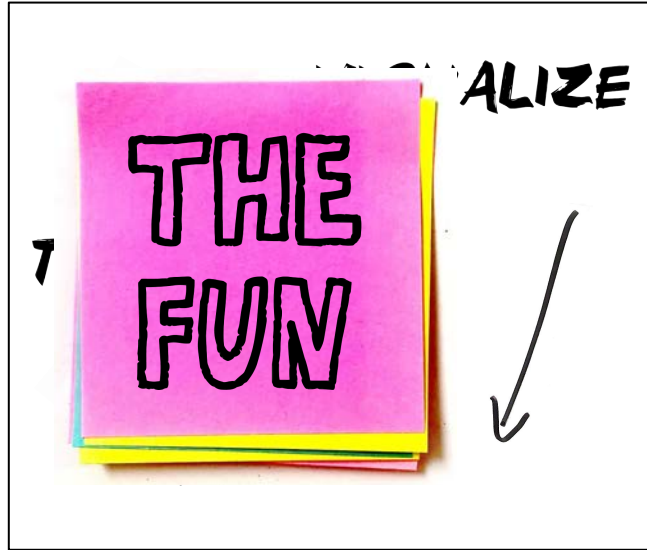
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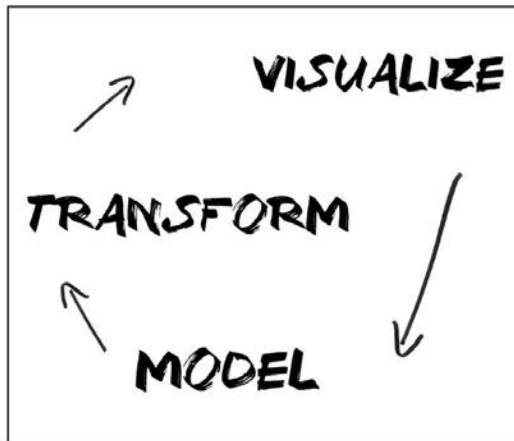
COMMUNICATE

EXPLORE

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EXPLORE

Statisticians are  
systems engineers.



Statisticians are  
systems engineers.

How can you get data from point A to point B  
with as little error as possible?



CREATE YOUR  
STYLE PROFILE



GET 5 HAND  
PICKED ITEMS



KEEP WHAT YOU LIKE  
SEND THE REST BACK

User visits Stitch Fix  
and fills out the Style  
Profile

Would you wear any of these denim styles?

**NON-DISTRESSED**

Regular denim with no rips or  
holes



Yes

Maybe

Never

**MINIMALLY DISTRESSED**

Light scratches and scuffs, but  
no holes



Yes

Maybe

Never

**FAIRLY DISTRESSED**

A few cuts or holes



Yes

Maybe

Never

User visits Stitch Fix  
and fills out the Style  
Profile



Engineering system  
logs information to  
display back to user

Would you wear any of these denim styles?

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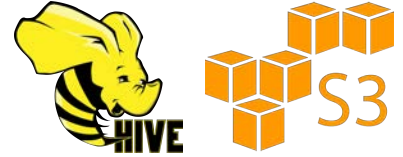
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Algorithms team takes  
snapshot of engineering  
database



User visits Stitch Fix and fills out the Style Profile



Engineering system logs information to display back to user



Algorithms team takes snapshot of engineering database



Analyst reads data into an interactive session from Algorithm snapshots



User visits Stitch Fix and fills out the Style Profile



Engineering system logs information to display back to user



Algorithms team takes snapshot of engineering database



Analyst reads data into an interactive session from Algorithm snapshots



Analyst manipulates data into digestible format (analysis)





User visits Stitch Fix and fills out the Style Profile



Engineering system logs information to display back to user



Algorithms team takes snapshot of engineering database



Analyst reads data into an interactive session from Algorithm snapshots



Analyst manipulates data into digestible format (analysis)



Analyst transmits analysis to consumers



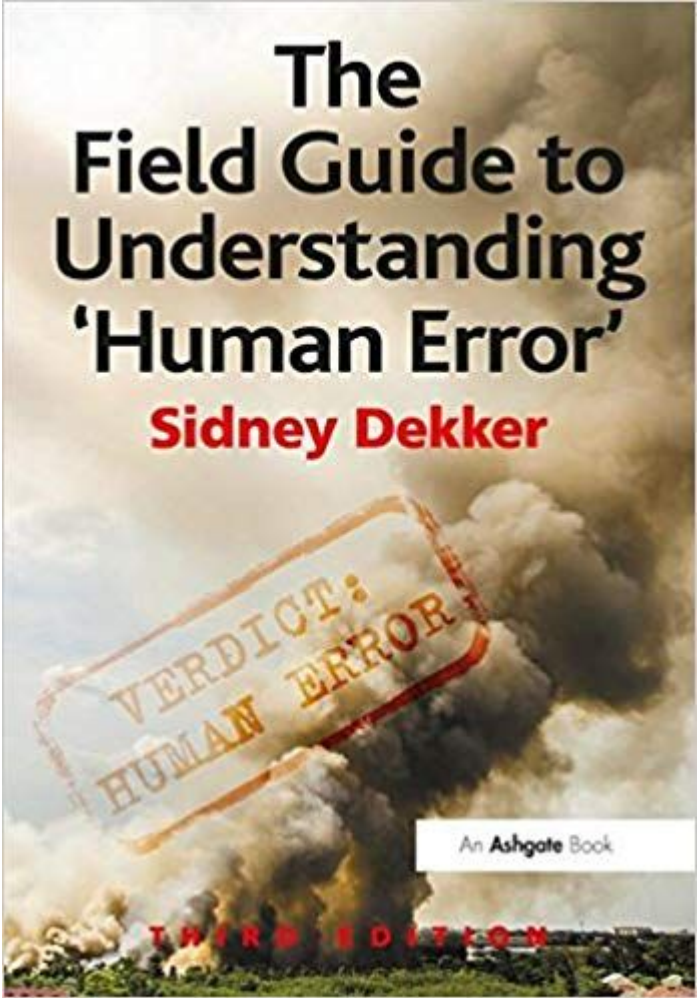
Focus on generic  
principles, not tools

“Excel is the worst.”

~~“Excel is the worst.”~~

“Excel does make it hard to create scripts. If you want to redo your analysis frequently, writing a script will take time now but save you lots of time later.”

# Incident-based system evolution



# The Field Guide to Understanding 'Human Error'

**Sidney Dekker**

An Ashgate Book

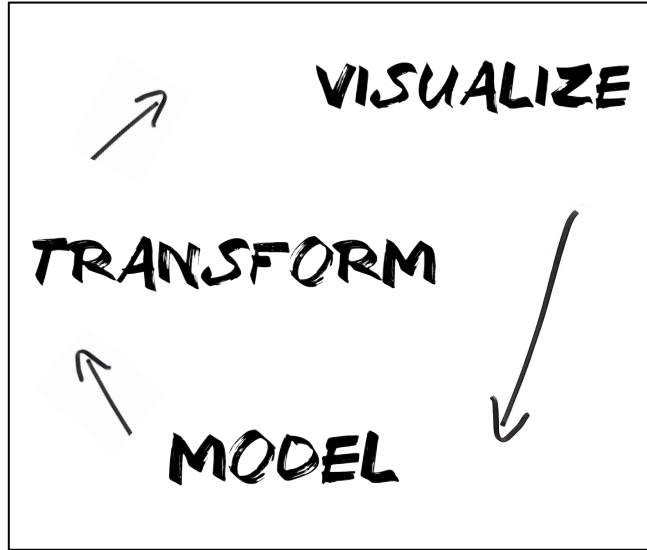
**THIRD EDITION**

Blameless attitude:  
system failed you, not  
the other way around

Blameless-postmortems:  
A constructive way to  
respond to incidents



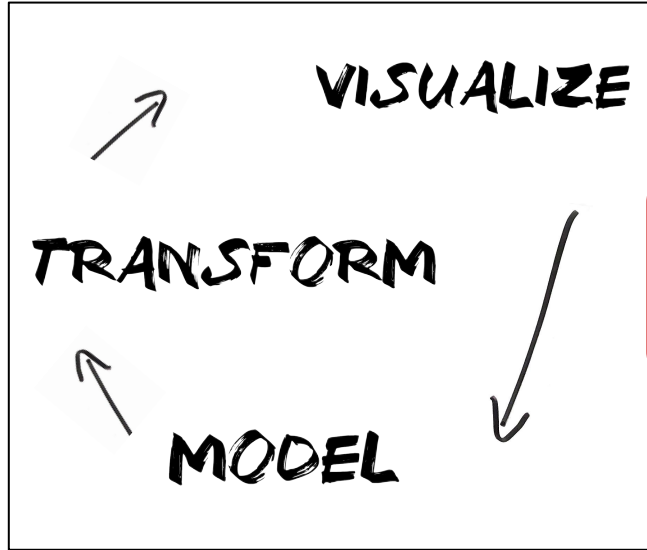
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 Springer



“Can you redesign this chair to be more compact?”



Reframing the problem  
is a (big) part of the  
solution

# Fundamentals of the system

# Fundamentals of the person



A data analysis is successful if the audience to which it is presented accepts the results.

THE INTERNATIONAL BESTSELLER

**GETTING**

↓↓↓ TO ↓↓↓

**YES**

UPDATED  
and  
REVISED

**NEGOTIATING AGREEMENT  
WITHOUT GIVING IN**

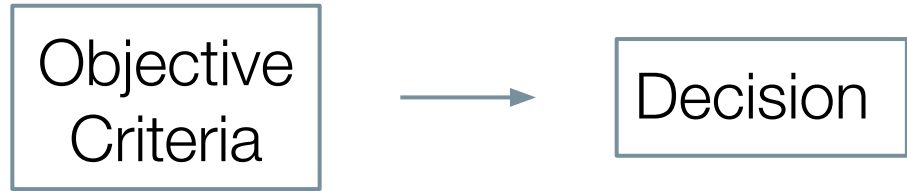
ROGER FISHER AND WILLIAM URY  
AND FOR THE REVISED EDITIONS BRUCE PATTON  
OF THE HARVARD NEGOTIATION PROJECT

A data analysis is  
presented accep

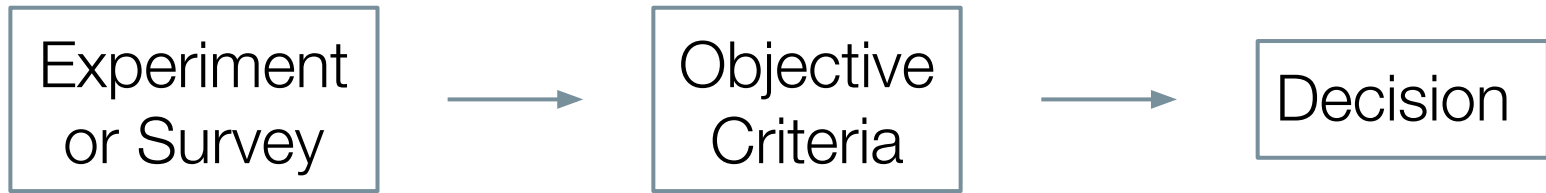
ence to which it is

## Decision

“We should decide whether our company goes with design A vs design B”



“If we know which of design A vs design B converts more clients, we’ll go with that”



“Let’s run an experiment measuring whether design A or design B is better”

Design A

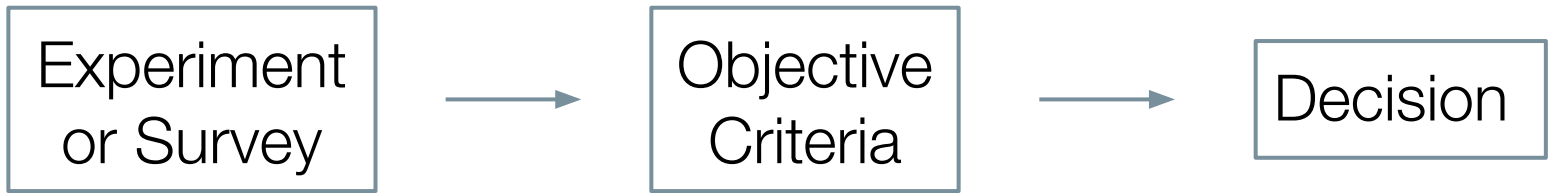


Team gets more  
engineering headcount

Design B



Team headcount stays  
the same



Understand the  
collaborator as a  
person first

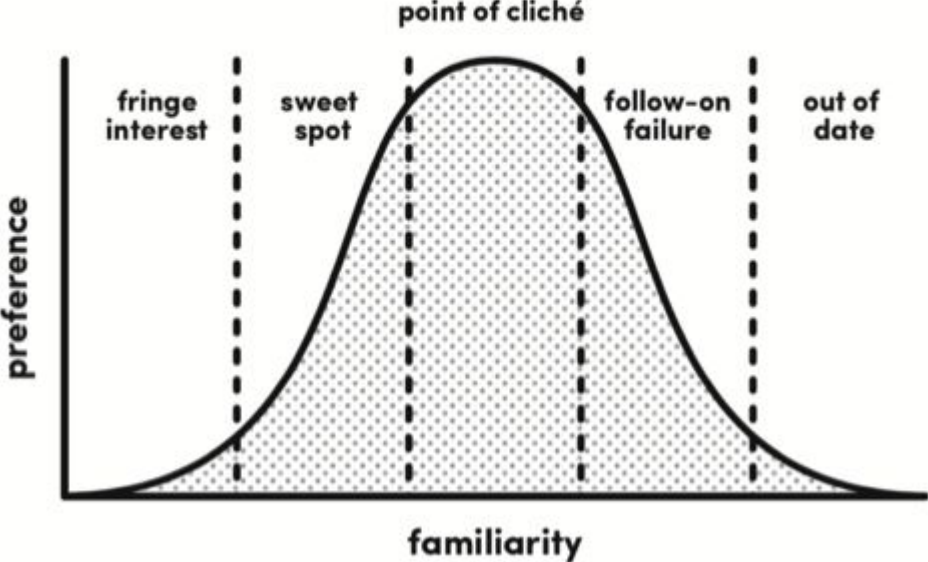


Extract your ego as  
much as possible

(this is very hard)

Understand what they  
are comfortable with,  
and don't stray too far

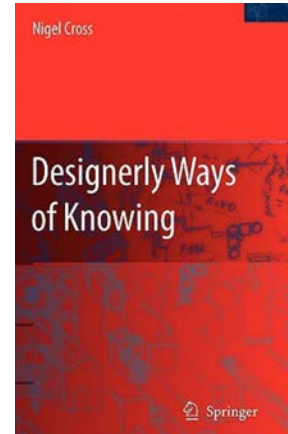
# The Creative Curve



Don't let the fun get the  
best of you

DESIGN IS NOT A "MYTHICAL"  
OR "MYSTERIOUS TALENT"

IT'S A DISCIPLINE →



Design ability is, in fact, one of the three fundamental dimensions of human intelligence.

Design, science, and art form an ‘and’ not an ‘or’ relationship to create the incredible human cognitive ability.”

Nigel Cross

# HOW TO HONE YOUR DESIGN ABILITIES

1: Consume and Participate



## 2: Purposeful Practice

3: Give your right brain space

# 4: Cultivate Empathy

THANK YOU

# From Q&A

For establishing stakeholders:

Jo Hardin and Albert Kim paper: “Playing the Whole Game”

<https://arxiv.org/abs/2002.11767>