



Optimizing Quality of Life

A Feat of Brute Force and Ignorance

June Andrews

Lat Long Labs

Sept 2024

@ The AI Conference

Referencing a Specific Type of Brute Force and Ignorance

Brute Force to Make New Technologies Available in Bulk

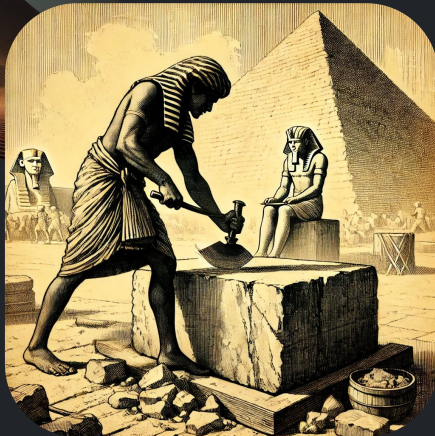


Ignorance of Conventional Wisdom for What is Possible



New Technologies + Brute Force + Ignorance Opens New Eras of Applications

Ex: Ancient Egyptians Building Pyramids



Technology: 3-4-5 square + copper chisel
= very precisely cut block of limestone or
granite

Brute Force: 2.3M blocks for the Great
Pyramid

Ignorance: can't take pyramids with you
into the afterlife

New Technologies + Brute Force + Ignorance Opens New Eras of Applications

Ex: 2nd Industrial Revolution Building Skyscrapers



Technology: Bessemer Process for stronger steel plus rivets*

Brute Force: US steel output increased from 0.1M to 26M tonnes per year

Ignorance: can't build higher than 10 stories

* rivets were invented by ancient Egyptians

New Technologies + Brute Force + Ignorance Opens New Eras of Applications

Brute Force Use of LLMs has been applied ... but without enough ignorance.



Technology: LLMs

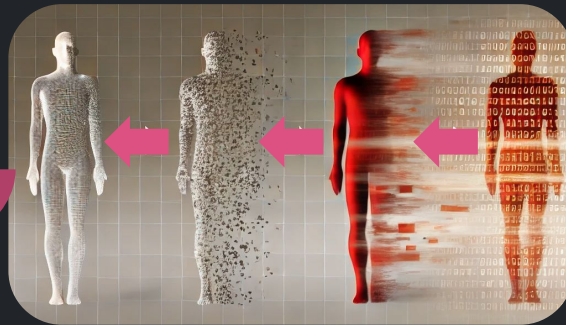
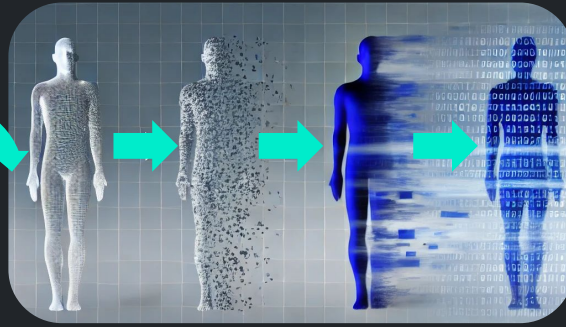
Brute Force: GPT has over 180M users.

LLama has over 350M downloads. Claude has 54M MAU.

Ignorance: not yet ... we keep asking LLMs to do what has already been done and we know can be done.

What is the most important aspect of our lives to optimize? Quality of Life Should Be High on the List

Conventional Wisdom: *We can analyze QoL, but we can't predict it.*



ChatGPT Provides an Initial Equation Leveraging the Components of QoL are Largely Agreed Upon

Needs an edit to select components, personalize, and use non-linear equations.

QoL =

$$\begin{aligned} & \alpha_1(\text{Income}) + \\ & \alpha_2(\text{Health}) + \\ & \alpha_3(\text{Education}) + \\ & \alpha_4(\text{Environment}) + \\ & \alpha_5(\text{Social}) + \\ & \alpha_6(\text{Safety}) + \\ & \alpha_7(\text{Balance}) + \\ & \alpha_8(\text{Services}) + \\ & \epsilon \end{aligned}$$

For Lat Long Labs V0























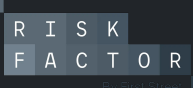
- Jobs
- Housing
- Wealth
- Education
- Recreation
- Community Support
- Weather

with constraint optimization

Many Search Giants for Optimizing Each Component

Conventional Wisdom for Optimization = "Pick a Lane"

Need Brute Force & Ignorance to Even Start a Global Search Engine

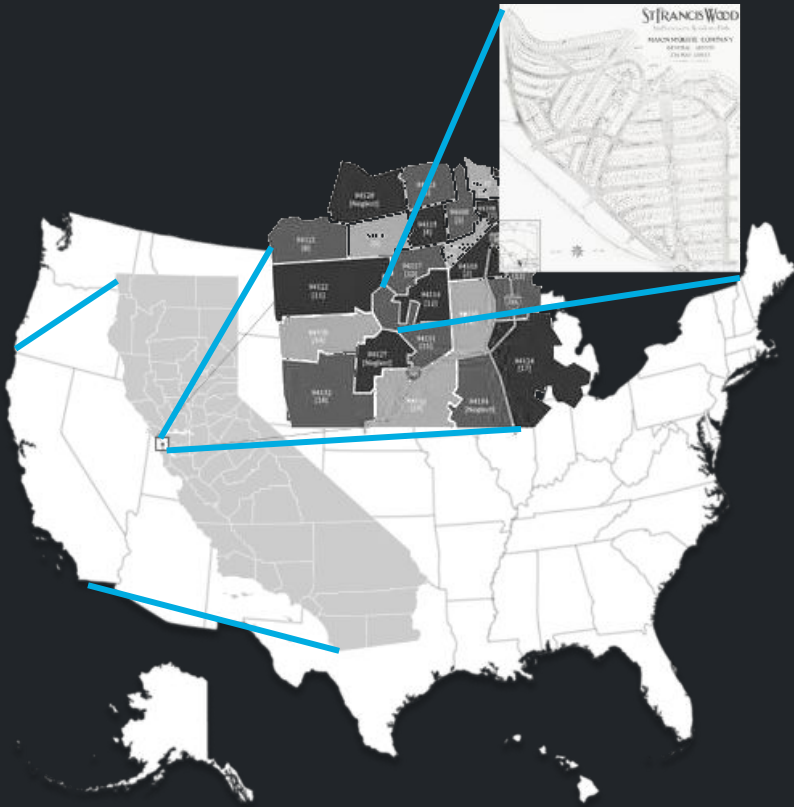
Jobs*	   	LLL Data Sources 
Housing	   	 
Wealth	   	 
Education	  	 
Recreation*	   	 
Community Support*	  	 
Weather	    	 

*pillars June has worked in

*starting to join dimensions

Multi-Grid Methods for Projecting Data of Many Scales To Desired Resolution with Activation Functions

Not dissimilar to Deep Learning adding Layers Together with Custom Functions



Double Check - Do We Need to Optimize Quality of Life?

Current Method is
Gradient Ascent
Results are Local Optima



Hard to Measure Missed Upside
Easy to Measure Mistakes

1 in 2 US Homes will be threatened by extreme weather conditions

1.2B People will be Climate Migrants in 25 years

1 in 5 College Students regret their choice of school

1 in 3 Homeowners are surprised by taxes

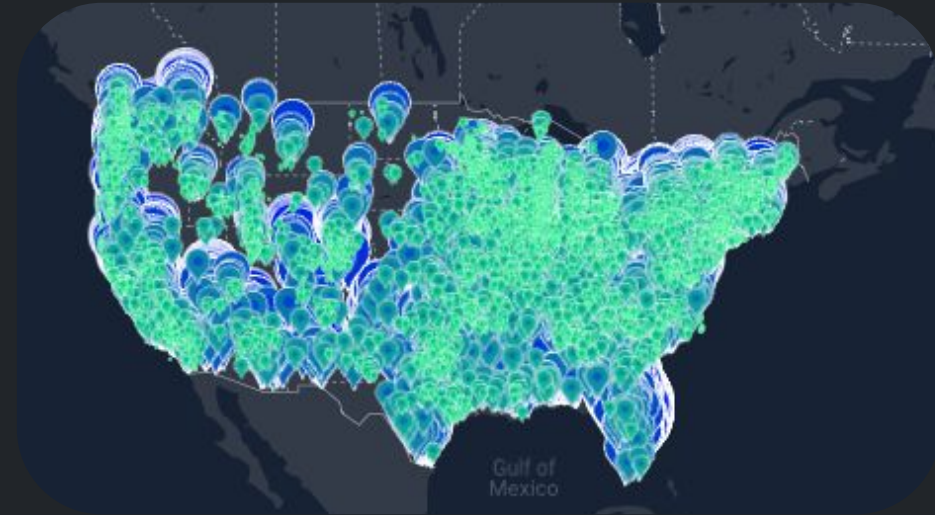
1 in 4 Homeowners are *House Poor*

3 in 4 Homeowners express buyer's remorse

38% of adults face difficulty paying for basic expenses

New Technologies + Brute Force + Ignorance Opens New Eras of Applications

Ex: Lat Long Labs Optimizing Quality of Life



Technology: ChatGPT for coding, Open Data Movement for data, plus constraint optimization

Brute Force: any line of code taking more than a few seconds, generate with AI

Ignorance: can't predict someone's quality of life in a place they've never seen

For Data Folks Let's Be Ignorant of:
Quantity v Quality & Objective v Subjective



Constraints

Jobs, Housing, Wealth

Jobs: 2-Body Problem is Especially Hard for Households with Partners in Different Occupations

Income & Geographical Freedom negatively correlated

Largely 4 Paradigms of Family Income:

1 median income

2 median incomes

1 median + 1 high income

2 high incomes

Sales + Stay At Home = \$78k

Redwood City, California 94062: \$78470



Sales + Sales = \$157k

Redwood City, California 94062: \$156940



Redwood City, California 94062: \$254050



Sales + Data Scientist = \$254k

Redwood City, California 94062: \$351160



Data Scientist + Data Scientist = \$351k

Housing: Cost Budgets are Dramatically Shifting for Insurance, Interest, Maintenance, Availability

Availability of Housing Dramatically Changes from \$100k to \$500k Budgets

Housing Budget

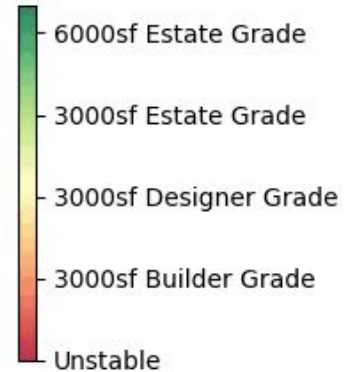
Mortgage

Property Taxes

Home Insurance

Maintenance

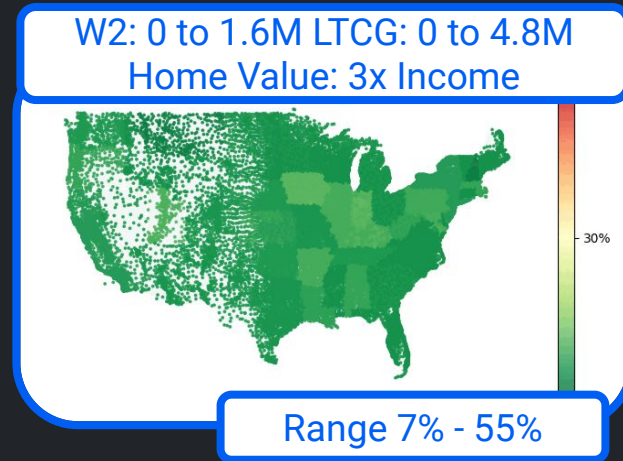
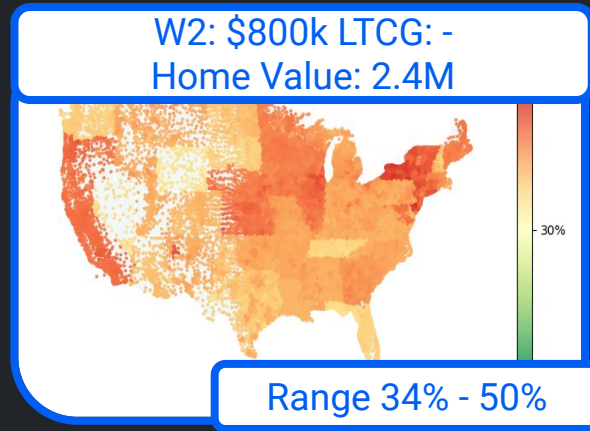
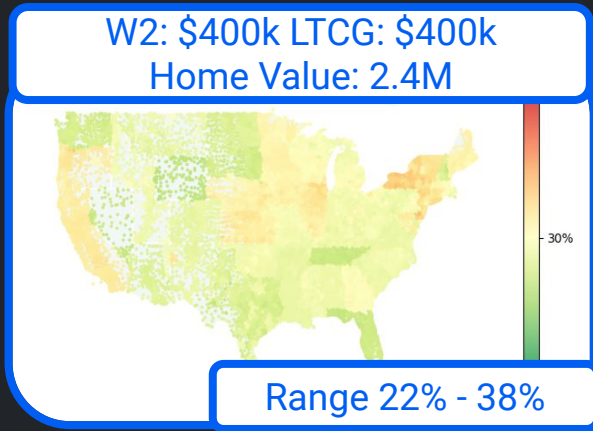
Housing Availability for Budget \$100k



Wealth: Taxes Dominate the Budget for Many Households

Total Tax = Federal + State + Local + Sales + Property

Tax Codes in the US are the Equivalent Complexity of ~40 Countries
4000+ Local Income Tax Laws, Trimet Local Tax Follows a Bus Route

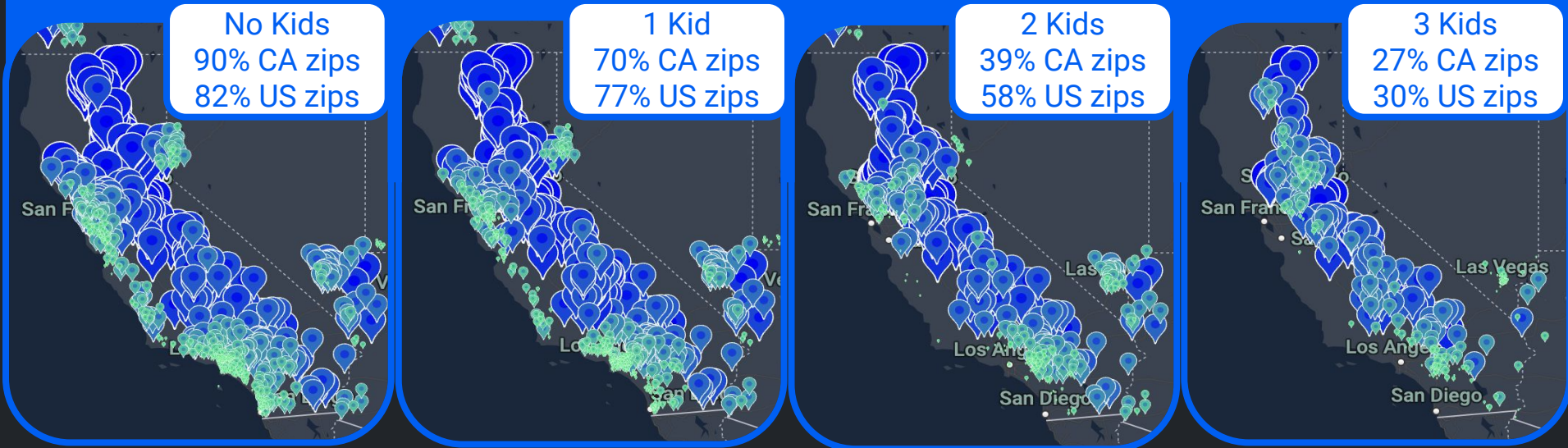


Regions with High Taxes Are Stable if Surrounding Areas Are Also High (NYC)
Regions with Sharp Divides like Portland/Vancouver Face Migration Pressure

Wealth = Jobs - Housing - Taxes - Cost of Living

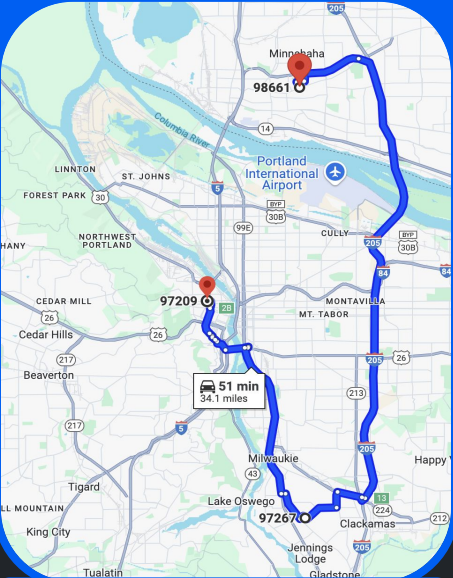
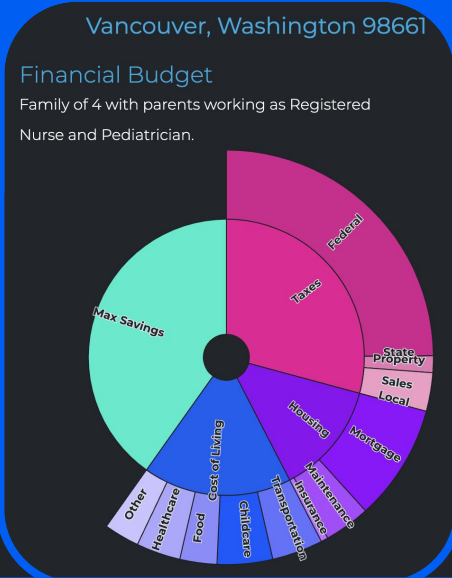
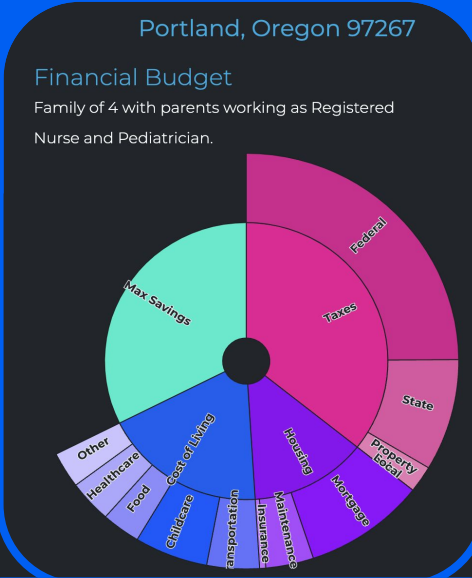
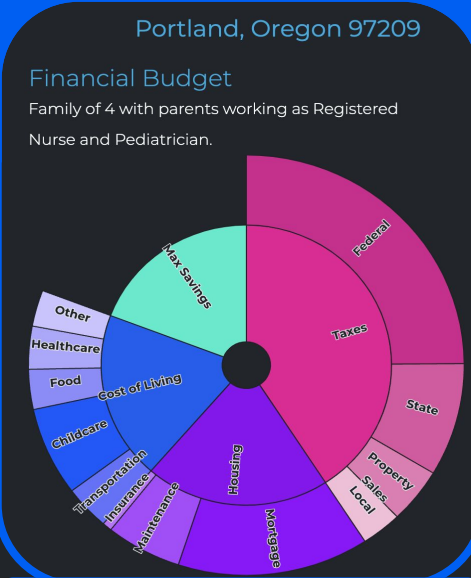
Subtle Personalizations Dramatically Constrain Geographical Freedom
Children Influence cost of Housing, Health Insurance, Transportation, Food

Registered Nurse + Preschool Teacher Affordable Places to Live



Wealth: Percentages Matter Even for Neighbors

Registered Nurse + Pediatrician + 2 Kids
Discretionary Income near Portland Oregon



\$65k Max Savings

\$109k Max Savings

\$136k Max Savings

23 miles apart

Taxes Housing Cost of Living Max Savings



Optimizations

Recreation, Weather, Community Support
...Education

Recreation: Correlations Form Between Similar Hobbies

Combining Many Datasets Increases Data Stability

Open Data Created Prolific and Highly Detailed Datasets for Hobbies
Fine Dining is a Skilled Profession Creating Hot Spots for Food Related Hobbies
Desirable Weather + Nature Combinations Lead to Multiple Outdoor Activities

Wineries



Micro Breweries



Golf Courses



Farmer's Markets



On Platform:

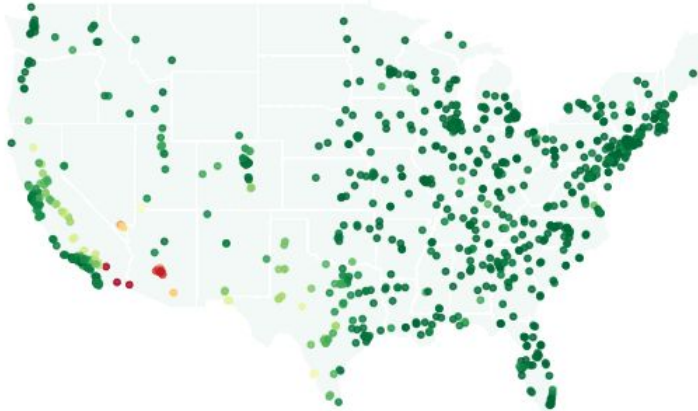
- Airports
- Beaches
- Farmer's Markets
- Golf Courses
- Lakes
- Micro Breweries
- Museums
- Retail Therapy
- Wineries
- Zoos

Weather: US Climate Spans All Extremes, Quickly California Has 7 of the 10 Growing Zones for Seeds

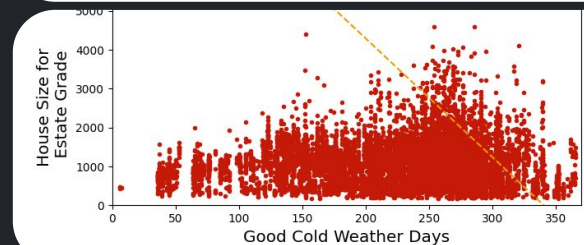
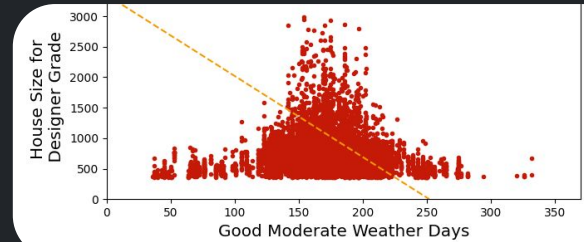
Personalization of Weather is Important for Comfort and Health
Asthmatics Can Have Attacks Outside of 55° to 85°

Showing the Variations of Good Weather by Person

10 ° F to 100 ° F Good Weather for All Year Round



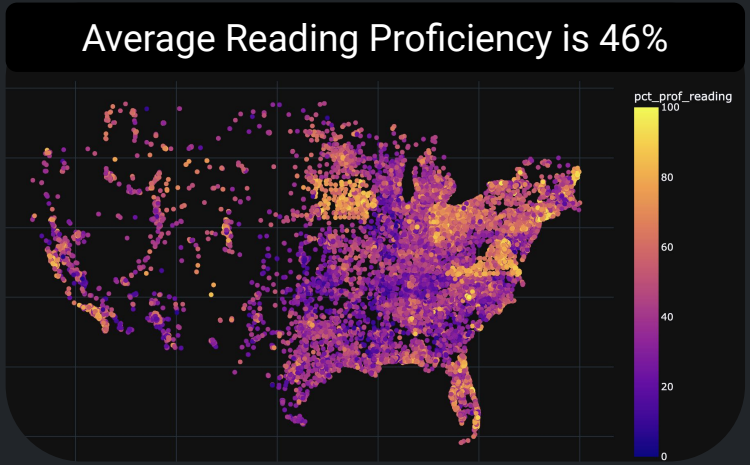
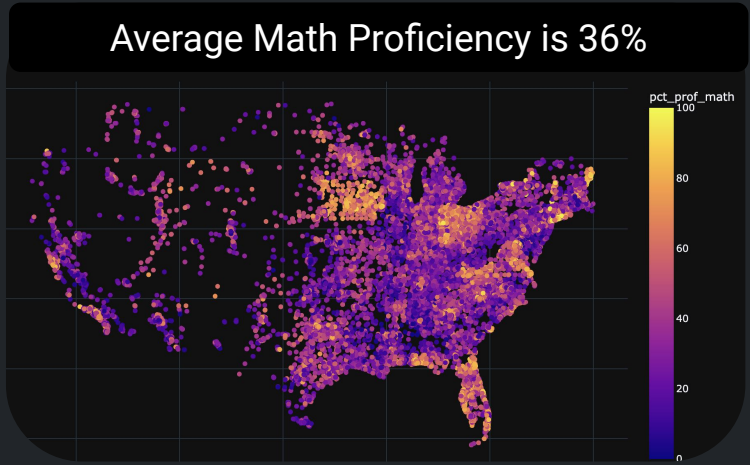
Weather Can Create Non-Convex Optimization Spaces



Education: Department of Education Data is Challenging

Proficiency Rates Have Regressed to Levels Last Seen in the 1970s

School District Boundaries are the Competitive Advantages of GreatSchools.org



12th Graders of 2022

Oregon

California

**Entering Top 25
Engineering College**

0.5%

3.6%

Houseless

5.9%

3.9%

Education: Data Reported for Funding is High Fidelity

Pre/Post Pandemic Safety in Colleges Dramatically Shifted Difference is Causing a Divide Between Campuses & Students on Priorities

Which is the safest Ivy League School?

ChatGPT
Dartmouth College is often considered one of the safest Ivy League schools due to its relatively low crime rates and tight-knit campus community.

Dartmouth

Which is the safest Ivy League School?

ChatGPT
Cornell University is often regarded as one of the safest Ivy League schools due to its comprehensive safety measures and relatively low crime rates.

Cornell

Which is the safest Ivy League School?

ChatGPT
While safety perceptions may vary, Princeton University is often considered one of the safest Ivy League schools due to its low crime rates, comprehensive security measures, and relatively secluded campus location.

Princeton

Which is the safest Ivy League School?

ChatGPT
Statistically speaking, among the Ivy League schools, Yale University is often regarded as one of the safest due to its low crime rates and robust campus security measures.

Yale

University	Safety Red Flags
University of Pennsylvania	1
Princeton	2
Columbia	2
Harvard	3
Yale	5
Cornell	6
Brown	6
Dartmouth	7



Conclusions

For You, For Your Neighbors, For Policy

For You - Personalized Insights at LatLongLabs.com

Occupation, Family, Hobbies, Priorities by Zip Code

Research QoL, We Use Data for our Careers ... Use Data for our Families

The screenshot displays the LatLongLabs.com website interface. At the top left is the logo "LAT LONG LABS". On the top right, there are two buttons: "Career" and "Family". The main heading is "Explore Places for a Growing Family". Below the heading are social media share buttons for LinkedIn and Facebook, and a date "Updated Sept 2024".

The central part of the page features a map of the United States. A pink circle is placed on the map, and a tooltip box is overlaid on it with the text "Change Family Settings to Personalize". The map includes labels for "Hudson Bay", "Labrador Sea", "North Atlantic Ocean", "Gulf of Mexico", and "Caribbean Sea".

On the left side, there is a sidebar menu with the following items: "Family", "Description", "Preferences", and "Strategy", each with a downward arrow. Below the menu are two buttons: "Optimize" and "Show Top Show All".

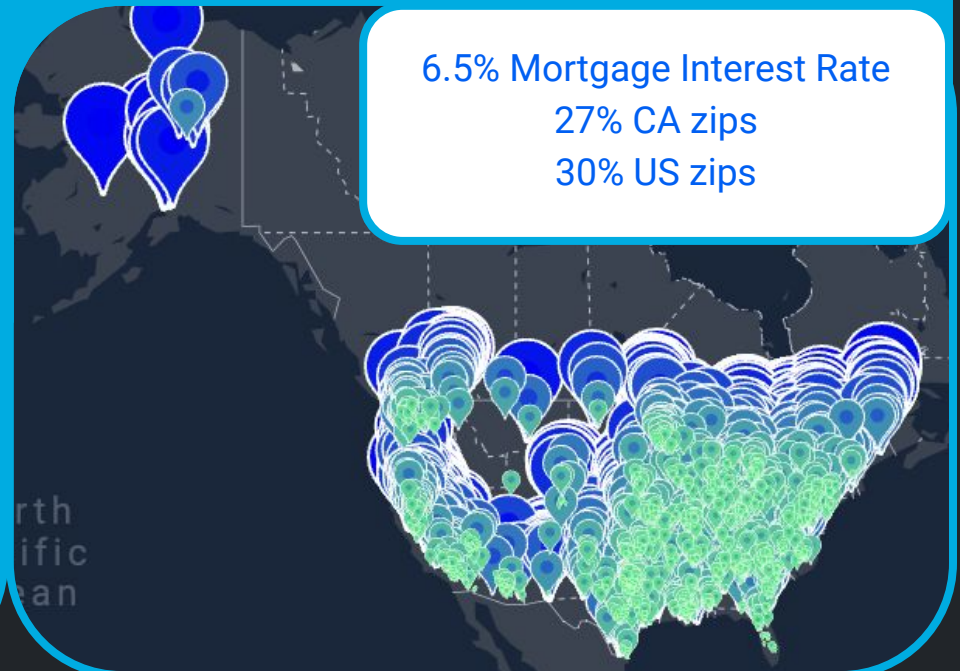
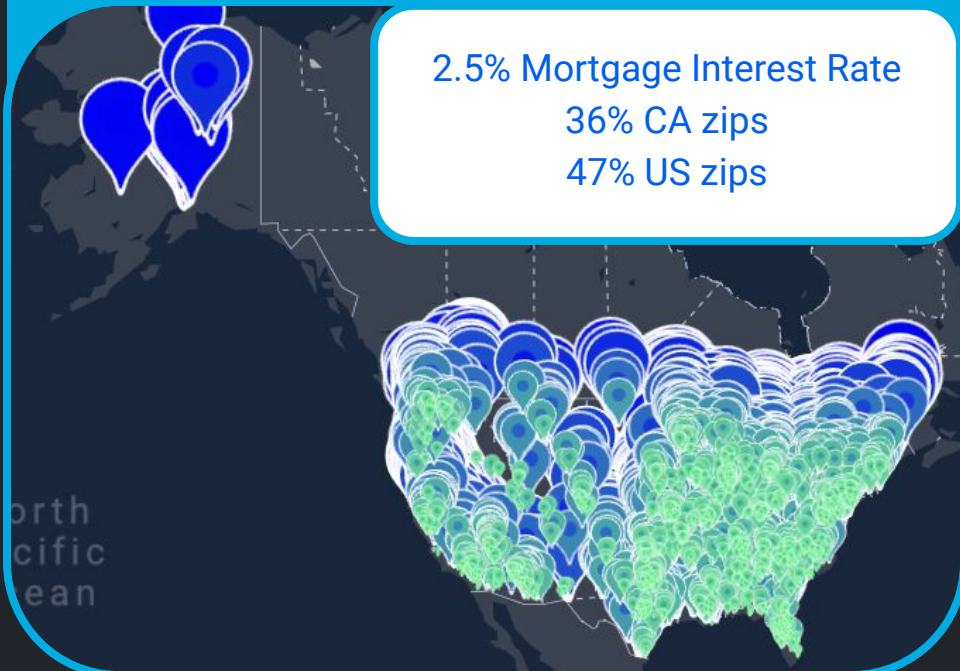
At the bottom left, there is a search bar with the text "Enter ZIP code" and a "View" button. At the bottom center, there is a text prompt "Enter Zip to See More".

At the bottom right, there is a small icon of a person and a plus sign. The footer contains the text "Google", "Keyboard shortcuts", "Map Data ©2024 Google, INEGI", and "Terms".

For Your Neighbors - Empathy with Changing Conditions

Many Families Live With Established Financial Models that Do NOT Exist Today
Labor Shortages Will Just Become More Complex as Folks are Forced to Move

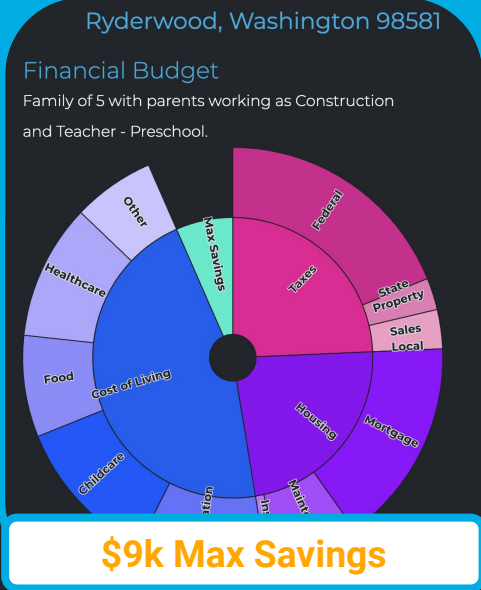
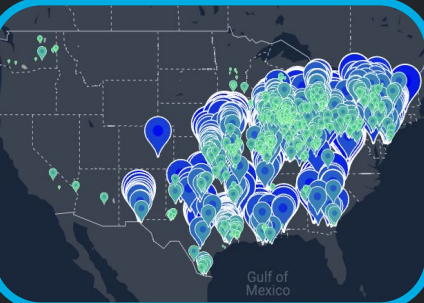
Registered Nurse + Preschool Teacher + 3 Kids



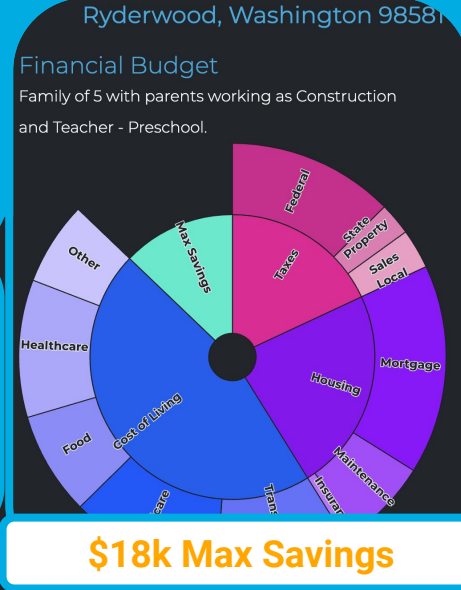
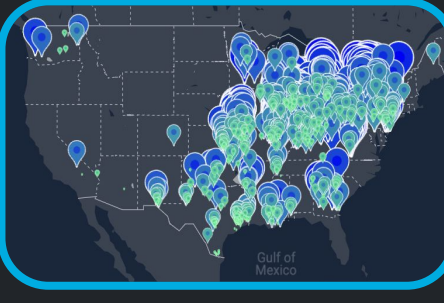
For Policy - Make Sure Policy Helps Who It Is Supposed To

Construction Worker + Preschool Teacher + 3 Kids (6 and older)

No Policy Changes
0.3% CA zips
8% US zips



Harris CTC Policy
1.5% CA zips
20% US zips



Taxes Housing Cost of Living Max Savings



Thank You

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Share an Idea!

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