

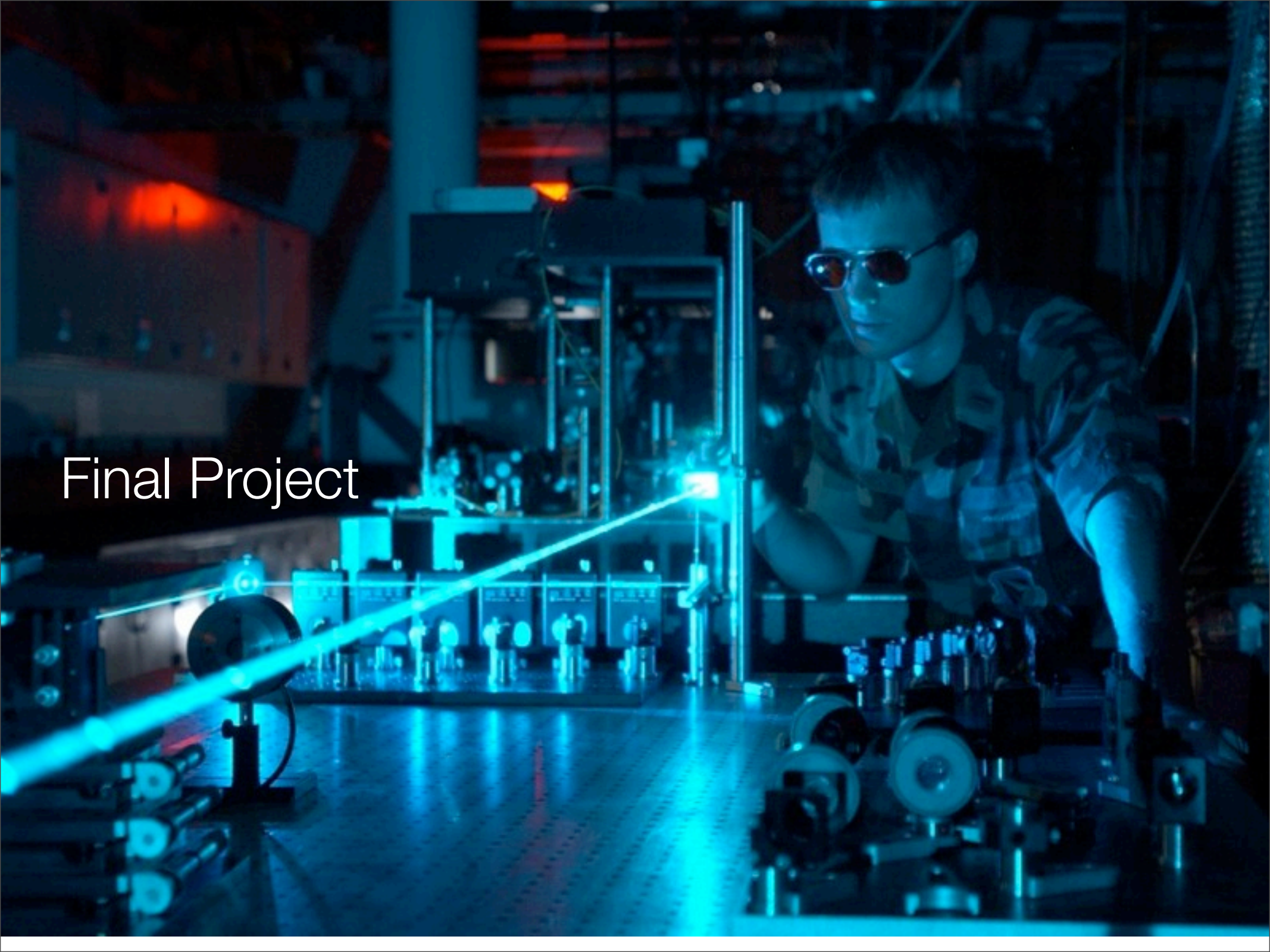
Fundamentals of Physical Computing

Instructor: Rob Faludi

Plan for Today

- Final Project Review
- Designing Attraction
- Final Project Timeline
- Readings & Assignments

Final Project



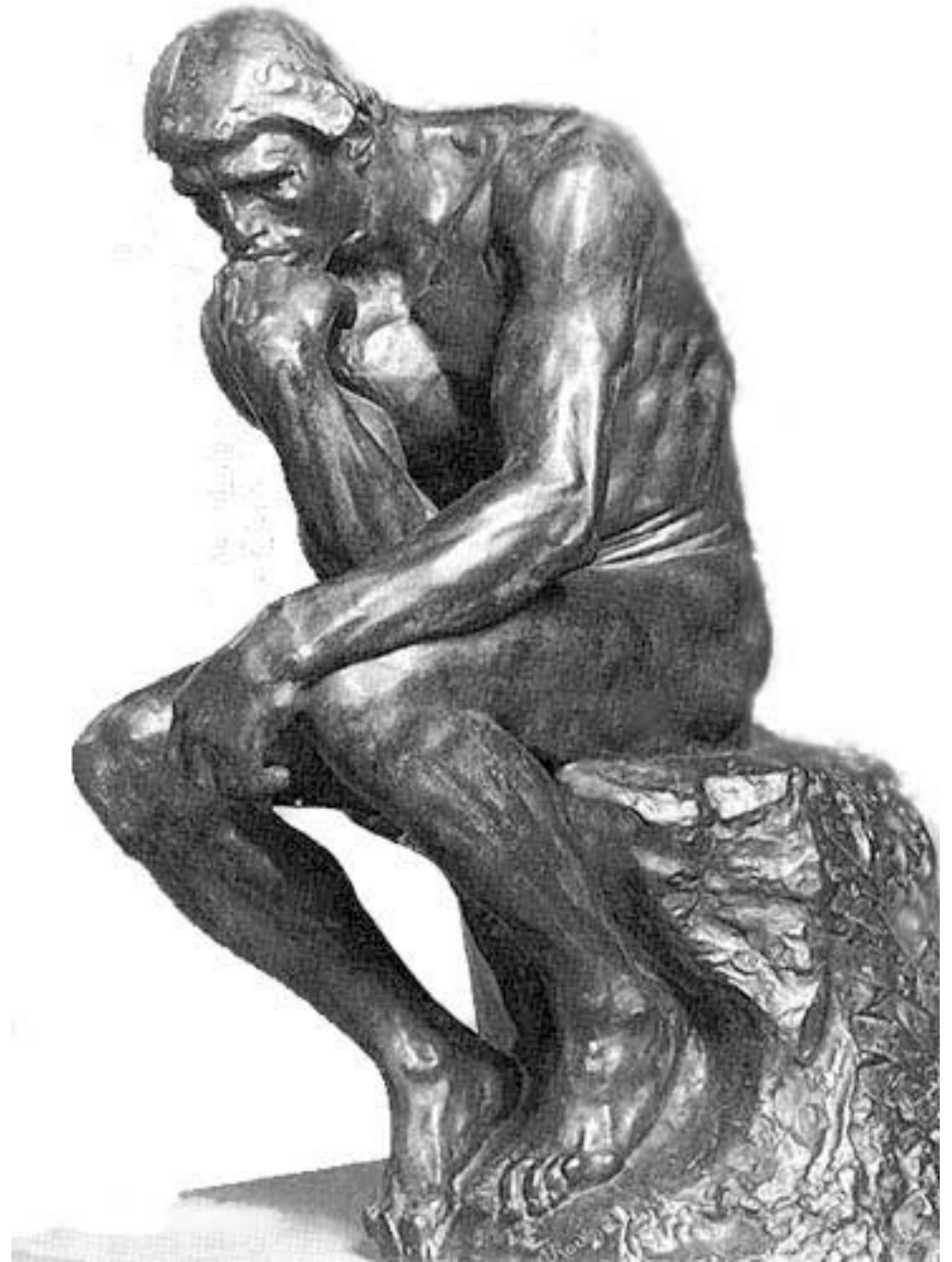
Designing Attraction

human decision-making

Rob Faludi

Thinking

is not for thinking



Thinking is for doing

– Susan T. Fiske



Designing Attraction



- If you want to attract people to your project...
- If you want to design a persuasive interaction...
- If you want to influence people's actions...

**You must look into
people's minds**



...hardware isn't enough,
you need to know the
software

How don't people work?

- people are not logical
- not even-handed, not objective
- not slow and thoughtful



People are not Machines



Decision-making is about

- How to predict people
- How to influence people
- Ways to guide users to the goal



The Human Brain

- A tangle of quickie rules, biased processes, evolutionary flotsam, attentional diversions
- The major influence shaping our planet
- Better understood now than ever before

Humans are predictable

- but we have some surprising behaviors

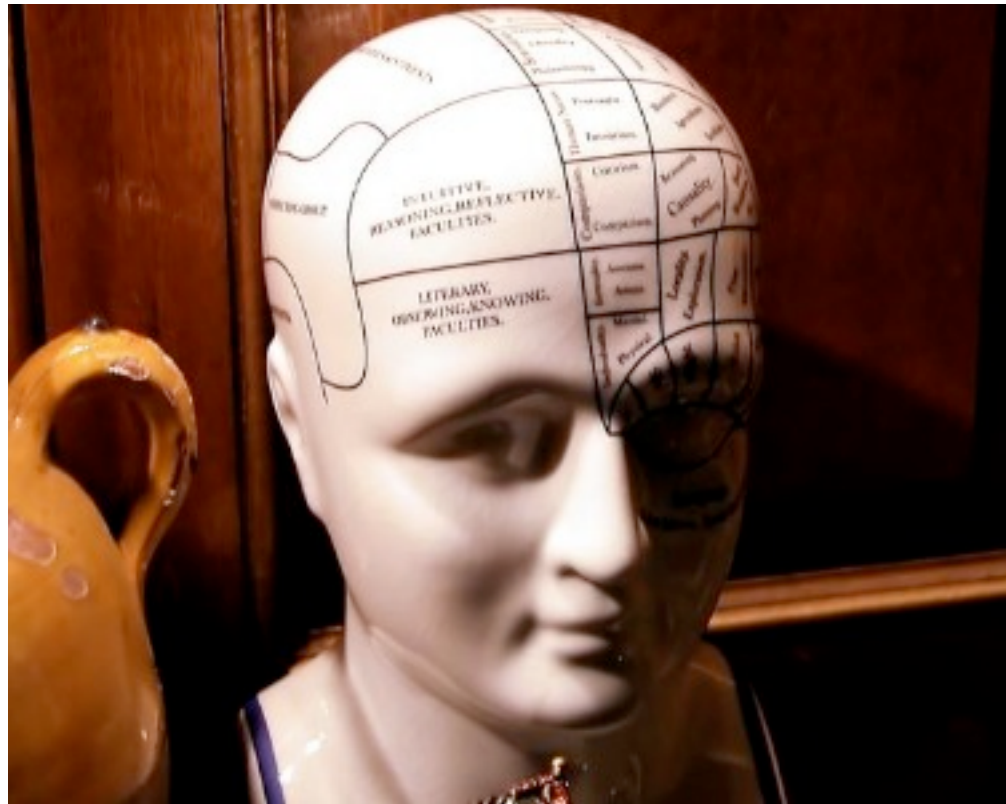
Click, whirr



Automation

- Fixed action patterns
- Doing what you did before
- Chains of events

Predictable processes



Biases



Biases

- leanings or predisposition
- favoring some outcomes over others
- sources of predictable errors

Heuristics



Heuristics

- A rule of thumb, simplification, or educated guess that reduces or limits the search for solutions in domains that are difficult and poorly understood. Unlike algorithms, heuristics do not guarantee optimal, or even feasible, solutions and are often used with no theoretical guarantee.

— Free Online Dictionary of Computing



Plenty of heuristics

- Anchoring and adjustment
- Availability heuristic
- Representativeness heuristic
- Affect heuristic
- Contagion heuristic
- Effort heuristic
- Familiarity heuristic
- Fluency heuristic
- Gaze heuristic
- Peak-end rule
- Recognition heuristic
- Scarcity heuristic
- Similarity heuristic



Scads of biases

- Bandwagon effect
- Base rate fallacy
- Bias blind spot
- Choice-supportive bias
- Confirmation bias
- Congruence bias
- Contrast effect
- Déformation professionnelle
- Distinction bias
- Endowment effect
- Extreme aversion
- Focusing effect
- Framing
- Hyperbolic discounting
- Illusion of control
- Impact bias
- Information bias
- Irrational escalation
- Loss aversion
- Mere exposure effect
- Moral credential effect
- Need for closure
- Neglect of probability
- Omission bias
- Outcome bias
- Planning fallacy
- Post-purchase rationalization
- Pseudocertainty effect
- Reactance
- Selective perception
- Status quo bias
- Unit bias
- Von Restorff effect
- Zero-risk bias
- Ambiguity effect
- Anchoring
- Attentional bias
- Availability heuristic
- Availability cascade
- Clustering illusion
- Conjunction fallacy
- Gambler's fallacy
- Hawthorne effect
- Hindsight bias
- Illusory correlation
- Ludic fallacy
- Neglect of prior base rates effect
- Observer-expectancy effect
- Optimism bias
- Overconfidence effect
- Positive outcome bias
- Primacy effect
- Recency effect
- Regression toward the mean disregarded
- Reminiscence bump
- Rosy retrospection
- Selection bias
- Stereotyping
- Subadditivity effect
- Subjective validation
- Telescoping effect
- Texas sharpshooter fallacy
- Actor-observer bias
- Dunning-Kruger effect
- Egocentric bias
- Forer effect (aka Barnum Effect)
- False consensus effect
- Fundamental attribution error
- Halo effect
- Herd instinct
- Illusion of asymmetric insight
- Illusion of transparency
- Ingroup bias
- Just-world phenomenon
- Lake Wobegon effect
- Notational bias
- Outgroup homogeneity bias
- Projection bias
- Self-serving bias
- Self-fulfilling prophecy
- System justification
- Trait ascription bias
- Beneffectance
- Consistency bias
- Cryptomnesia
- Egocentric bias
- False memory
- Hindsight bias
- Suggestibility

Four Interesting Biases

- positive outcome bias
- confirmation bias
- illusion of control
- framing: presentation affects choice

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Four Interesting Biases

Social Genius

Click to Begin

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- confirmation bias
- illusion of control
- framing: presentation affects choice

Four Interesting Biases



- positive outcome bias
- confirmation bias
- illusion of control
- framing: presentation affects choice

Some Effects and Fallacies

- Contrast effect — the enhancement or diminishment of a weight or other measurement when compared with recently observed contrasting object.
- Endowment effect — "the fact that people often demand much more to give up an object than they would be willing to pay to acquire it"
- Moral credential effect — the tendency of a track record of non-prejudice to increase subsequent prejudice.
- Planning fallacy — the tendency to underestimate task-completion times.
- Ludic fallacy — the analysis of chance related problems with the narrow frame of games. Ignoring the complexity of reality, and the non-gaussian distribution of many things.
- Texas sharpshooter fallacy — the fallacy of selecting or adjusting a hypothesis after the data is collected, making it impossible to test the hypothesis fairly.

Texas Sharpshooter

Texas Sharpshooter

- A logical fallacy created by devising meaning after the fact. Name comes from a story about a Texan who shoots at the side of a barn, then paints targets centered on the hits.
- Post-hoc analysis

Three Important Heuristics

- anchoring and adjustment
- availability heuristic
- social proof heuristic

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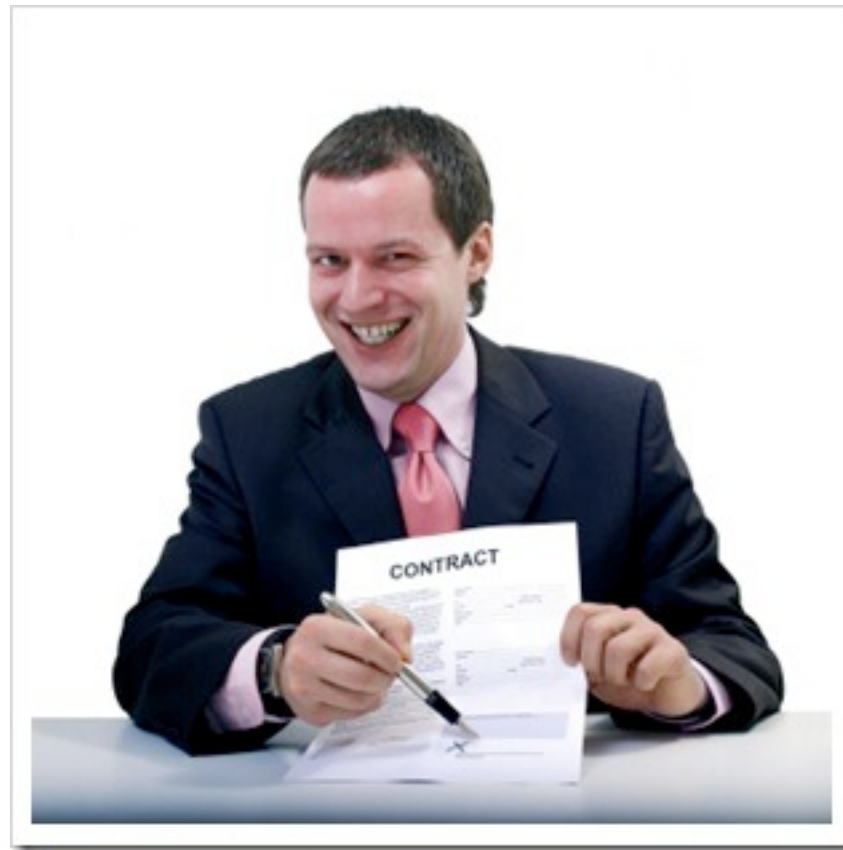
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Heuristics Are Sensible

- Rules of thumb work because they are often correct
- Heuristics are fast
- Exhaustive analysis isn't usually possible

How to influence



...and persuade

**OVER A
QUARTER
MILLION
COPIES SOLD!**

FOURTH EDITION

INFLUENCE

Science and Practice

*"The best and best researched book ---
ever --- on this topic. Robert Cialdini would
have predicted 10 years ago the power
of 'permission marketing' on the Web!"*

---TOM PETERS, The Tom Peters Group

ROBERT B. CIALDINI

Influence



- Robert Cialdini and the *weapons* of persuasion

Influential Tools

- Reciprocity
- Commitment and consistency
- Social proof
- Liking
- Authority
- Scarcity

Reciprocity



Reciprocity

- we try to repay, in kind, what another person does for us
-Alvin Gouldner (1960)
- web of indebtedness
- watch out for uninvited debts
- mailing labels, in-person solicitations, engineered concessions



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Commitment & Consistency



Commitment & Consistency

- we like things better after we choose them
- foot-in-the-door: small to large (Freedman, Fraser 1966)
- justification of effort: boot camp, up all night



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Social Proof



Stanley Milgram

Social Proof

- if everyone else jumped off a cliff...
- Milgram conformity
- effective in ambiguous situations with social peers
- can be tragically powerful



Liking



Liking

- more likely to comply with someone we like
- ...and we like people who are
 - attractive
 - similar
 - familiar

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Authority

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Authority



- Milgram
- value of authority symbols
- illusion of authority (not a doctor but play one on TV)
- heuristic value

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- Milgram
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Scarcity



Scarcity

- increases perceived value
- baseball cards, wine, mates
- time limits



Scarcity

- increases perceived value
- baseball cards, wine, mates
- time limits



Influential tactics relevant to:

- advertising
- social networks
- art
- media
- projects
- dating
- religion



Pinterest

Gmail
by Google



Ethics and Exemption

- Is it okay to use these tools?
- Does understanding them exempt us from their influence?





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Final Project Suggested Timeline

- Week 10: ~~Make observations, select your idea and finalize your group~~
- Week 11: ~~Build a prototype and test it. Observe the results.~~
- Week 12: **Build a revision and test it. Observe the results.**
- Week 13: Create a final that works well, with a presentation and demo that tells its story
- Week 14: Final Presentations
- Week 15: Final Presentations

Readings and Assignments

- Readings
 - Making Things Talk, Chapter 6 (optional)
- Assignment
 - Complete all your labs and post all your documentation.
 - Finalize your group, select a final idea and begin observations