DESIGN
for
HACKERS

What is Design?

"Design is not just what it looks like and feels like. Design is **how it works**"

- Steve Jobs

(noun)

DESIGN is to
DESIGN the
DESIGN of a
DESIGN.

(noun)

term ← DESIGN is to DESIGN the DESIGN of a DESIGN.

(noun)

term ← DESIGN is to

process ← DESIGN the

DESIGN of a

DESIGN.

(noun)

term ← DESIGN is to
process ← DESIGN the
architecture ← DESIGN of a
DESIGN.

(noun)

term ← DESIGN is to
process ← DESIGN the
architecture ← DESIGN of a
product ← DESIGN.

(noun)

> “Design is not just what it looks like and feels like. Design is **how it works**”
>
> \- Steve Jobs

(term)

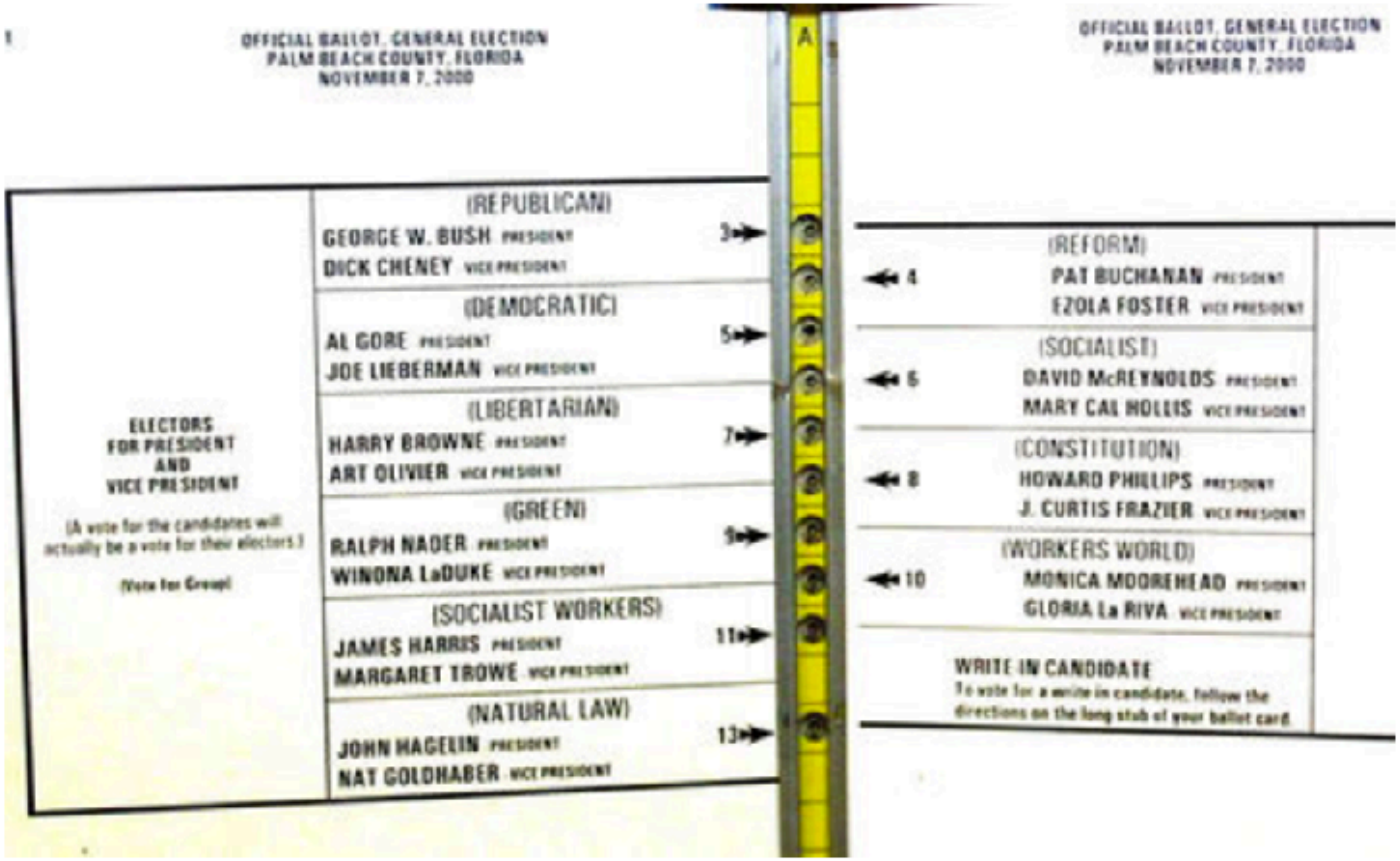
> “Design is a method of problem solving.”
>
> - Dieter Rams

Why should **you** care?

Learning to “***see***” through the lens of design is one of the most useful tools to add to your cognitive portfolio.

It will enable you to appreciate good design, hate bad design, and give you the means to leverage design in your favor.

Examples of **bad** design



1

OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
NOVEMBER 7, 2000

ELECTORS
FOR PRESIDENT
AND
VICE PRESIDENT

(A vote for the candidates will actually be a vote for their electors.)

(Vote for Group)

(REPUBLICAN)
GEORGE W. BUSH PRESIDENT
DICK CHENEY VICE PRESIDENT
3→

(DEMOCRATIC)
AL GORE PRESIDENT
JOE LIEBERMAN VICE PRESIDENT
5→

(LIBERTARIAN)
HARRY BROWNE PRESIDENT
ART OLIVIER VICE PRESIDENT
7→

(GREEN)
RALPH NADER PRESIDENT
WINONA LaDUKE VICE PRESIDENT
9→

(SOCIALIST WORKERS)
JAMES HARRIS PRESIDENT
MARGARET TROWE VICE PRESIDENT
11→

(NATURAL LAW)
JOHN HAGELIN PRESIDENT
NAT GOLDHABER VICE PRESIDENT
13→

OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
NOVEMBER 7, 2000

←4
(REFORM)
PAT BUCHANAN PRESIDENT
EZOLA FOSTER VICE PRESIDENT

←6
(SOCIALIST)
DAVID McREYNOLDS PRESIDENT
MARY CAL HOLLIS VICE PRESIDENT

←8
(CONSTITUTION)
HOWARD PHILLIPS PRESIDENT
J. CURTIS FRAZIER VICE PRESIDENT

←10
(WORKERS WORLD)
MONICA MOOREHEAD PRESIDENT
GLORIA La RIVA VICE PRESIDENT

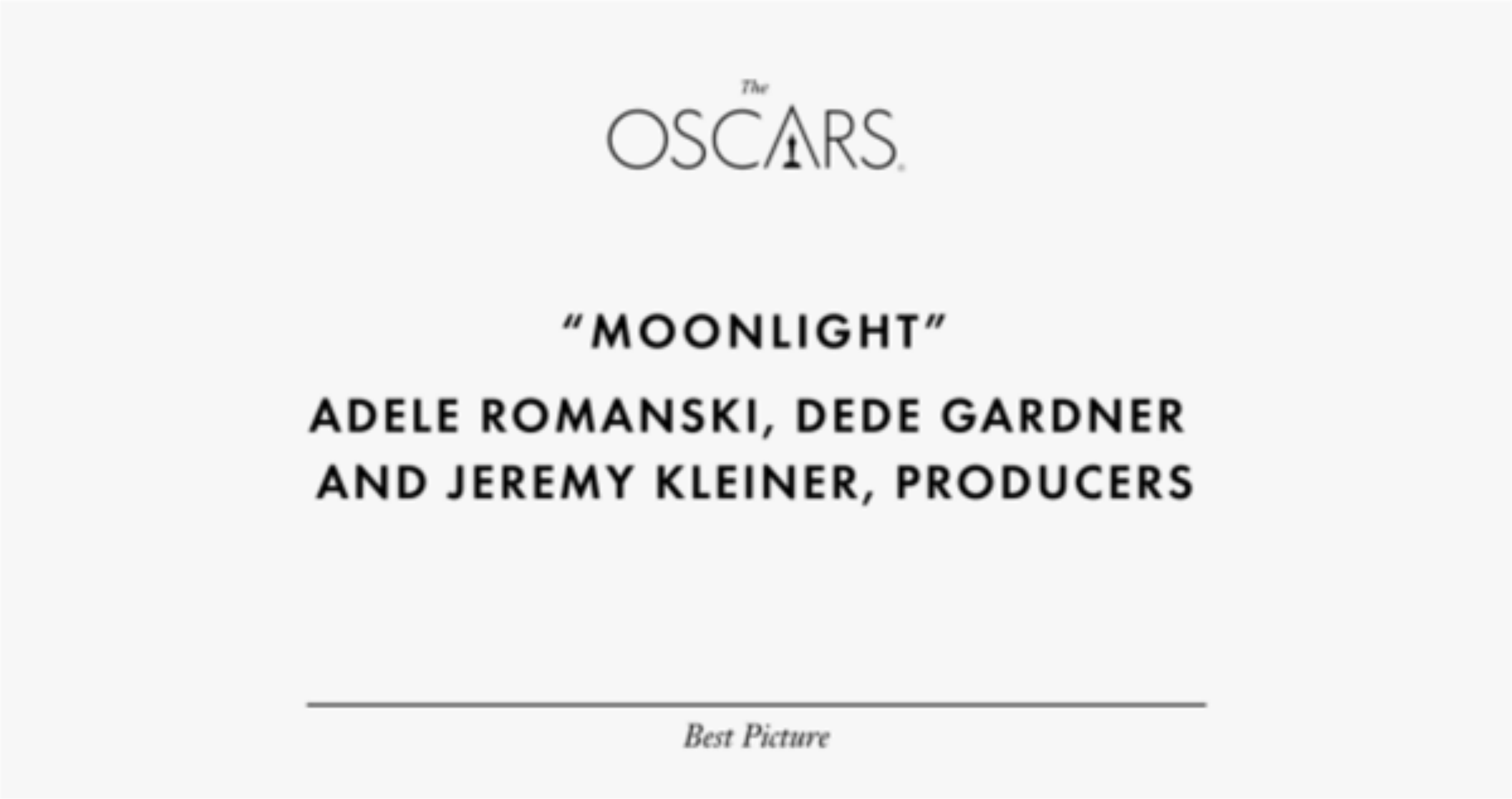
WRITE IN CANDIDATE
To vote for a write in candidate, follow the directions on the long stub of your ballot card.

Examples of **bad** design

5237 people in Palm Beach County alone voted for both Pat Buchanan and Al Gore and were therefore invalidated

George Bush won Florida (and therefore the presidency) by **537 votes**.

Examples of **bad** design



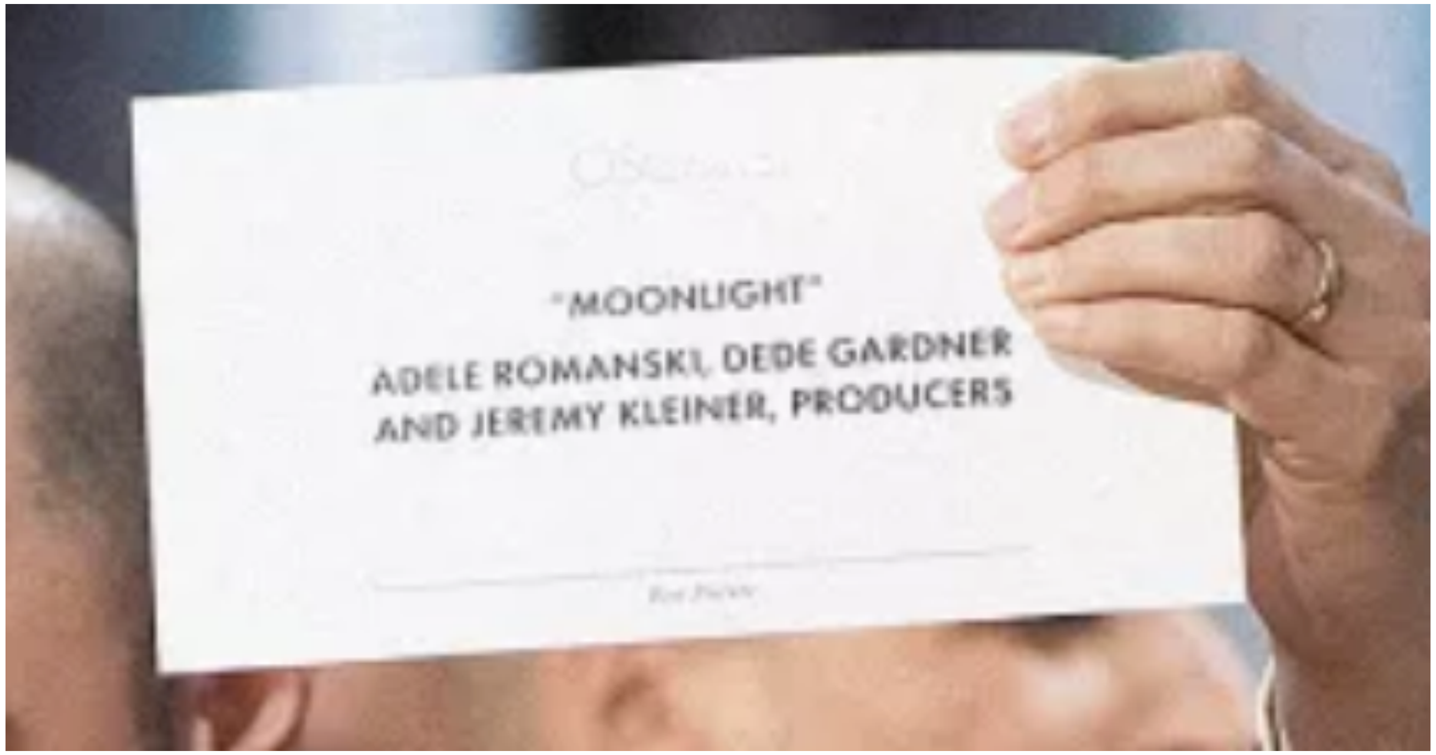
The
OSCARS

“MOONLIGHT”

**ADELE ROMANSKI, DEDE GARDNER
AND JEREMY KLEINER, PRODUCERS**

Best Picture

Examples of **bad** design



"MOONLIGHT"

ADELE ROMANSKI, DEDE GARDNER
AND JEREMY KLEINER, PRODUCERS

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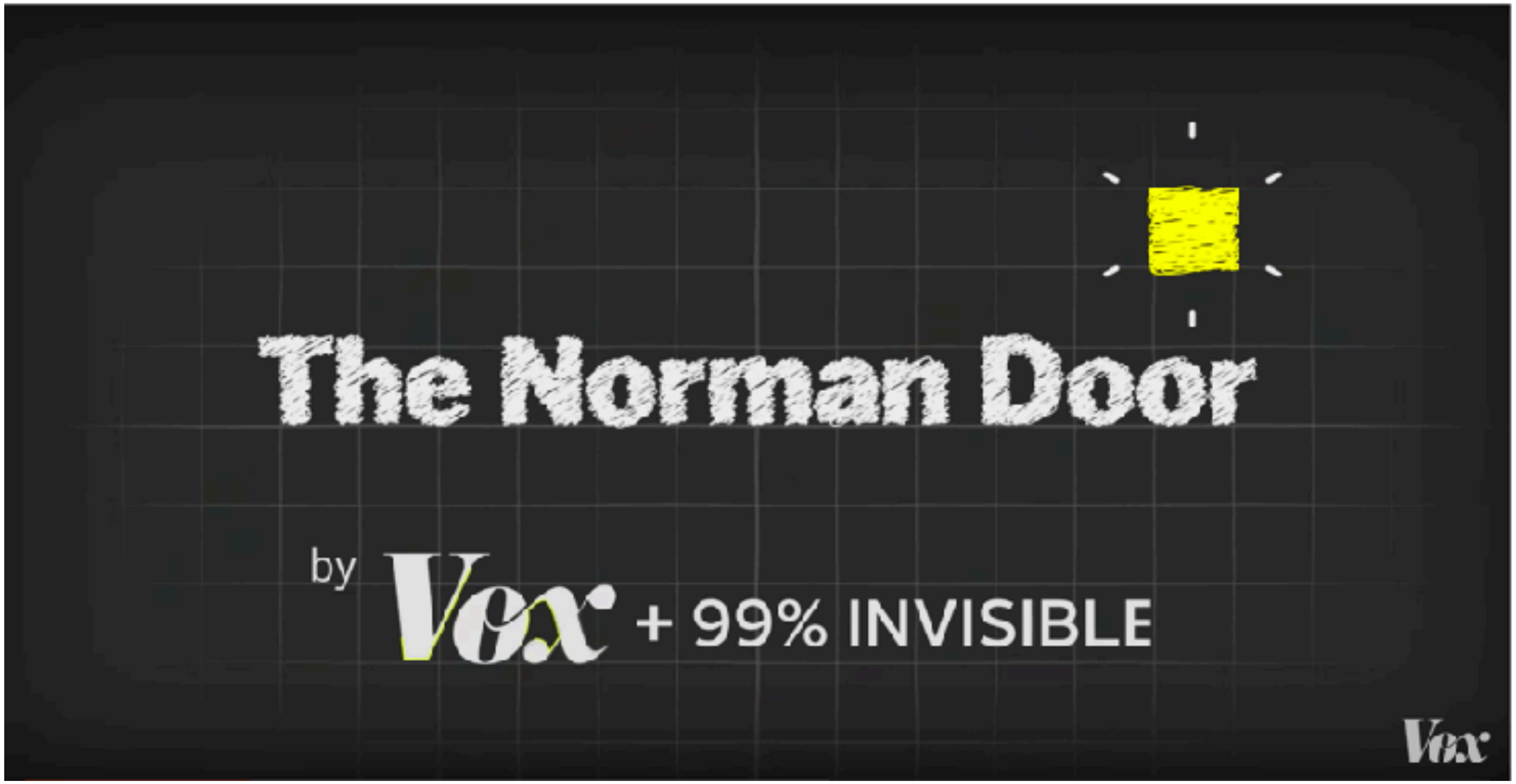

The Norman Door
by Vox + 99% INVISIBLE
Vox

Good design

The best designs are notorious for seeming not designed at all – or ‘undesigned’.

Good design

innovative
honest
long-lasting
useful

unobtrusive
understandable
aesthetic
as little as possible

Good design

innovative
honest
long-lasting
useful
unobtrusive
understandable
aesthetic
as little as possible

Design Thinking

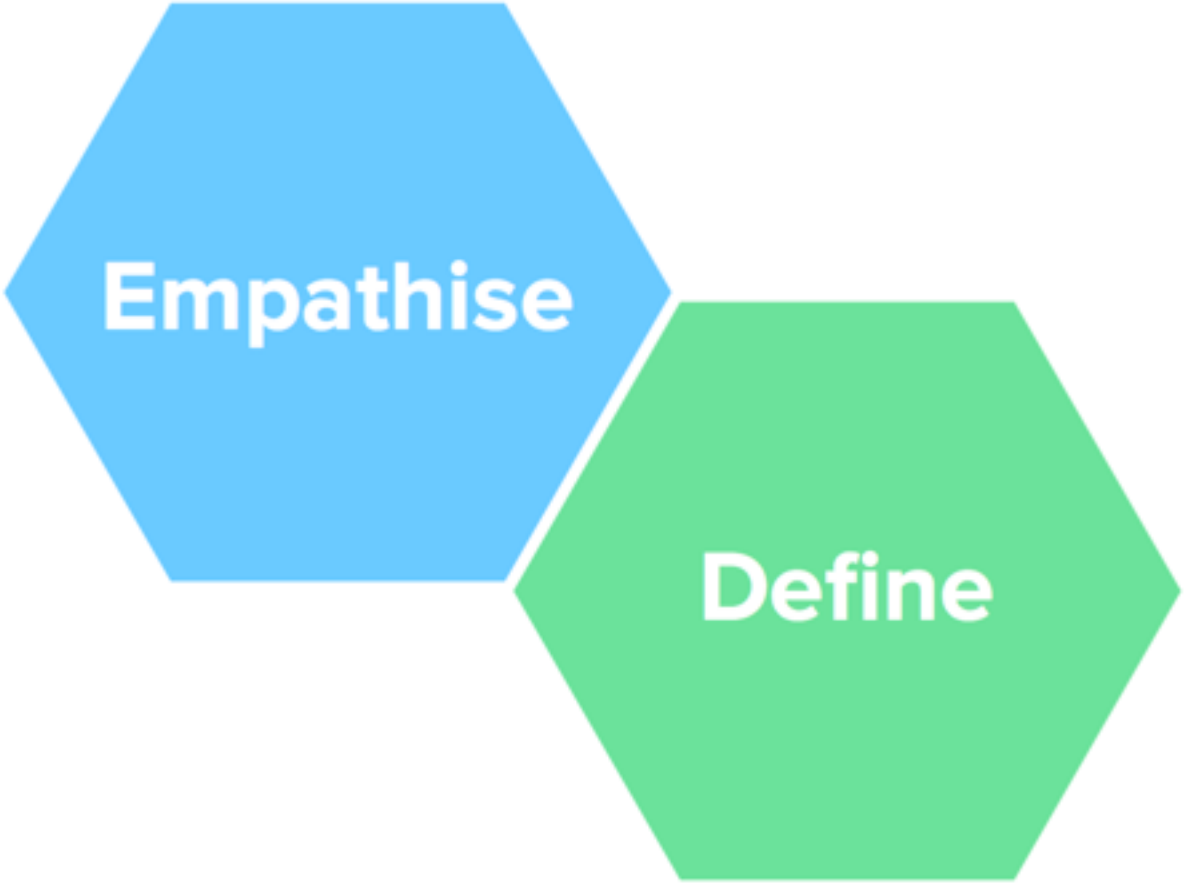
Design Thinking

An approach to creating innovative solutions that solve complex problems in HCI, organizations, education, business, and society.

Design Thinking

Empathise

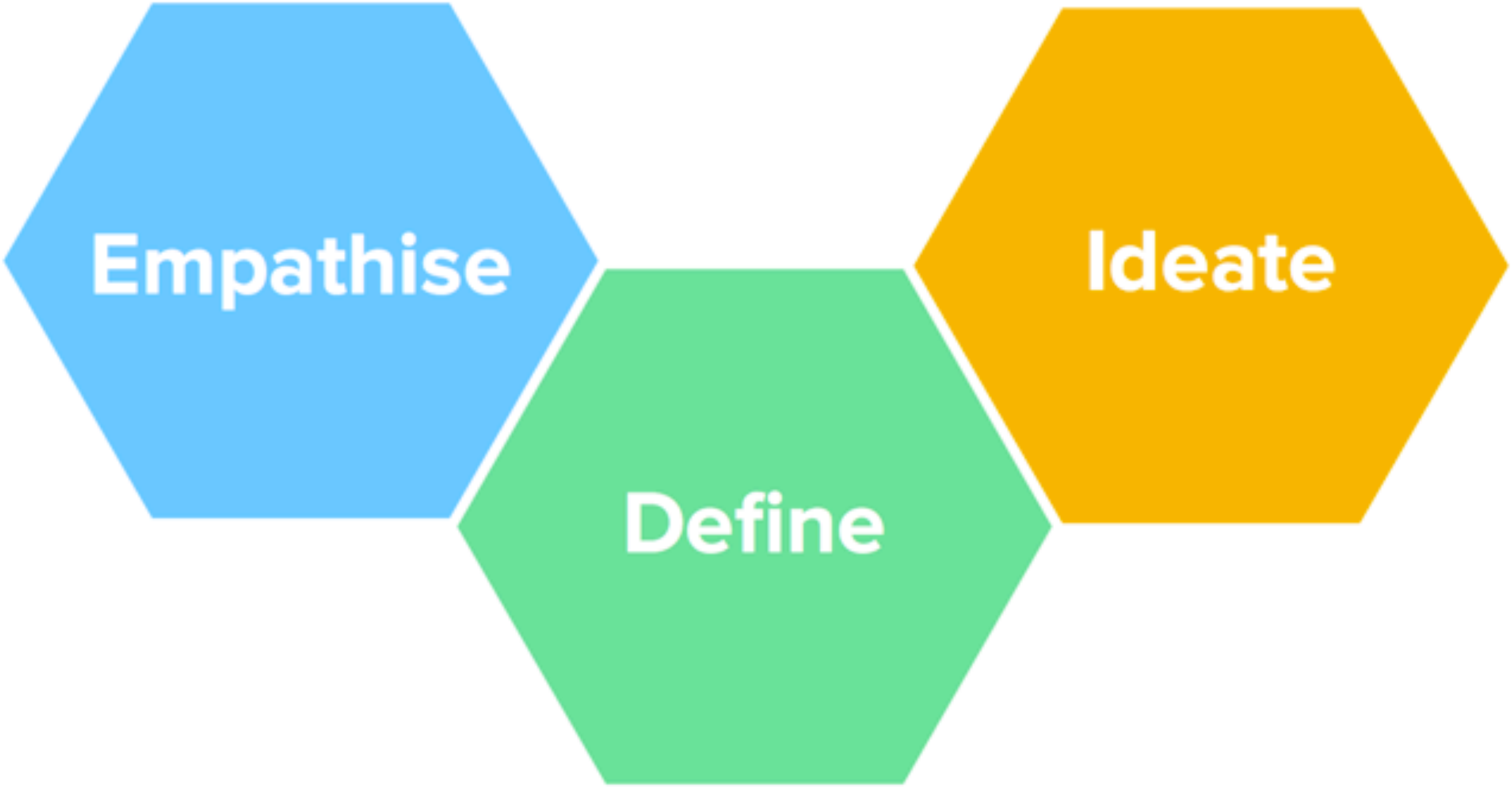
Design Thinking



Empathise

Define

Design Thinking



Empathise

Define

Ideate

Design Thinking

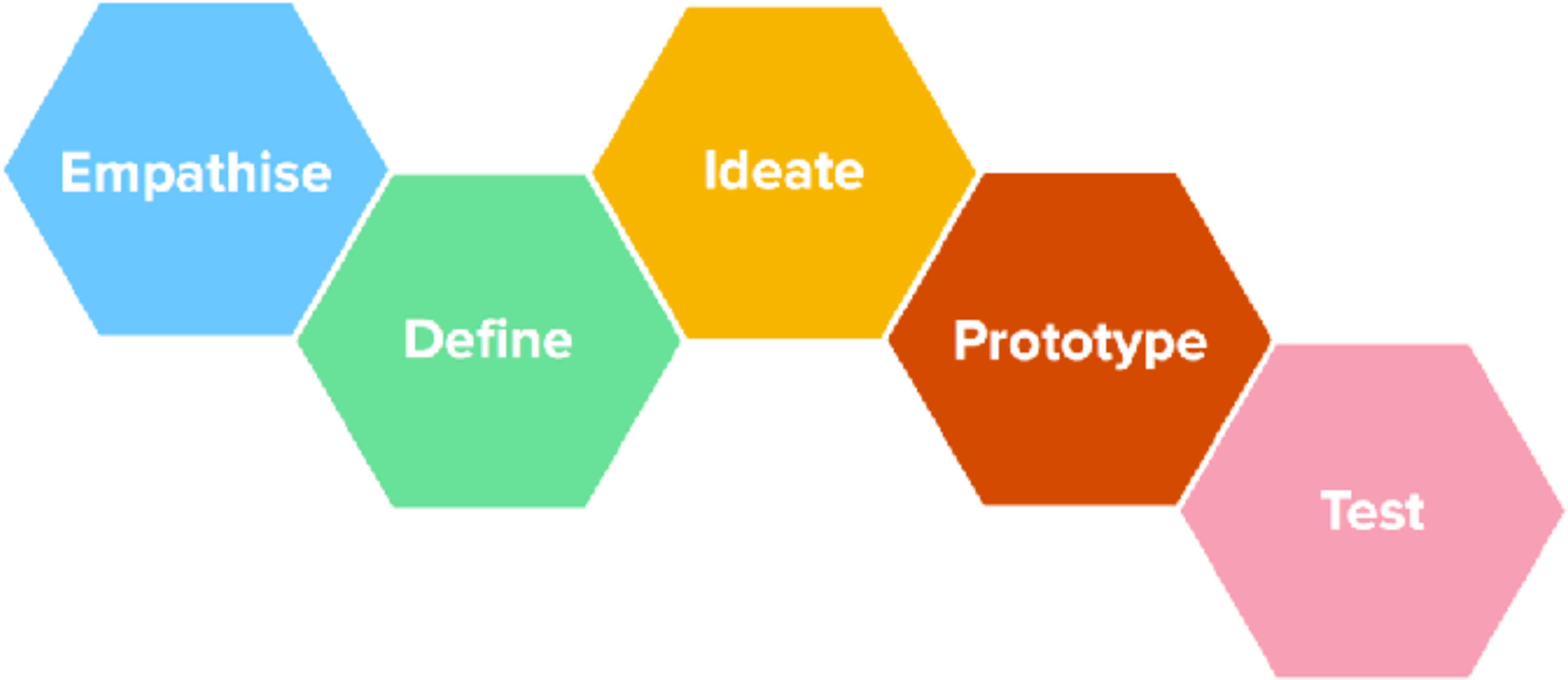
Empathise

Define

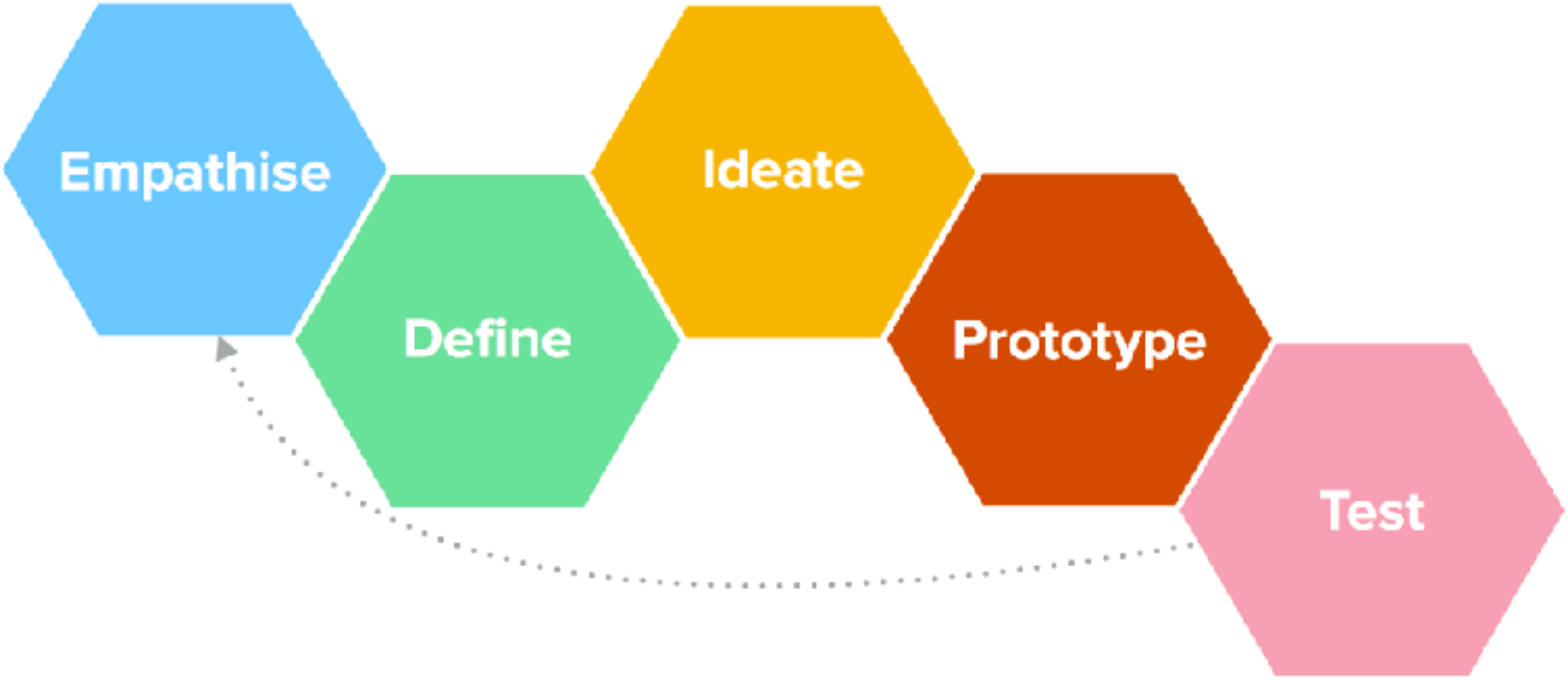
Ideate

Prototype

Design Thinking


Empathise
Define
Ideate
Prototype
Test

Design Thinking


Empathise
Define
Ideate
Prototype
Test

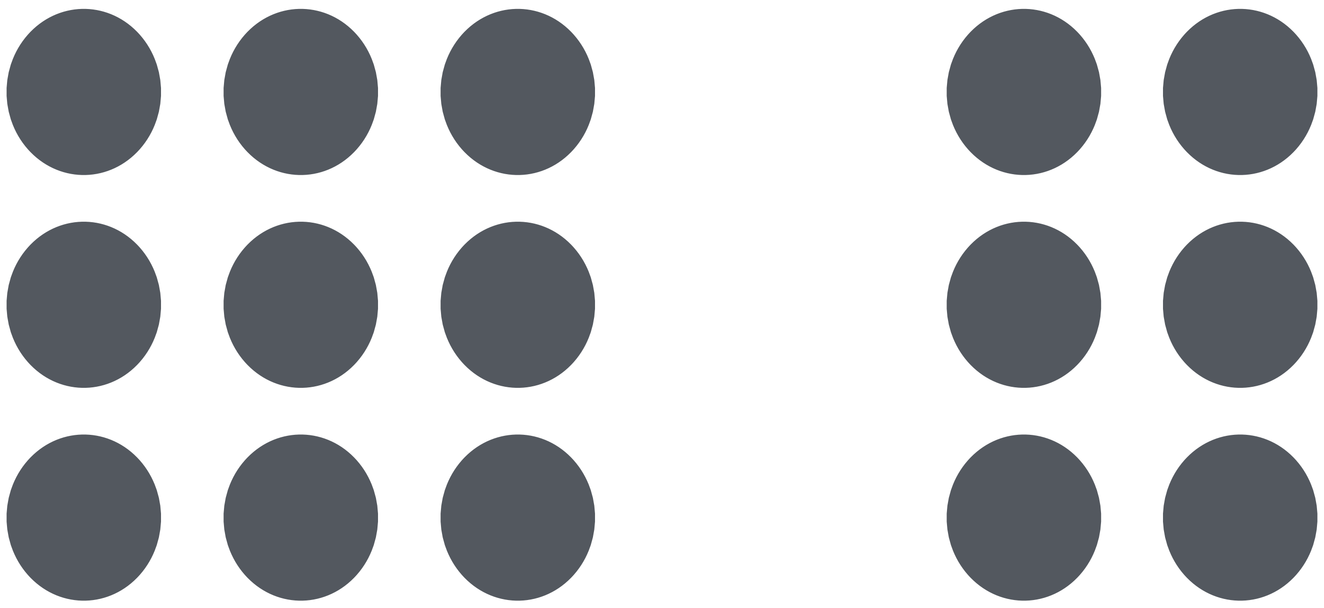
HACKS for Visual Design

Gestalt’s Laws

Proximity
Similarity
Inverse
Closure
Figure/ Ground

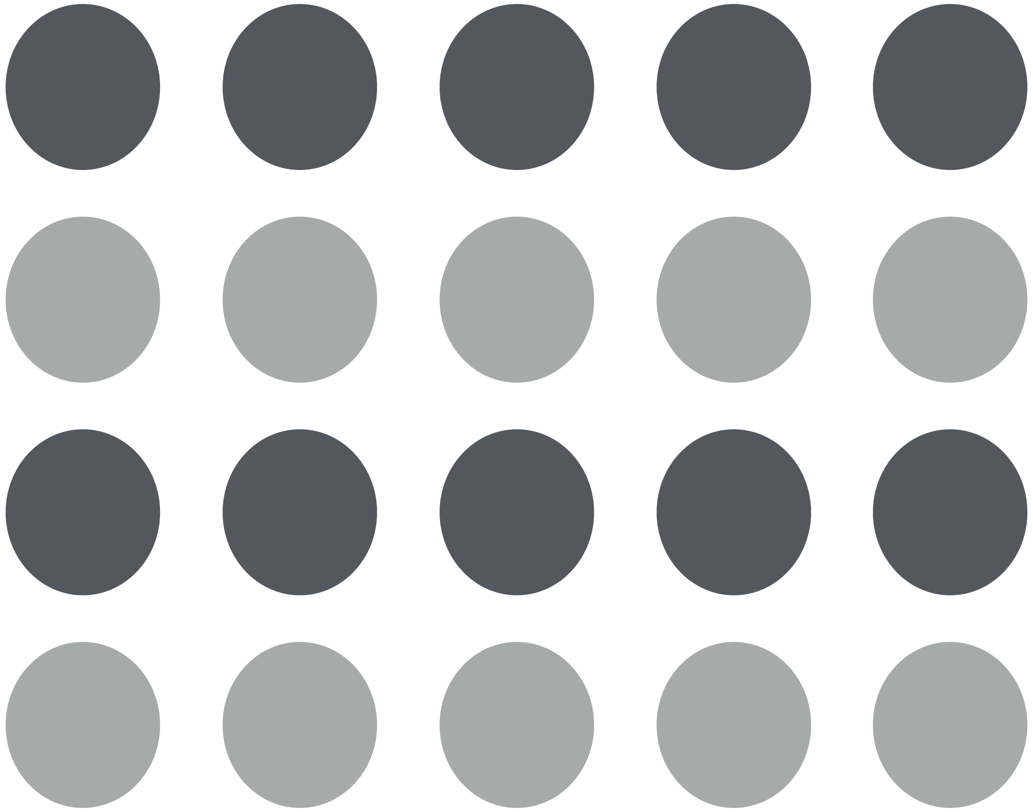
Proximity -

Elements that are placed close together tend to be perceived as a group.



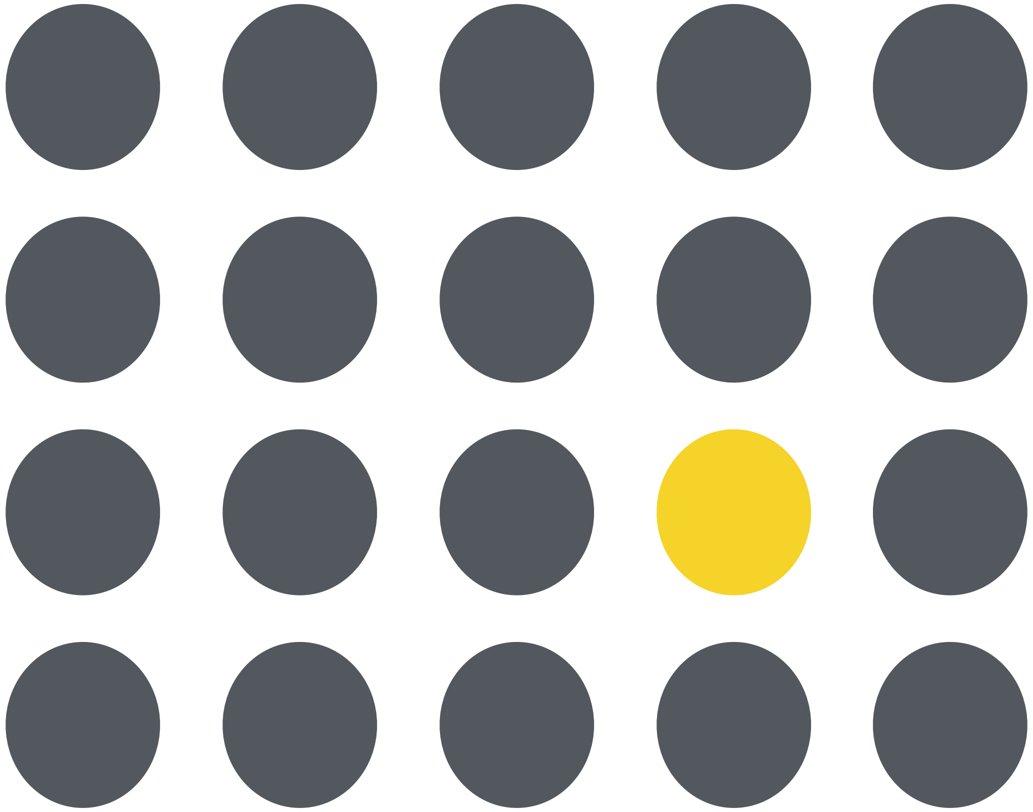
Similarity -

Objects that look similar to one another are perceived as a group or pattern



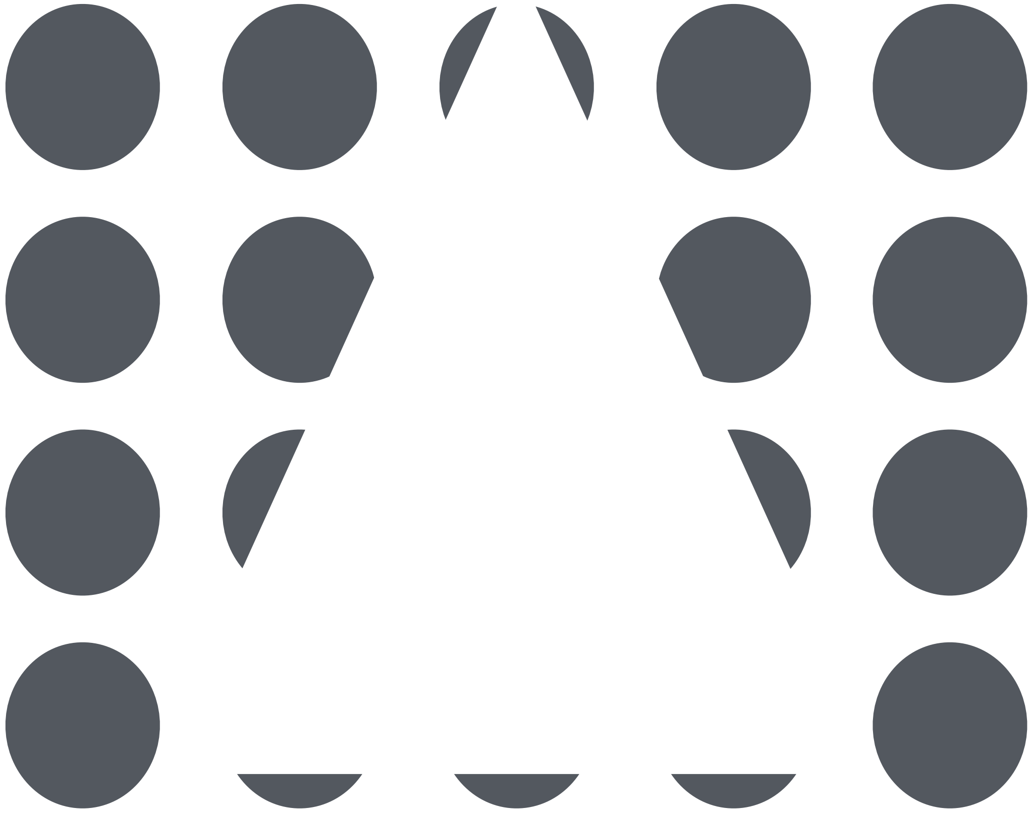
Inverse -

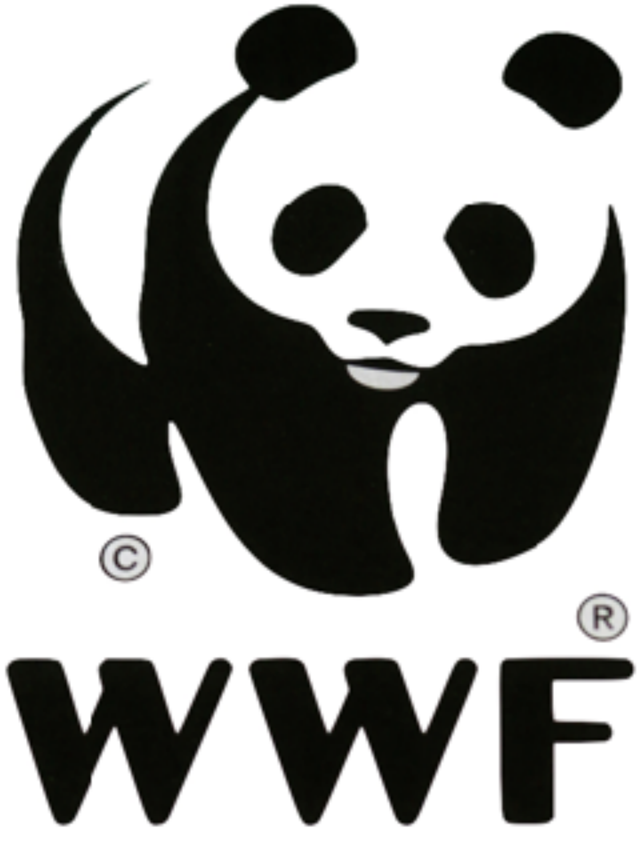
An object can be emphasized if it is *dissimilar* to the others. This is called **anomaly**



Closure -

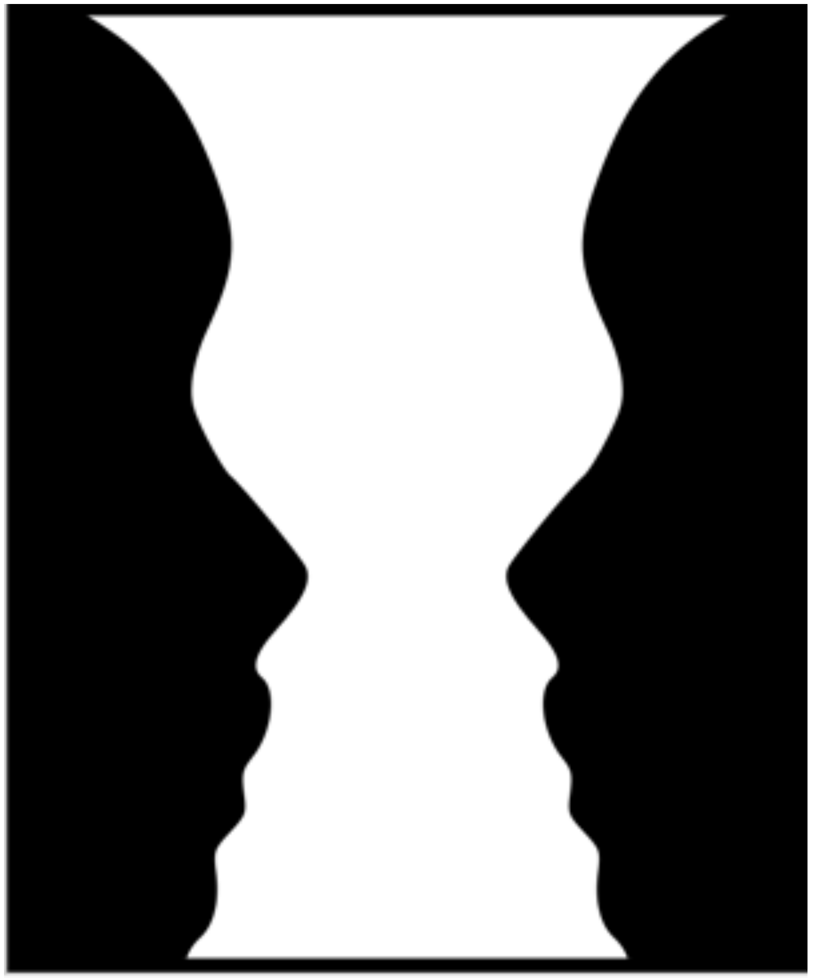
Closure occurs when an object is *incomplete* or a space is not *completely enclosed*. If enough of the shape is indicated, people perceive the whole by filling in the missing information.





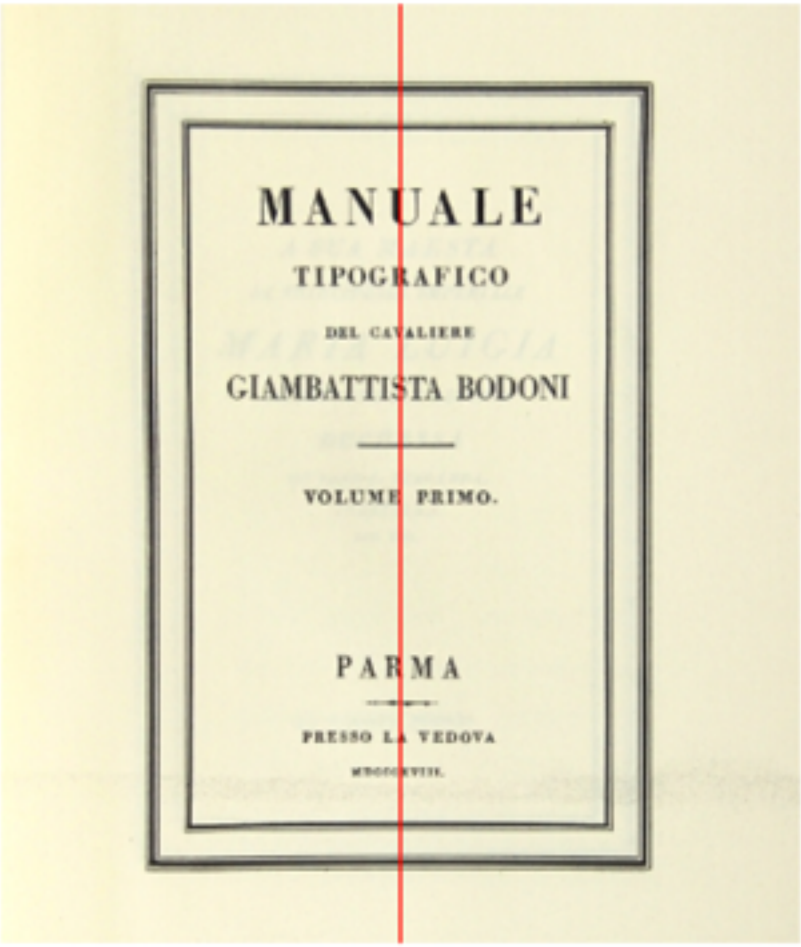
Figure/ Ground -

The eye differentiates an object from its surrounding area. a form, silhouette, or shape is naturally perceived as **figure** (object), while the surrounding area is perceived as **ground** (background).



Other Tips

Symmetry



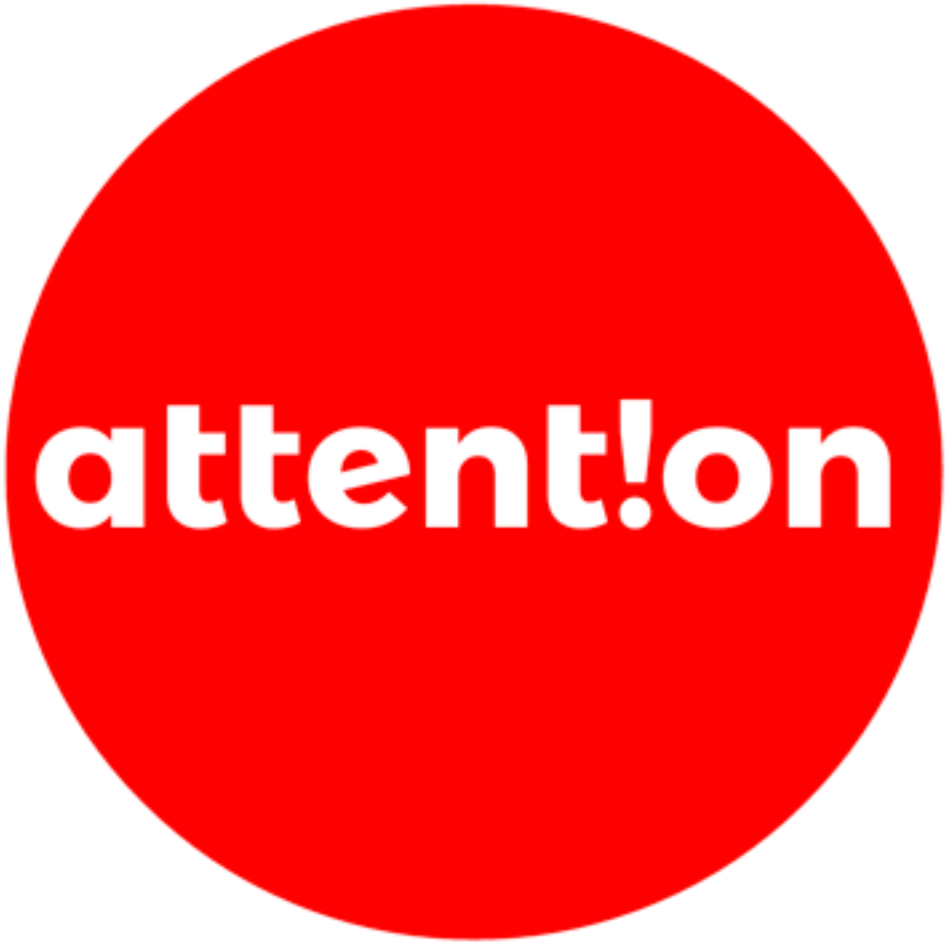
MANUALE
TIPOGRAFICO
DEL CAVALIERE
GIAMBATTISTA BODONI

VOLUME PRIMO.

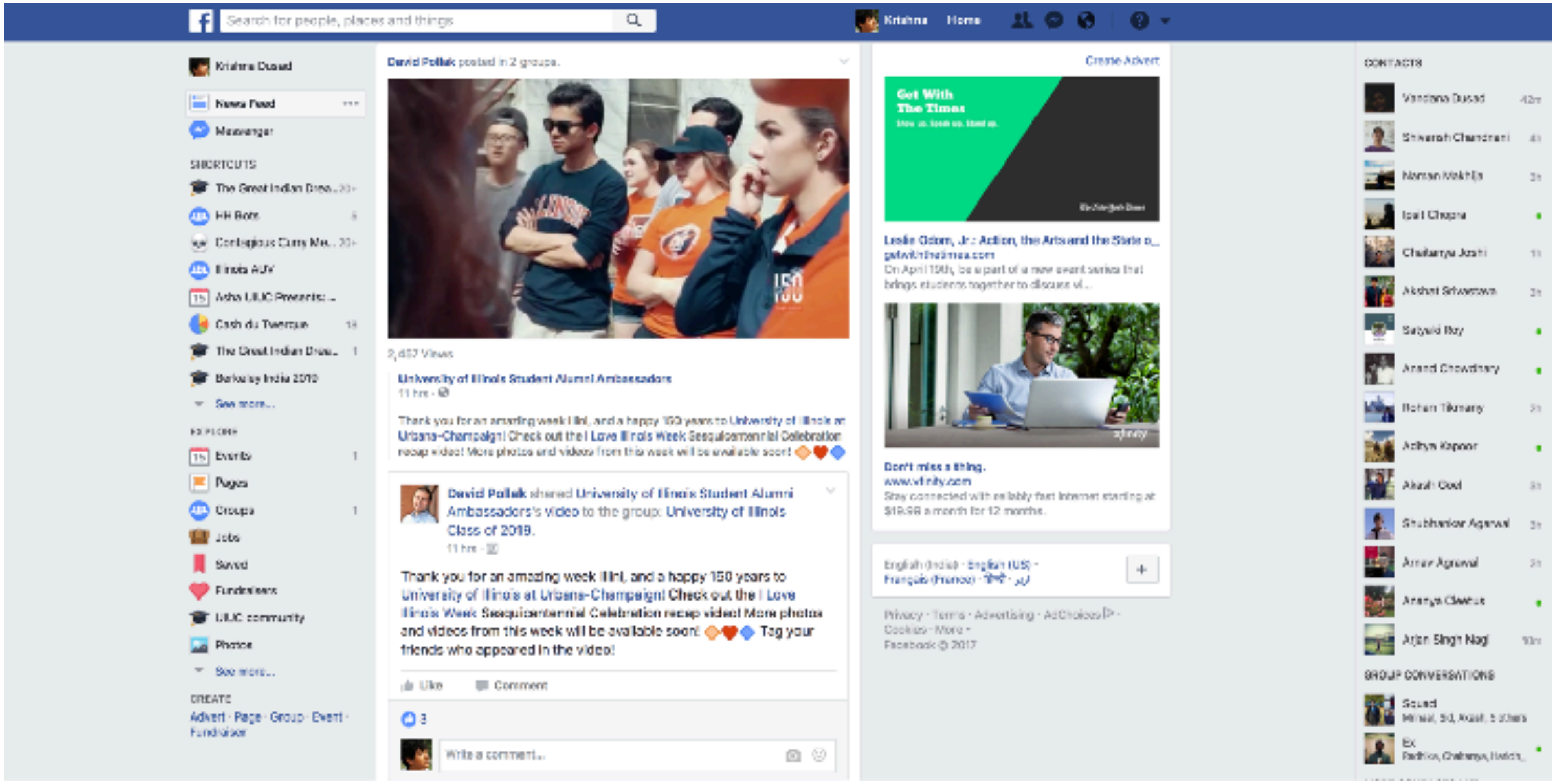
PARMA

PRESSO LA VEDOVA
MDCCCXVIII.

Asymmetry



Asymmetry

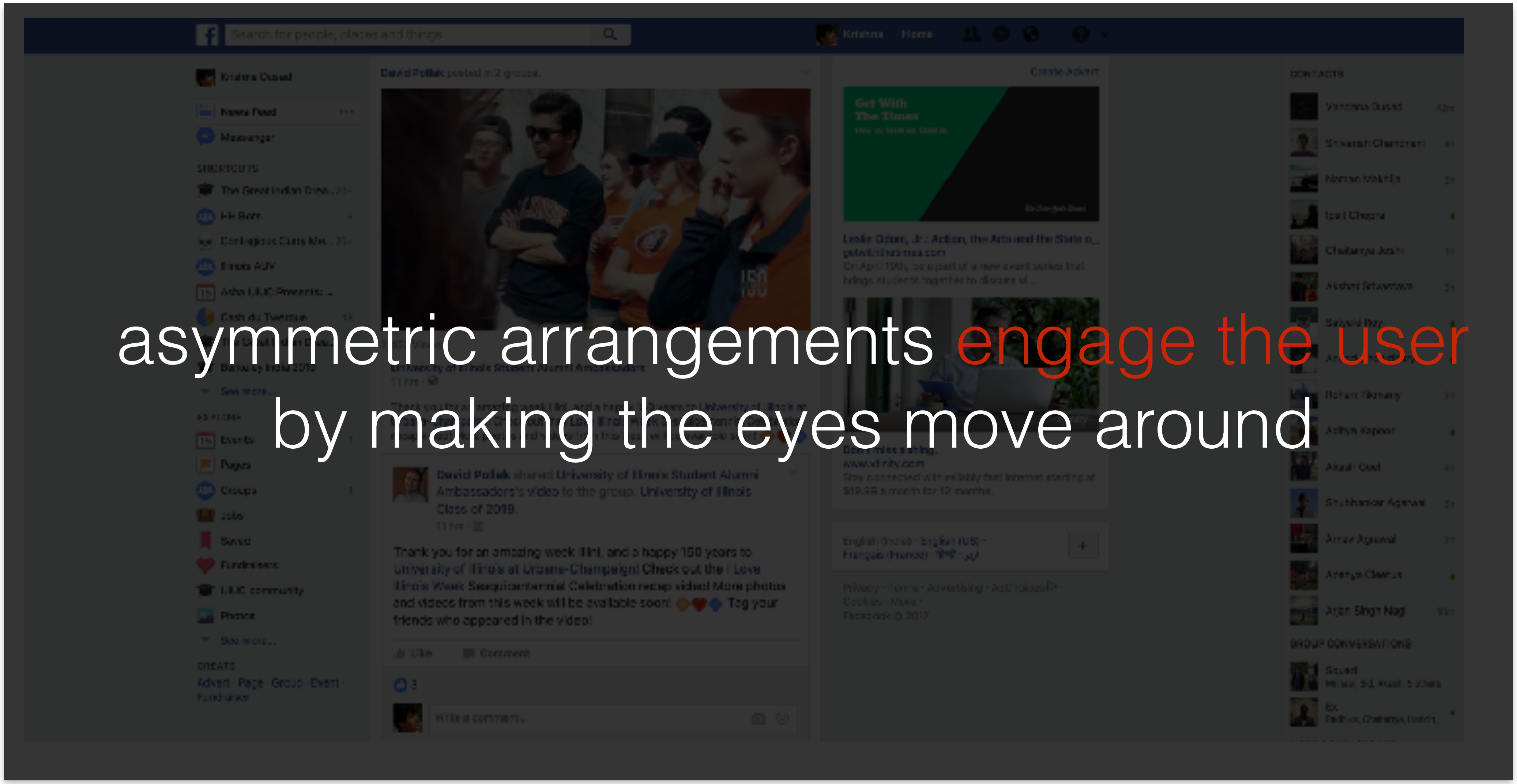


David Pollak shared University of Illinois Student Alumni Ambassadors's video to the group: University of Illinois Class of 2019.

11 hrs

Thank you for an amazing week Illini, and a happy 150 years to University of Illinois at Urbana-Champaign! Check out the I Love Illinois Week Sesquicentennial Celebration recap video! More photos and videos from this week will be available soon! 🔶❤️🔷 Tag your friends who appeared in the video!

Asymmetry



asymmetric arrangements engage the user by making the eyes move around

Scale

scale can be used to draw

attention

or create

surprise!

Hierarchy

signals of separation

Hierarchy

Think with the Senses.
Feel with the Mind.
Art in the Present Tense
Venice Biennale
52nd International Art Exhibition
10 June - 21 November
National and Regional Pavilions
and Presentations.
Parallel Exhibitions and Projects

Hierarchy

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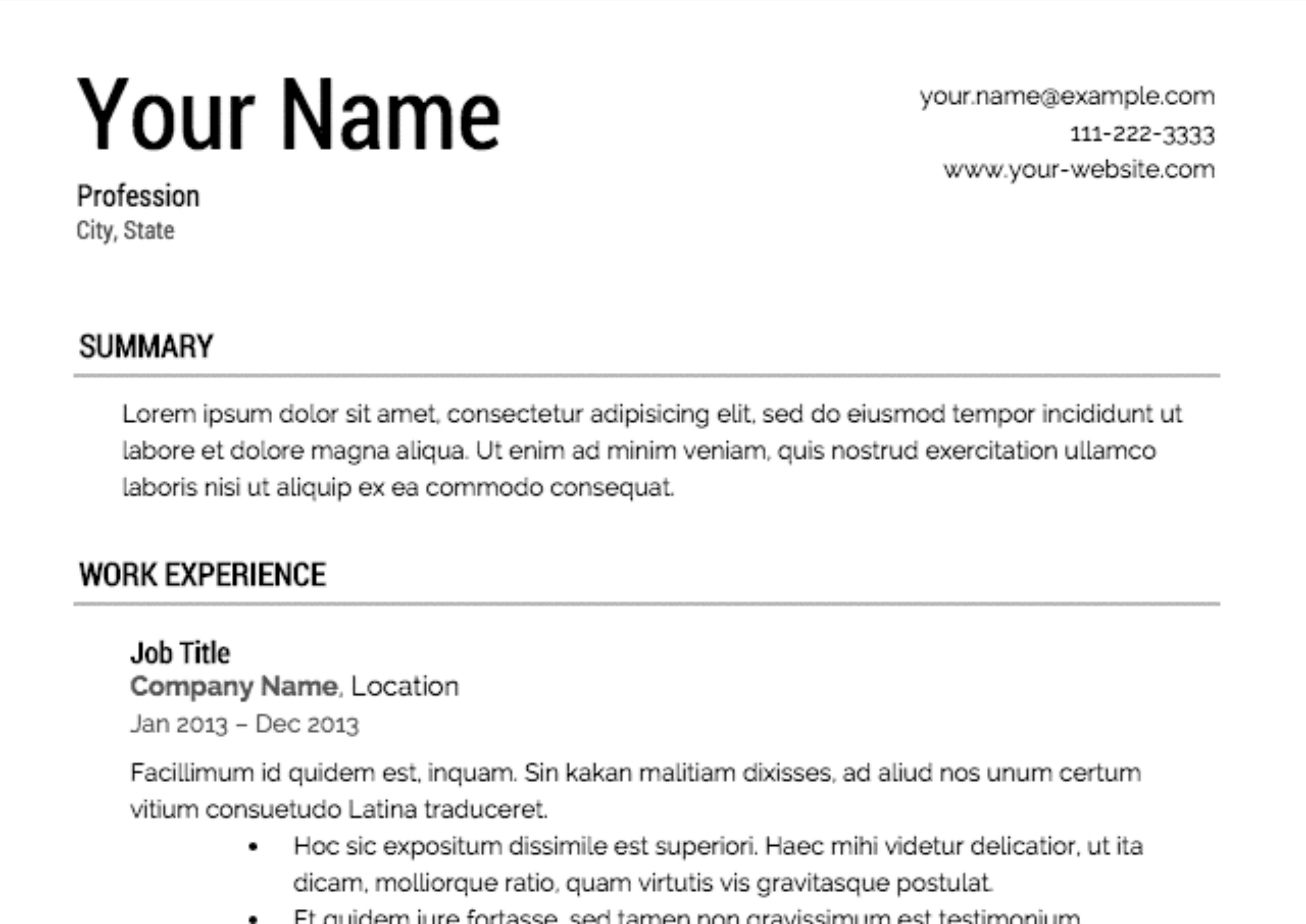
Grids

add consistency to the layout

organize contents in a rhythmic way



Your Name

Profession

City, State

your.name@example.com
111-222-3333
www.your-website.com

SUMMARY

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

WORK EXPERIENCE

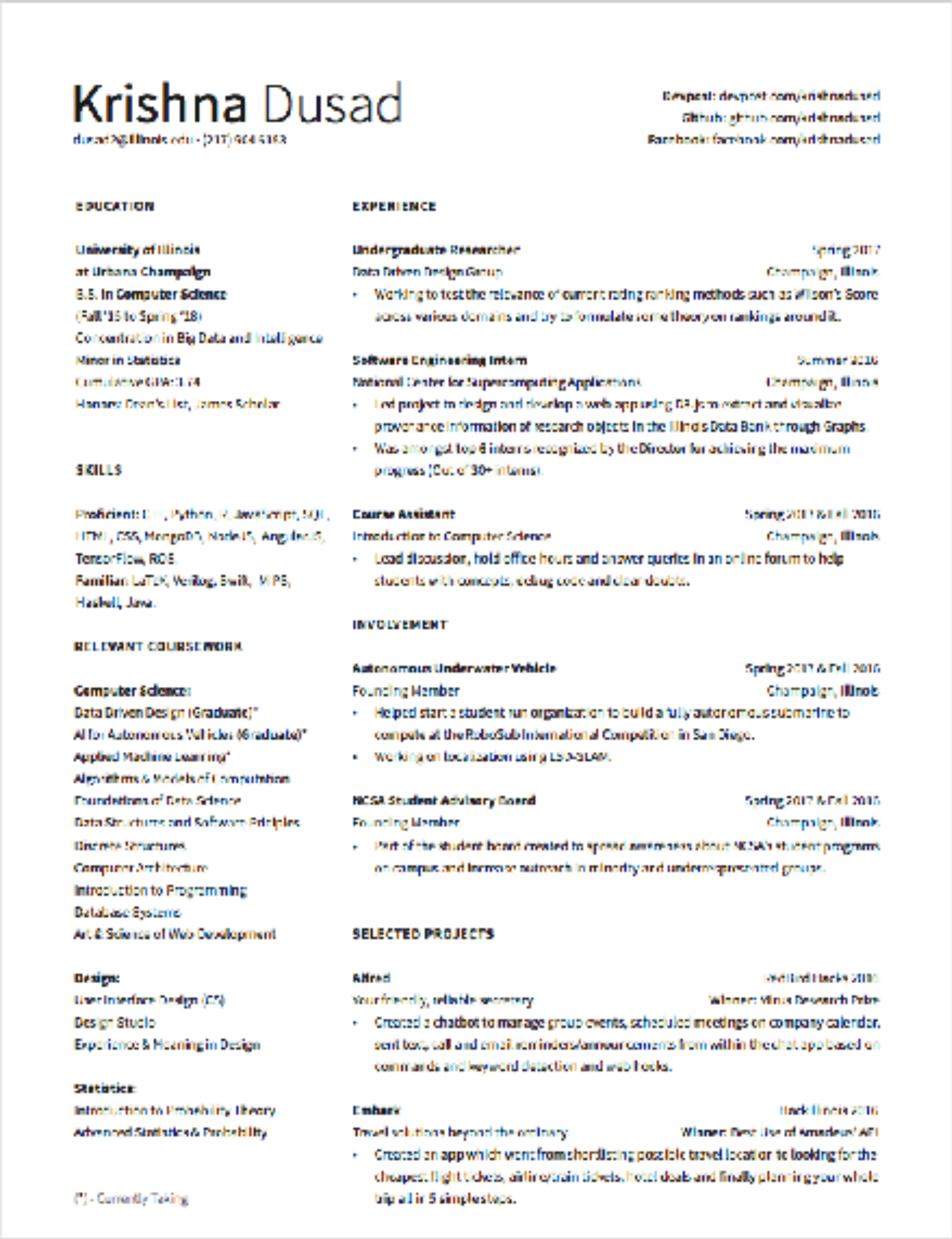
Job Title

Company Name, Location

Jan 2013 – Dec 2013

Facillimum id quidem est, inquam. Sin kakan malitiam dixisses, ad aliud nos unum certum vitium consuetudo Latina traduceret.

- Hoc sic expositum dissimile est superiori. Haec mihi videtur delicatior, ut ita dicam, molliorque ratio, quam virtutis vis gravitasque postulat.
- Et quidem iure fortasse, sed tamen non gravissimum est testimonium



Krishna Dusad

dusad2@illinois.edu · (217) 904-6183

Devpost: devpost.com/krishnadusad
Github: github.com/krishnadusad
Facebook: facebook.com/krishnadusad

EDUCATION

University of Illinois
at Urbana Champaign
B.S. in Computer Science
(Fall '15 to Spring '18)
Concentration in Big Data and Intelligence
Minor in Statistics
Cumulative GPA: 3.74
Honors: Dean's List, James Scholar

SKILLS

Proficient: C++, Python, R, JavaScript, SQL, HTML, CSS, MongoDB, Node.JS, Angular.JS, TensorFlow, ROS
Familiar: LaTeX, Verilog, Swift, MIPS, Haskell, Java.

RELEVANT COURSEWORK

Computer Science:
Data Driven Design (Graduate)*
AI for Autonomous Vehicles (Graduate)*
Applied Machine Learning*
Algorithms & Models of Computation
Foundations of Data Science
Data Structures and Software Principles
Discrete Structures
Computer Architecture
Introduction to Programming
Database Systems
Art & Science of Web Development

Design:
User Interface Design (CS)
Design Studio
Experience & Meaning in Design

Statistics:
Introduction to Probability Theory
Advanced Statistics & Probability

(*) - Currently Taking

EXPERIENCE

Undergraduate Researcher Spring 2017
Data Driven Design Group Champaign, Illinois
- Working to test the relevance of current rating ranking methods such as Wilson's Score across various domains and try to formulate some theory on rankings around it.

Software Engineering Intern Summer 2016
National Center for Supercomputing Applications Champaign, Illinois
- Led project to design and develop a web app using D3.js to extract and visualize provenance information of research objects in the Illinois Data Bank through Graphs.
- Was amongst top 6 interns recognized by the Director for achieving the maximum progress (Out of 30+ interns).

Course Assistant Spring 2017 & Fall 2016
Introduction to Computer Science Champaign, Illinois
- Lead discussion, hold office hours and answer queries in an online forum to help students with concepts, debug code and clear doubts.

INVOLVEMENT

Autonomous Underwater Vehicle Spring 2017 & Fall 2016
Founding Member Champaign, Illinois
- Helped start a student run organization to build a fully autonomous submarine to compete at the RoboSub International Competition in San Diego.
- Working on localization using LSD-SLAM.

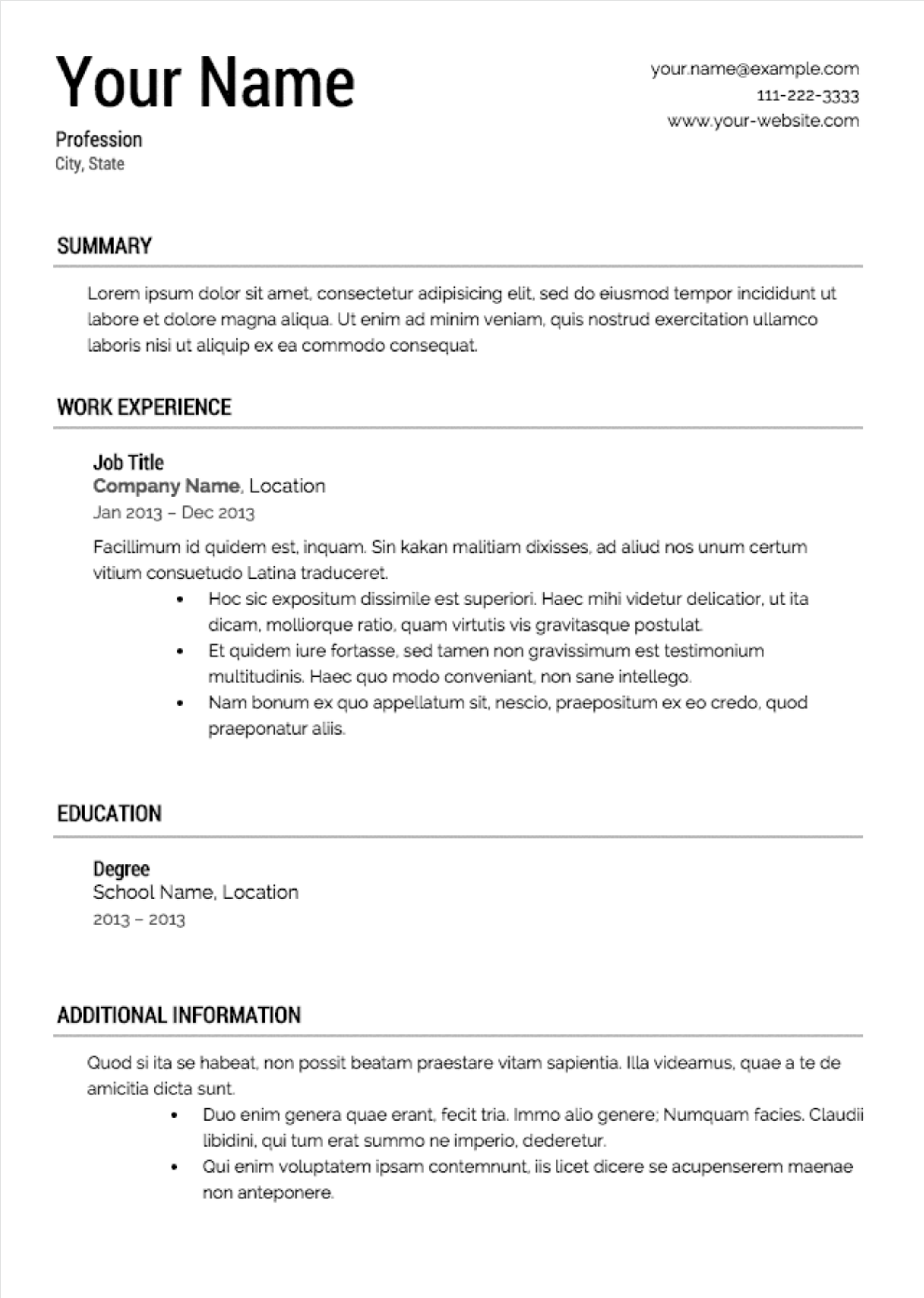
NCSA Student Advisory Board Spring 2017 & Fall 2016
Founding Member Champaign, Illinois
- Part of the student board created to spread awareness about NCSA's student programs on campus and increase outreach in minority and underrepresented groups.

SELECTED PROJECTS

Alfred Red Bull Hacks 2016
Your friendly, reliable secretary Winner: Virtus Research Prize
- Created a chatbot to manage group events, schedule meetings on company calendar, send text, call and email reminders/announcements from within the chat app based on commands and keyword detection and web hooks.

Embark HackIllinois 2016
Travel solutions beyond the ordinary Winner: Best Use of Amadeus' API
- Created an app which went from shortlisting possible travel location to looking for the cheapest flight tickets, airline/train tickets, hotel deals and finally planning your whole trip all in 5 simple steps.

X



Your Name

Profession
City, State

your.name@example.com
111-222-3333
www.your-website.com

SUMMARY

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

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Facillimum id quidem est, inquam. Sin kakan malitiam dixisses, ad aliud nos unum certum vitium consuetudo Latina traduceret.

- Hoc sic expositum dissimile est superiori. Haec mihi videtur delicatior, ut ita dicam, molliorque ratio, quam virtutis vis gravitasque postulat.
- Et quidem iure fortasse, sed tamen non gravissimum est testimonium multitudinis. Haec quo modo conveniant, non sane intellego.
- Nam bonum ex quo appellatum sit, nescio, praepositum ex eo credo, quod praeponatur aliis.

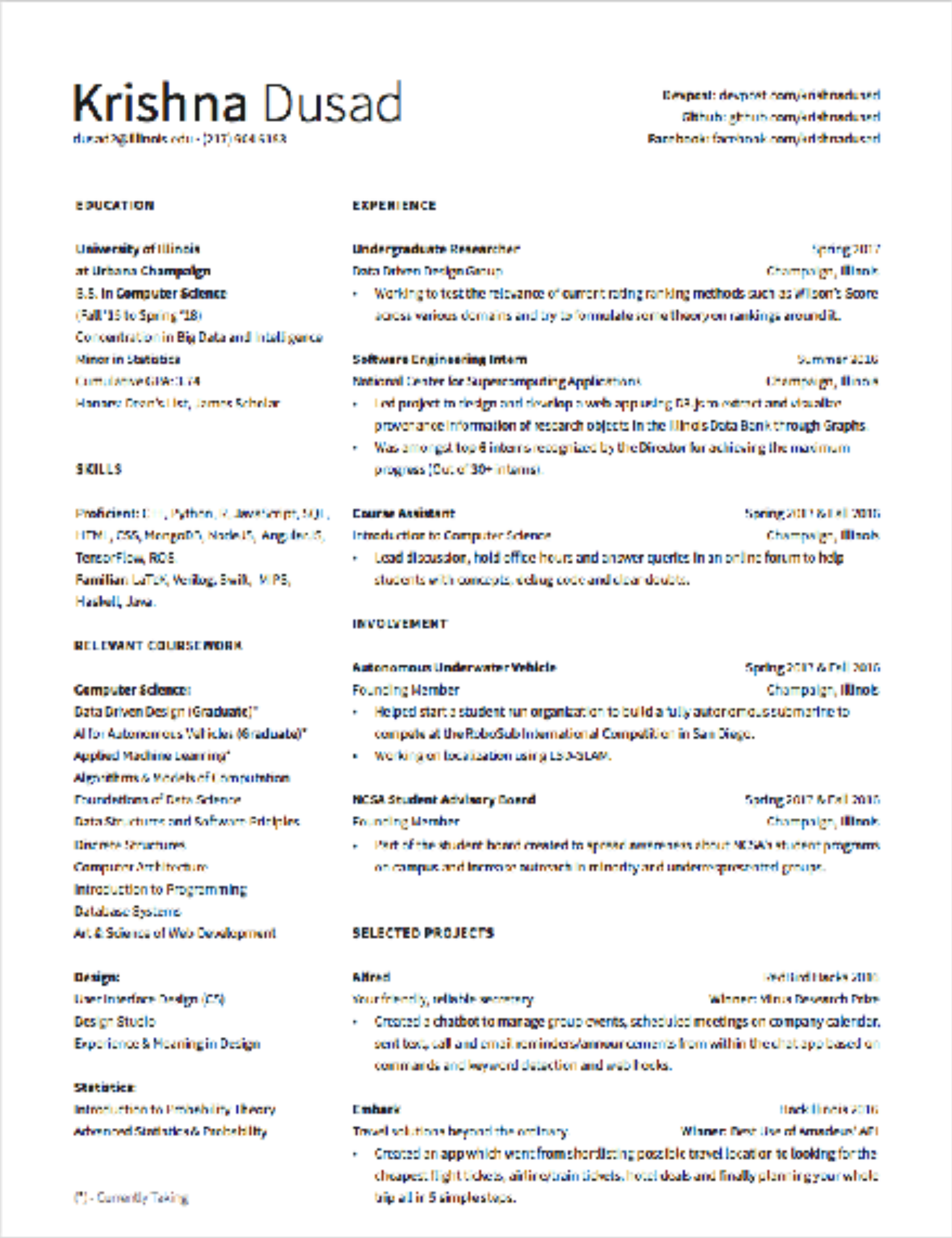
EDUCATION

Degree
School Name, Location
2013 – 2013

ADDITIONAL INFORMATION

Quod si ita se habeat, non possit beatam praestare vitam sapientia. Illa videamus, quae a te de amicitia dicta sunt.

- Duo enim genera quae erant, fecit tria. Immo alio genere; Numquam facies. Claudii libidini, qui tum erat summo ne imperio, dederetur.
- Qui enim voluptatem ipsam contemnunt, iis licet dicere se acupenserem maenae non anteponere.



Krishna Dusad

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Data Structures and Software Principles
Discrete Structures
Computer Architecture
Introduction to Programming
Database Systems
Art & Science of Web Development

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User Interface Design (CS)
Design Studio
Experience & Meaning in Design

Statistics:
Introduction to Probability Theory
Advanced Statistics & Probability

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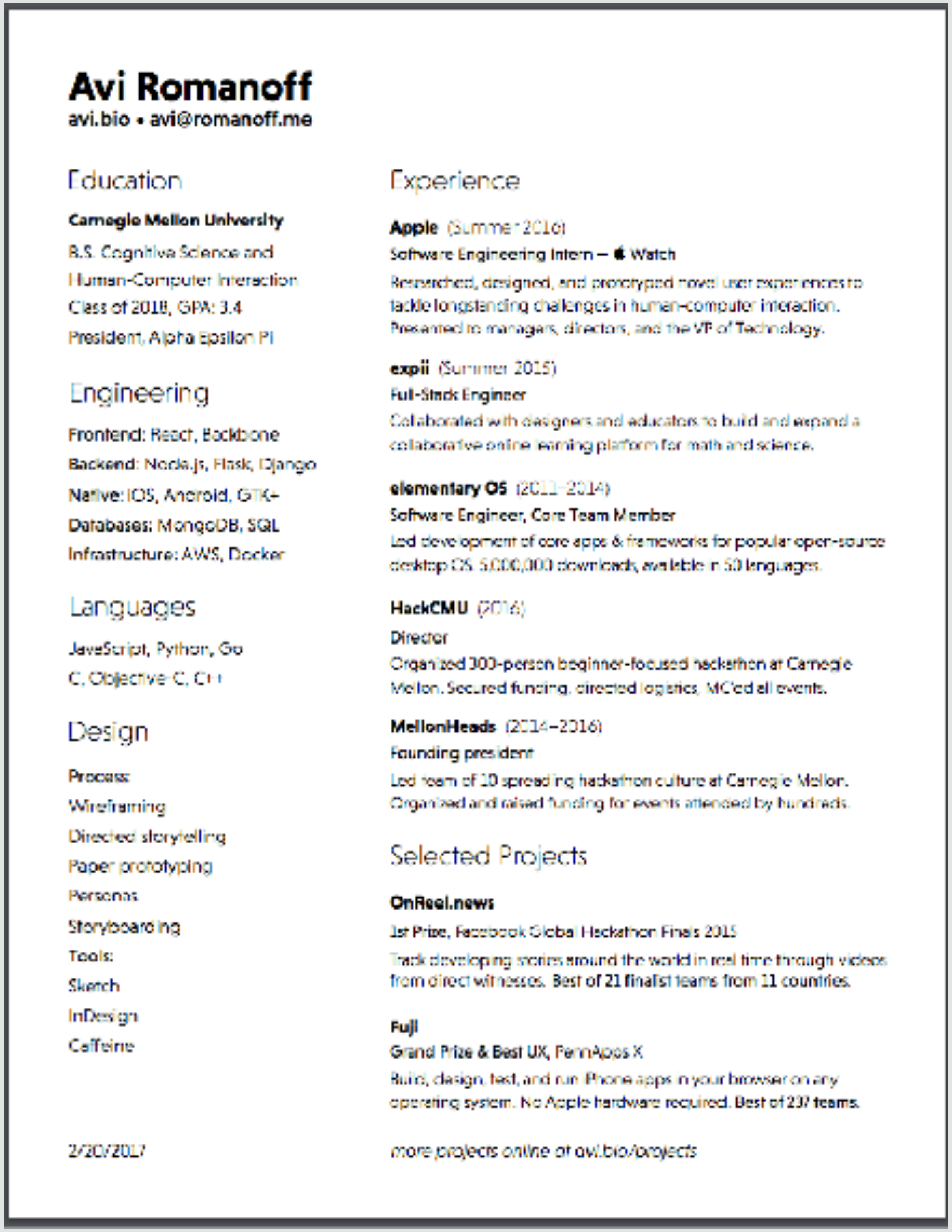

Avi Romanoff

avi.bio • avi@romanoff.me

Education

Carnegie Mellon University
B.S. Cognitive Science and
Human-Computer Interaction
Class of 2018, GPA: 3.4
President, Alpha Epsilon Pi

Engineering

Frontend: React, Backbone
Backend: Node.js, Flask, Django
Native: iOS, Android, GTK+
Databases: MongoDB, SQL
Infrastructure: AWS, Docker

Languages

JavaScript, Python, Go
C, Objective-C, C++

Design

Process:
Wireframing
Directed storytelling
Paper prototyping
Personas
Storyboarding
Tools:
Sketch
InDesign
Caffeine

2/20/2017

Experience

Apple (Summer 2016)
Software Engineering Intern — Watch
Researched, designed, and prototyped novel user experiences to tackle longstanding challenges in human-computer interaction. Presented to managers, directors, and the VP of Technology.

expii (Summer 2015)
Full-Stack Engineer
Collaborated with designers and educators to build and expand a collaborative online learning platform for math and science.

elementary OS (2011–2014)
Software Engineer, Core Team Member
Led development of core apps & frameworks for popular open-source desktop OS. 5,000,000 downloads, available in 50 languages.

HackCMU (2016)
Director
Organized 300-person beginner-focused hackathon at Carnegie Mellon. Secured funding, directed logistics, MC'ed all events.

MellonHeads (2014–2016)
Founding president
Led team of 10 spreading hackathon culture at Carnegie Mellon. Organized and raised funding for events attended by hundreds.

Selected Projects

OnReel.news
1st Prize, Facebook Global Hackathon Finals 2015
Track developing stories around the world in real time through videos from direct witnesses. Best of 21 finalist teams from 11 countries.

Fuji
Grand Prize & Best UX, PennApps X
Build, design, test, and run iPhone apps in your browser on any operating system. No Apple hardware required. Best of 237 teams.

more projects online at avi.bio/projects