

# Welcome

- First Class Introduction
- Weave :
  - My Background
    - Took long Sabbatical / not teaching.
    - Background influences class consciously and subconsciously
      - (knowingly and unknowingly)
  - Class Content
  - Student Sharing
    - Student engagement ideas.

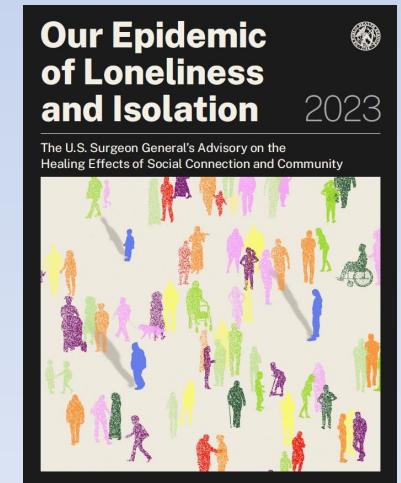


# Teaching

- Professional Goals
  - Explore Courses
    - Teaching Style / Pedagogy
    - Content
- Personal Goals
  - Move back home
    - Fresno – 2/12
    - Southeast Fresno – 3/22
      - (Fairgrounds area)
    - Care for Parents
      - Father: 12/06/29 - 06/12/12
      - Mother: 12/22/36 - 06/13/23
  - Sabbatical : 6/22 – 8/23

# Key Idea: Engagement (Moderated/Muted)

- Education Changing
  - More choices than ever for learning content.
  - University should encourage personal growth.
    - Not just content acquisition.
    - University Social Connections Irreplaceable.
- Surgeon General Report
  - Social connections promote growth.
    - Virtual learning period difficult for many
  - Social Connections important for health.
  - Sharing helps w/ connections
- Challenges:
  - Students overwhelmed



# Teaching Style / Pedagogy

- Interested in facilitating social connections
  - w / Computer Science community
  - w/ Classmates
  - BUT: In a somewhat muted way.
- Encourage connections w/ participation
  - Online discussions for sharing
- CHALLENGES:
  - Time





# Who I Am

- Computer Science
- California State University, Fresno

## David Ruby, Lecturer

- From Fresno – 10/62
- Graduated Fresno State – 5/84
  - Met & Married Merced Born Bulldog Patricia {SAUCEDO} Ruby ('85)
- Teaching at Fresno State – 1/13
- First Generation College Grad
- Experienced a lot of work engagement activities

# Connection Issues w/ Abstraction

- Struggled Some as Fresno State Student
  - Felt Somewhat Invisible
  - No way out of “box”
- Abstract discussion of issues helped
  - Supported Some by Group (individual) Therapy @ Health Center
  - Insights included “Connections issues common w/ Fresno State as Commuter School”
  - Abstractions facilitated problem solving.



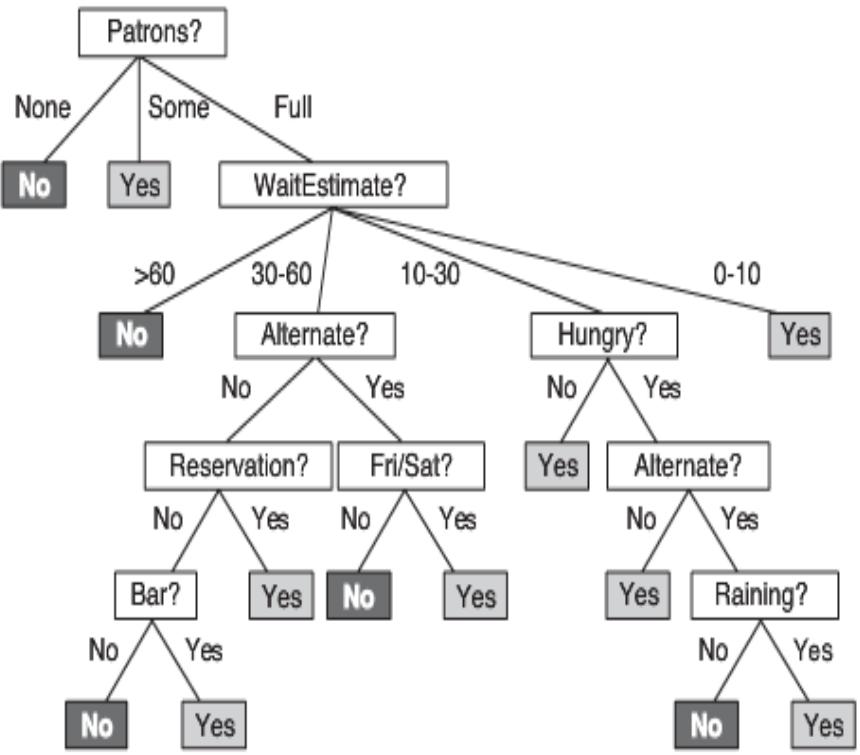
*"Uhh, Connection  
Issues Common."*

# Key Idea: Abstractions

## What are Abstractions?

- Abstractions simplify complex realities
  - Focus on the general features
  - Do not focus on specific details
  - Like zooming out to get a broader view of a concept
- Maps as Abstraction:
  - Maps simplify complex geography into an understandable form.
  - They highlight essential elements like roads and landmarks, omitting less significant details.
  - This abstraction makes it easier to navigate and understand large areas.

# Abstractions of Restaurant Visits



Example	Input Attributes										Goal
	Alt	Bar	Fri	Hun	Pat	Price	Rain	Res	Type	Est	
$x_1$	Yes	No	No	Yes	Some	\$\$\$	No	Yes	French	0-10	$y_1 = \text{Yes}$
$x_2$	Yes	No	No	Yes	Full	\$	No	No	Thai	30-60	$y_2 = \text{No}$
$x_3$	No	Yes	No	No	Some	\$	No	No	Burger	0-10	$y_3 = \text{Yes}$
$x_4$	Yes	No	Yes	Yes	Full	\$	Yes	No	Thai	10-30	$y_4 = \text{Yes}$
$x_5$	Yes	No	Yes	No	Full	\$\$\$	No	Yes	French	>60	$y_5 = \text{No}$
$x_6$	No	Yes	No	Yes	Some	\$\$	Yes	Yes	Italian	0-10	$y_6 = \text{Yes}$
$x_7$	No	Yes	No	No	None	\$	Yes	No	Burger	0-10	$y_7 = \text{No}$
$x_8$	No	No	No	Yes	Some	\$\$	Yes	Yes	Thai	0-10	$y_8 = \text{Yes}$
$x_9$	No	Yes	Yes	No	Full	\$	Yes	No	Burger	>60	$y_9 = \text{No}$
$x_{10}$	Yes	Yes	Yes	Yes	Full	\$\$\$	No	Yes	Italian	10-30	$y_{10} = \text{No}$
$x_{11}$	No	No	No	No	None	\$	No	No	Thai	0-10	$y_{11} = \text{No}$
$x_{12}$	Yes	Yes	Yes	Yes	Full	\$	No	No	Burger	30-60	$y_{12} = \text{Yes}$

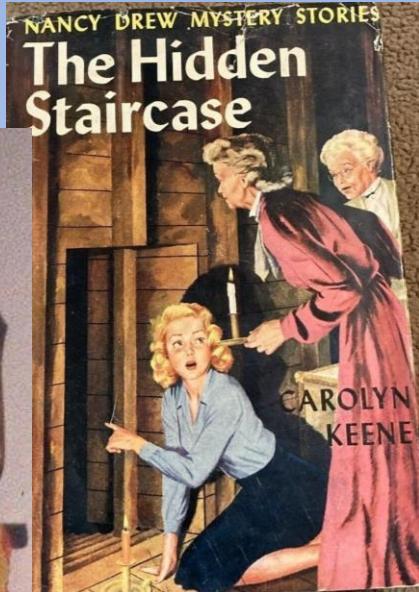
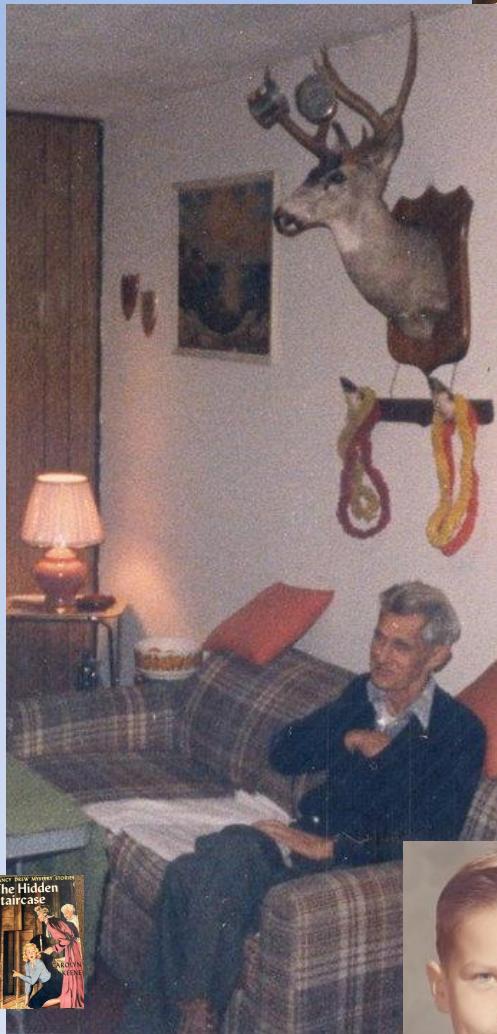
Figure 18.3 Examples for the restaurant domain.

# Key Idea: Abstractions

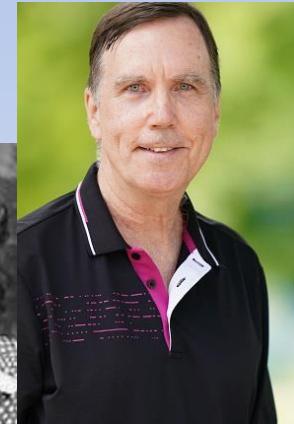
## Why Abstractions?

- Abstractions facilitate problem solving.
  - Thinking about problems.
- Abstractions facilitate sharing w/ generalizations.
- Abstractions facilitate critical thinking.
  - Evaluating ideas w/ abstractions (high level features).
- Improving skill with abstractions important.
  - Learning to Code does this!
- My story involves abstractions.
- ABSTRACTIONS ARE EVERYWHERE !
  - (Not Just Research)

# My Story



Interest In Family Mysteries => Abstractions/  
General Features



- Family Memories
  - Inside House:
    - Books/Magazines

# OUTSIDE House Abstractions



- Cars, Fences, Landscapes
- What does it all mean???
- What key features would you display?

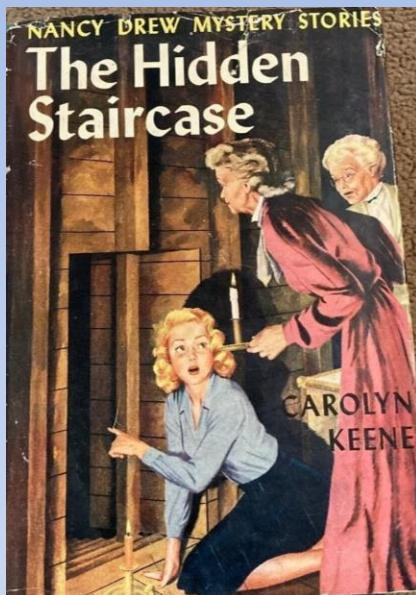
# INSIDE House

## GrandMa Seedorf (Smith)

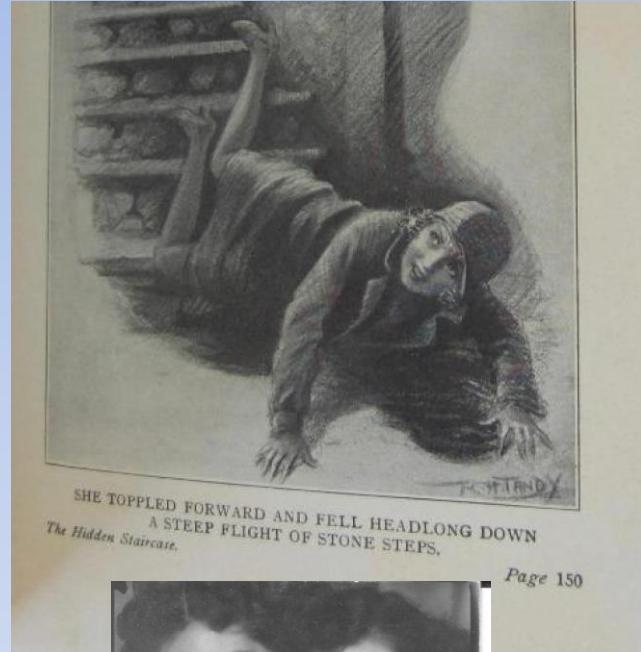
## FRESNO Born (1919)



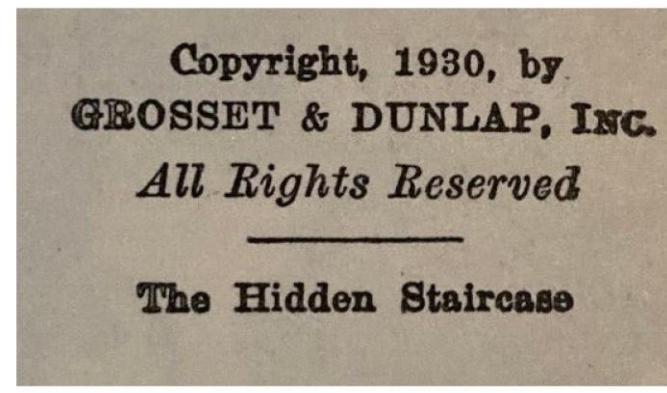
16 @ 1935



Copyright 1930



33 @ 1952



## Wife Says Spouse Declared Spirit Conceived Child

A statement by the father that one of his children had been conceived by a spirit from Christ is the unusual charge contained in a divorce action filed in the superior court to-day by Ethel May Smith against James H. Smith, Fresnan.

Smith is accused of making other false statements concerning the parentage of their four children, according to his wife, who charges he said in the presence of the children, the oldest of whom is 16, that he was the father of but one of them. He accused her of improper relations with other men, the wife's complaint says.

Smith is quoted as having made the remark that the father of one of their children was none other than the parent of his wife. These remarks form the basis for the wife's charges of extreme cruelty. According to the complaint, she is about to bear a fifth child.

They were married in Fresno February 28th, 1906. They separated May 17th last.

The wife asks distribution of community property consisting of two lots and a four-room dwelling at 2217 California Avenue, together with alimony and custody of all the children. Attorneys Peckinpah and Carter prepared the complaint.

# Fresno Bee Mystery Great Grandma



Raymond Smith

Mrs. Atha Seedorf



Fresno Bee May 22, 1966

### Mrs. Ethel May Smith

Funeral services for Mrs. Ethel May Smith, 76, of 326 E. California Ave. will be held at 2:30 p.m. Tuesday in the John N. Lisle Chapel. Interment will be in Mountain View Cemetery.

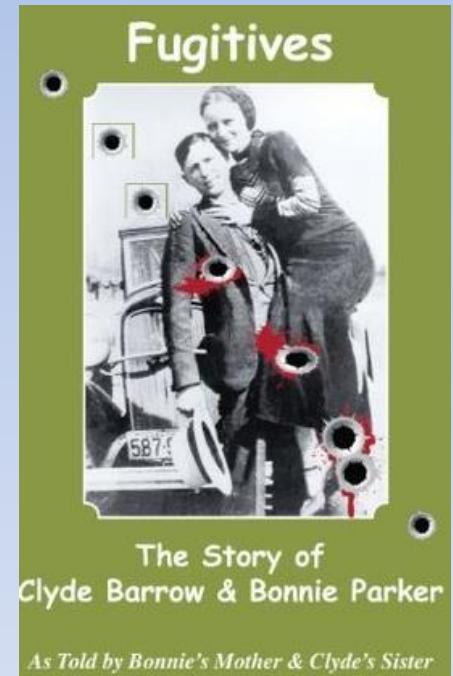
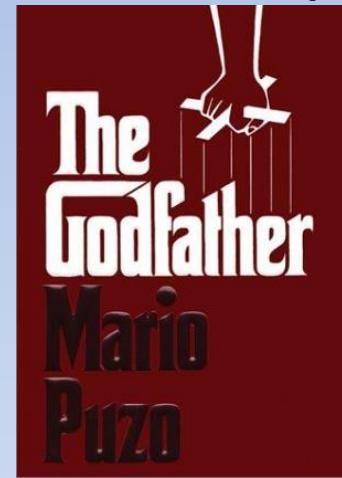
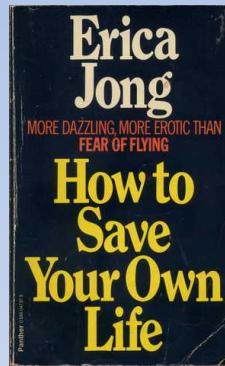
Mrs. Smith died yesterday in a local hospital after a long illness.

She had lived in Fresno County for 73 years. She was born in Boise, Idaho.

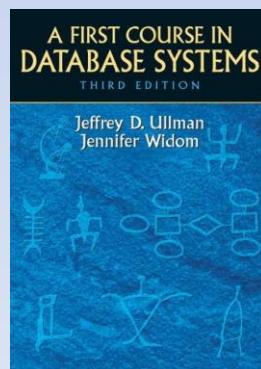
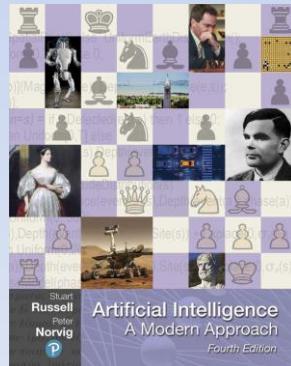
Survivors include two sons, Franklin and Raymond Smith; two daughters, Mrs. Viola Donato and Mrs. Atha Seedorf a sister, Mrs. Leona Haag, all of Fresno; four grandchildren and five great-grandchildren.

# Books: Domain Abstractions

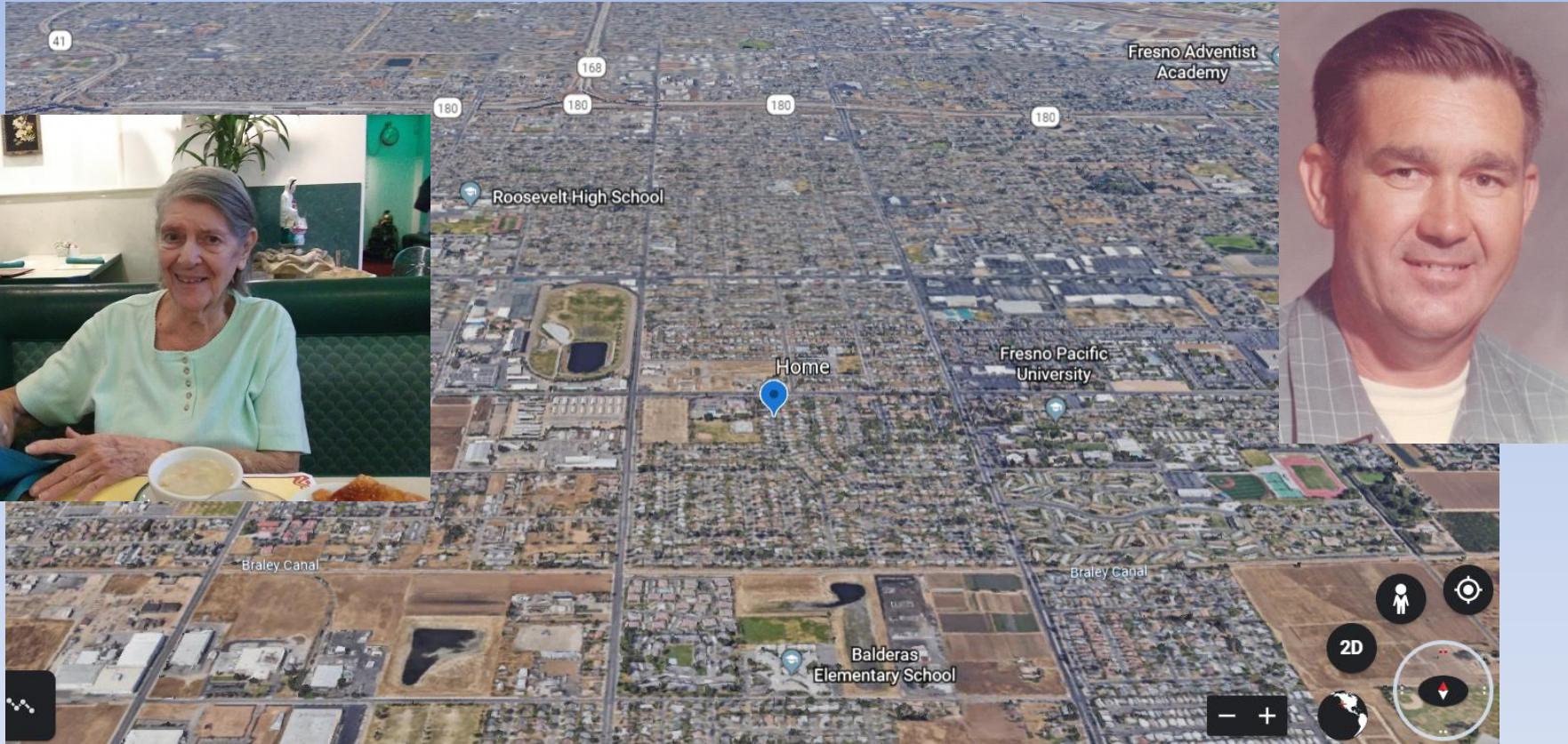
- Dad would bring books found/acquired from work:



- I often think w/ books:



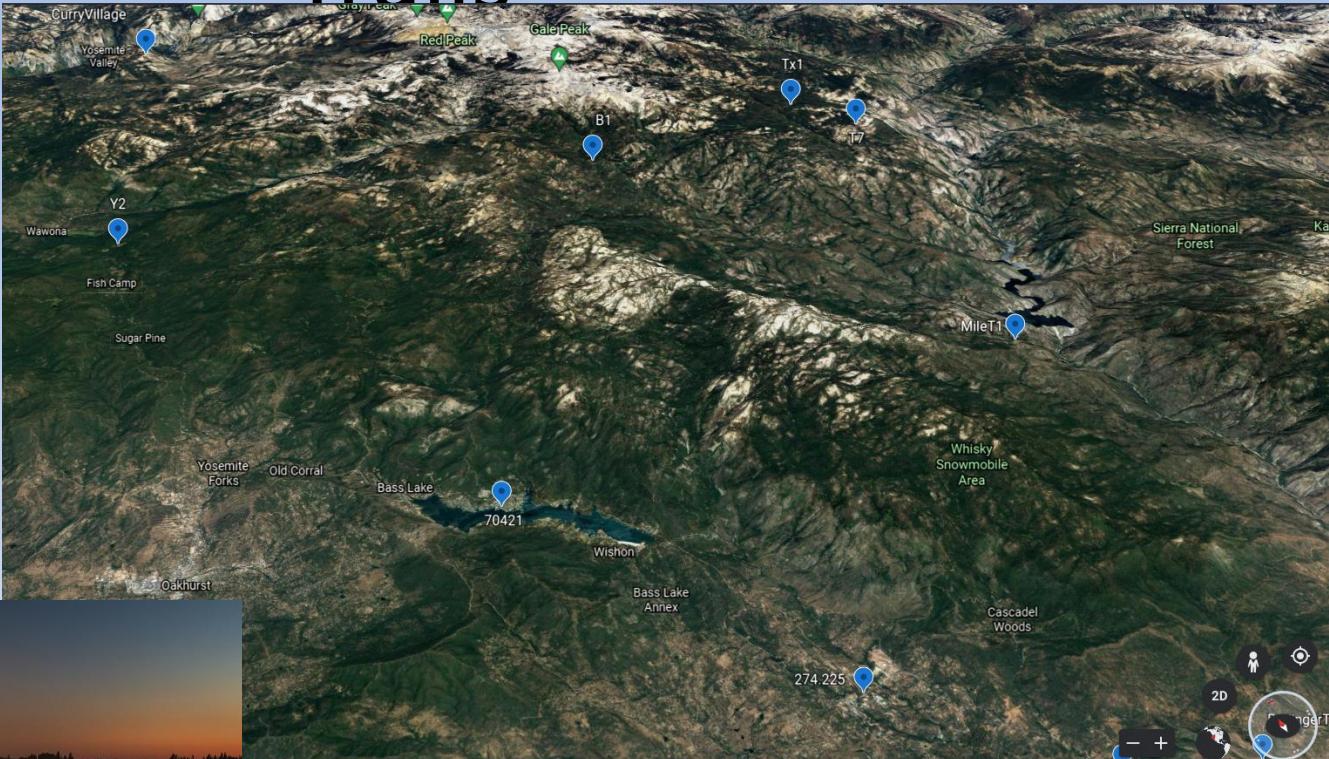
# Father Floyd Fresno Career Custodian Ending @ Sequoia Middle School



- Mother Shirley (Seedorf) Ruby & Father grew up in Fresno
- Grandma Atha Leona (Smith) Seedorf also grew up in Fresno
- Dad's Brother Walt career custodian @ Roosevelt High School

# Sierra National Forest w/ Trails

- Bass Lake



# Trails Data (Abstraction)

Explore Plan History

AllTrails PRO Help Upgrade to Pro

David Ruby > Lists > BassLake

Enter a city, park or trail name

BassLake

1 Item

Filter Copy to my Lists Share

Explore BassLake - view hand-curated trail maps and driving directions as well as detailed reviews and photos from hikers, campers and nature lovers like you.

Description

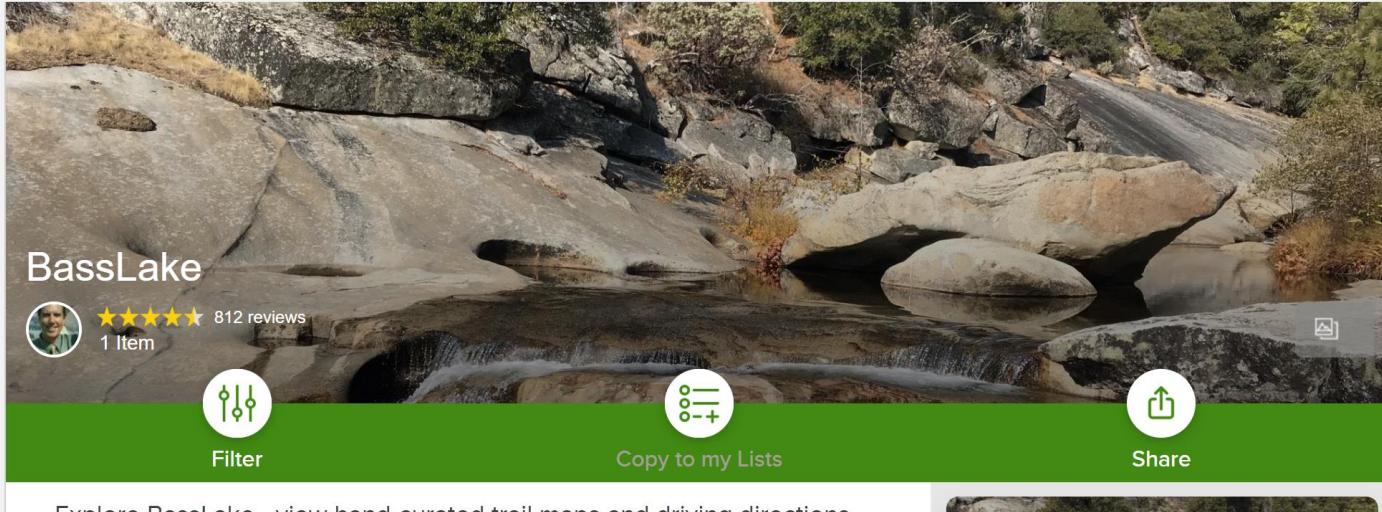
Edit

Angel Falls via Willow Creek Trail

Sierra National Forest

moderate ★★★★☆ (812)

Length: 3.1 mi • Est. 1 h 39 m



# Angel Falls

## Data = {Text, Photos, Maps}



**Angel Falls via Willow Creek Trail**  
moderate ★★★★★ (813)  
Sierra National Forest

Photos (872) Directions Print/PDF Map Share More

Angel Falls via Willow Creek Trail is a 3.1 mile heavily trafficked loop trail located near Bass Lake, California that features a waterfall and is rated as moderate. The trail is primarily used for hiking, walking, nature trips, and bird watching and is best used from May until October. Dogs are also able to use this trail.

Length 3.1 mi Elevation gain 606 ft Route type Loop

Hiking Nature trips Walking Bird watching Dog friendly Forest

 **Steve MacNeill** PRO  
★★★★★ July 2, 2021

Hiking

Great hike. Started at 8:30 and finished at 11:30. We parked right after turning in and we were fine. When we got back there were so many other cars. We took it slow, enjoying stopping along the way to take in the water. We took the left trail up and went down the hill to the left when we reached the pully chair. Be sure to look out when you get in this part of the trail because there are great views of Bass Lake. There were dozens of people in the water on the way down.

If you make it to the fence at the top be sure to go to the end of it because you can climb out into the rocks and hike along the water to beautiful views.

No mosquitoes but the gnats are horrible.

Go early to avoid the swimming crowd.

It's a mostly shady hike with only a few spots in full sun.

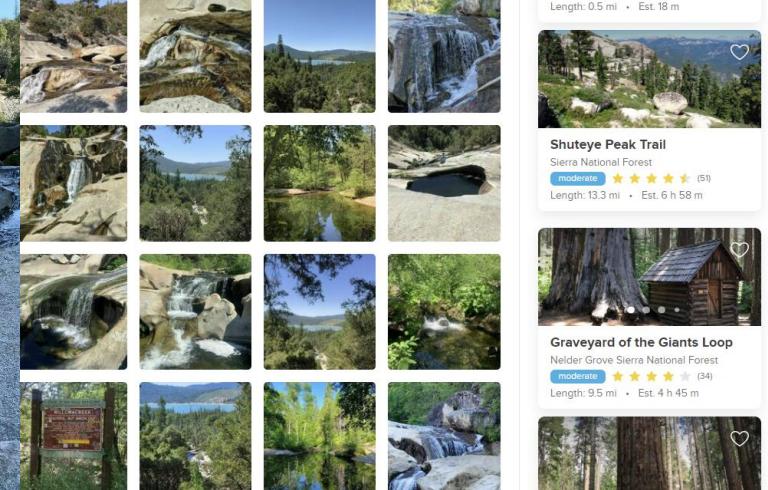
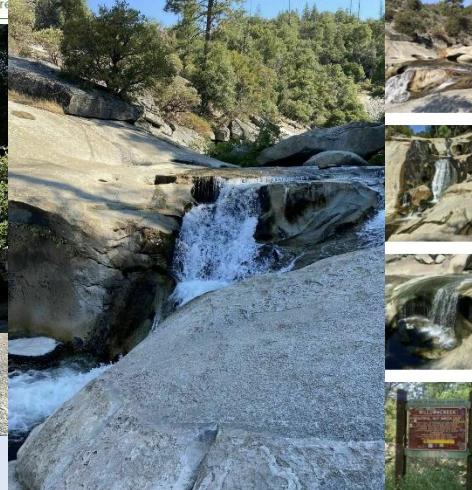


Add photos of this trail  
Photos help others preview the trail. Upload photos about this trail to inspire others.

Upload photos

Sort by: AllTrails Sort

View Full Map



**Way of the Mono Trail**  
Sierra National Forest  
easy ★★★★★ (40)  
Length: 0.5 mi • Est. 18 m



**Shuteye Peak Trail**  
Sierra National Forest  
moderate ★★★★★ (5)  
Length: 13.3 mi • Est. 6 h 58 m



**Graveyard of the Giants Loop**  
Nelder Grove Sierra National Forest  
moderate ★★★★★ (34)  
Length: 9.5 mi • Est. 4 h 45 m



# Data Personalization Everywhere / All The Time

The screenshot shows the U-Haul Past Orders page. At the top, there's a navigation bar with links for Trucks, Trailers & Towing, U-Box® Containers, Storage, Boxes & Packing Supplies, Moving Labor, Hitches & Accessories, and a search icon. Below the navigation is a sidebar with links for My Rentals / Reservations, Saved Quotes, Past Orders (which is selected and highlighted in grey), Communications, Account, Terms & Conditions, Add Order to my Account, Find my Storage Unit, Moving Supplies Calculator, Frequently Asked Questions, Contact Us, and Leave Feedback / Review. The main content area displays two past orders. Each order card includes a thumbnail of a U-Haul truck, the order number, total paid, pick-up location, rental date, and three buttons: 'View Receipt', 'Submit a Concern', 'Submit a Compliment', and 'Submit a Review'. Below each order card is a 'Reserve Again' button. At the bottom of the page, there's a footer with links for 1-800-GO-U-HAUL (1-800-468-4285), Request a Callback, Français, Español, and a Feedback link.

- Unification someday....
  - Data centralizes around identity.

# PhD Thesis: How did you solve it???

File: main.cpp

```
38 int Move(string& board, int dir){  
39     int row, col;  
40     LocBlank(board, row, col);  
41     if ((dir==1 || dir == -3) && row > 0){  
42         Swap(board, row, col, row-1, col);  
43     }  
44     else if ((dir == 2 || dir == -4) && col <  
45         Swap(board, row, col, row, col+1);  
46     }  
47     else if ((dir == 3 || dir == -1) && row <  
48         Swap(board, row, col, row+1, col);  
49     }  
50     else if ((dir == 4 || dir == -2) && col >  
51         Swap(board, row, col, row, col-1);  
52     }  
53     else {  
54         return -1;  
55     }  
56     return 0;  
57 }
```

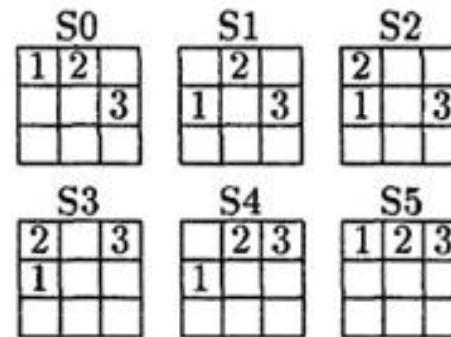


Figure 2: Steppingstones from Memory

# Mystery Memories..

- Home Hedges Maze.
- First time w/ Sliding Tile Puzzle



Start State

1	2	3
4		6
7	5	8



1	2	3
4	5	6
7		8



1	2	3
4	5	6
7	8	

Goal State



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*Sponsored by the Association for the Advancement of Artificial Intelligence*

Thomas L. Dean and Kathleen McKeown, Program Cochairs

July 14-19, 1991, Anaheim, California. Published by The AAAI Press, Menlo Park, California. This proceedings is also available in book and CD format.

**Please Note:** Abstracts are linked to individual titles, and will appear in a separate browser window. Full-text versions of the papers are linked to the abstract text. Access to full text may be restricted to AAAI members. PDF file sizes may be large!

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# ResearchGate

## SteppingStone: An Empirical and Analytical Evaluation

January 1991

Conference: AAAI-91 Proceedings

 David Ruby ·  Dennis Kibler

Citations 

13

Recommendations

0 new 0

Reads 

0 new 4

[See details](#)

Overview

Stats

Comments

Citations (13)

References

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### Abstract

Decomposing a difficult problem into simpler subproblems is a classic problem solving technique. Unfortunately, the most difficult subproblems can be as difficult, if not more difficult, than the original problem. This is not an obstacle to problem solving if the difficult subproblems recur in other problems. If the difficult subproblems recur often, then its solution need only be learned once and reused. Steppingstone is a learning problem solver that decomposes a problem into simple and difficult-but-recurring subproblems. It solves the simple subproblems with an inexpensive constrained problem solver. To solve the difficult subproblems, Steppingstone uses an unconstrained problem solver. Once it solves a difficult subproblem, it uses the solution to generate a sequence of subgoals, or stepping-stones, that can be used by the constrained problem solver to solve this difficult subproblem when it occurs again. In this paper we provide analytical evidence for Steppingstone's capabilities as well as empirical results from our work with the domain of logic synthesis.

<https://www.researchgate.net/>

- Everyone should be aware:
- Fresno State Faculty Research
  - <https://www.researchgate.net/profile/Shih-Hsi-Liu>
  - <https://www.researchgate.net/profile/Hubert-Cecotti>
  - <https://www.researchgate.net/profile/Athanasiros-Aris-Panagopoulos>

# Computer Science / Memories

- Mysteries/Puzzles
- Abstractions
- Memories

# Stanford HAI Visiting Artist

## Lauren Lee McCarthy

- AI Influences



# ChatGPT

- Sentiment Analysis w/ Prompting
  - <https://github.com/everestso/Summer22/blob/main/ChatGPT1.ipynb>

```
# https://www.austinchronicle.com/events/film/2022-12-23/whitney-houston-i-wanna-dance-with-somebody/
# ★★★ (-4)
text = f"""
Whitney Houston was an icon, a legend of the music industry and a breathtaking pop idol who cranked out hit after hit, shattering records that previous
Directed by Kasi Lemmons (Harriet, Eve's Bayou), Whitney Houston: I Wanna Dance With Somebody somehow manages to make the life of Houston so painfull
There's no bite to Naomi Ackie's performance, and perhaps that is because she's not given anything worth chewing on. Even the clothes they drape her
Whitney Houston: I Wanna Dance With Somebody is like the SparkNotes of her life, a smattering of collected moments that feel hollow. The film retroac
"""

prompt = f"""
Evaluate the sentiment of the following quote between ` ` ` ` \ 
from negative 10 to positive 10 and output for each just the numeric value, \
do not include any additional text, just the numeric value:
` ` ` {text} ` ` ` """
response = get_completion(prompt)
print("\n".join(textwrap.wrap(response,70)))

-8

# https://www.smh.com.au/culture/movies/all-the-boxing-day-movies-reviewed-what-should-you-see-or-skip-20221220-p5c7t1.html
# Whitney Houston: I Wanna Dance with Somebody ★★★% (+4)
text = f"""
What more is there to say about Whitney Houston, whose brilliant career, drug-taking and premature death has been hashed over exhaustively on screen
I Wanna Dance With Somebody tackles that question by taking her story back to the music. It's written by New Zealander Anthony McCarten, whose screen
It took a delicate touch and other rock stars haven't been as fortunate. While Rocketman was just as exuberant in doing justice to Elton John as a pe
Members of Houston's family were interviewed at length for a documentary four years ago. But for this film, also produced with the family's co-operat
She does well, catching the contradictions in Houston's character - the naivete, the fear of failure, the rebellious streak and its effect on her rel
The script is impressionistic in style, covering a lot of ground by being selective and using Houston's songs to drive the narrative. Much is made of
The film falls a little short of its claim to be warts-and-all, condensing the low points in Houston's turbulent marriage to Bobby Brown (Ashton Sand
And while it leaves her death off-screen, preferring to go out with the show-stopping medley she delivered at the 1994 American Music Awards, I'm not
"""

prompt = f"""
Evaluate the sentiment of the following quote between ` ` ` ` \ 
from negative 10 to positive 10 and output for each just the numeric value, \
do not include any additional text, just the numeric value:
` ` ` {text} ` ` ` """
response = get_completion(prompt)
print(response)

Sentiment score: 5
```

# Algorithms Feeding on Data

- Data, Data, Data
- Data Domains

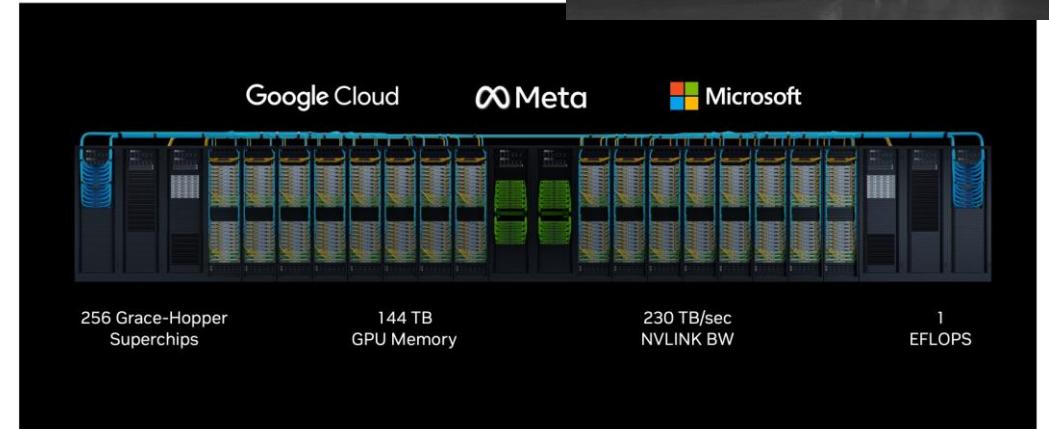
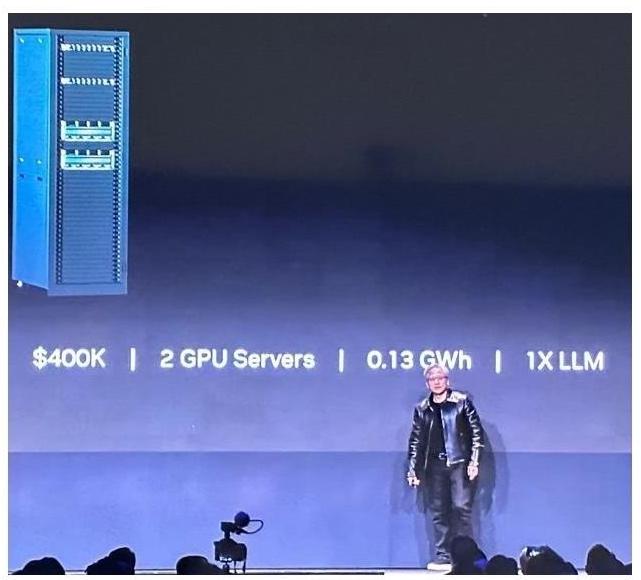
# Data Center Processing Power



# Data Center Optimizing Processing Power



\$10M | 960 CPU Servers | 11 GWh | 1X LLM



# Deep Learning

## The Transformer

- Attention is All You Need.

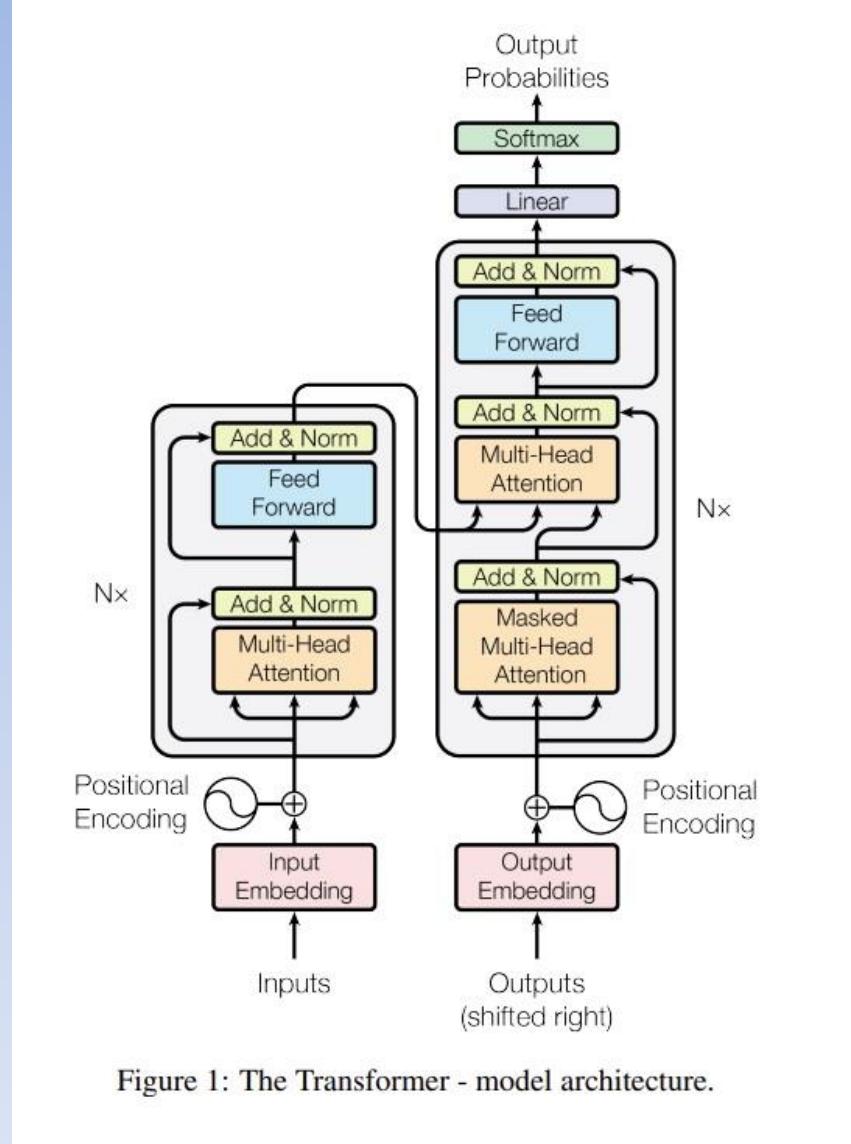


Figure 1: The Transformer - model architecture.

# Local Tech w/ Jake Soberal @ Bitwise

# How to FIX America's Most Broken City

**FRESNO STATE**  
Library

Library Hours  
Today: 8:00 a.m. to 5:00 p.m.

QUICK LINKS

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## Bitwise Industries CEO Discusses Technology in Fresno

FRESNO STATE LIBRARY

Home » About » Events » News and Events



On Friday, Jan. 20, the *Friends of the Madden Library* present Jake A. Soberal speaking on the local technology industry growth. As CEO of Bitwise Industries, Soberal will examine how Bitwise promotes the incubation of new technology in Fresno. Since 2013, Bitwise has provided technology hubs and collaborative workspaces as well as custom software development through *Shiftit Technologies* and *Geekwise Academy*, a computer programming training program.

How to Fix America's Most Broken City: The Bitwise Story

- Friday, January 20, 2017
  - Reception: 6:00 p.m. Hors d'oeuvres and no-host beer/wine bar
  - Program: 6:45 p.m.
- This event is free and open to the public. Parking is free after 4 p.m.
- RSVP on eRsvp form using "LIBBIT"

"A simple idea between two people was able to spark a movement in a city where people said this type of progress was impossible," says Soberal. "Bitwise Industries was able to change the landscape of the technology scene in Fresno by bringing in a space for new technologies and business through education, collaboration and innovation."

Soberal is a graduate of Clovis High School and the University of North Carolina at Chapel Hill. He holds a law degree and practiced as an attorney before co-founding Bitwise in 2013. The *Friends of the Madden Library* sponsor, promote and raise funds for the programs and collections of the Library.

# Local Tech w/ Irma Olguin @ Bitwise

Forbes

FORBES > LEADERSHIP > FORBESWOMEN

## How One Woman's Story Helps Thousands Of Individuals Find A Future In Technology

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6 May 9, 2023, 12:08pm EDT

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### FROM RECYCLING BOTTLES FOR CASH TO TECH CEO



MEET THE LATINX FOUNDER BUILDING A \$100 MILLION TECH HUB IN CALIFORNIA'S GRITTY CENTRAL VALLEY

# Local Tech Issues

Los Angeles Times

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BUSINESS

## Bounced paychecks, frozen 401(k)s — How this promising Fresno tech company ‘disappeared overnight’



The Bitwise South Stadium building served as the company's headquarters for many years before it relocated to State Center Warehouse in Fresno. (Craig Kohlruss / Fresno Bee)

BY JAIMIE DING | STAFF WRITER

JUNE 14, 2023 8:19 AM PT

BITWISE

### Bitwise under FBI criminal investigation, Action News sources confirm

Sources could not say the types of crimes the Fresno-based tech company is being investigated for.

By Kate Nemarich  Wednesday, June 28, 2023



Action News is learning that failed tech company Bitwise and its leaders are the target of a federal criminal investigation. The news comes nearly a month after employees were laid

# PONZI Scheme Allegations

BITWISE

## New Bitwise Lawsuit Alleges ‘Ponzi’ Scheme. What Happened in Fresno Court?



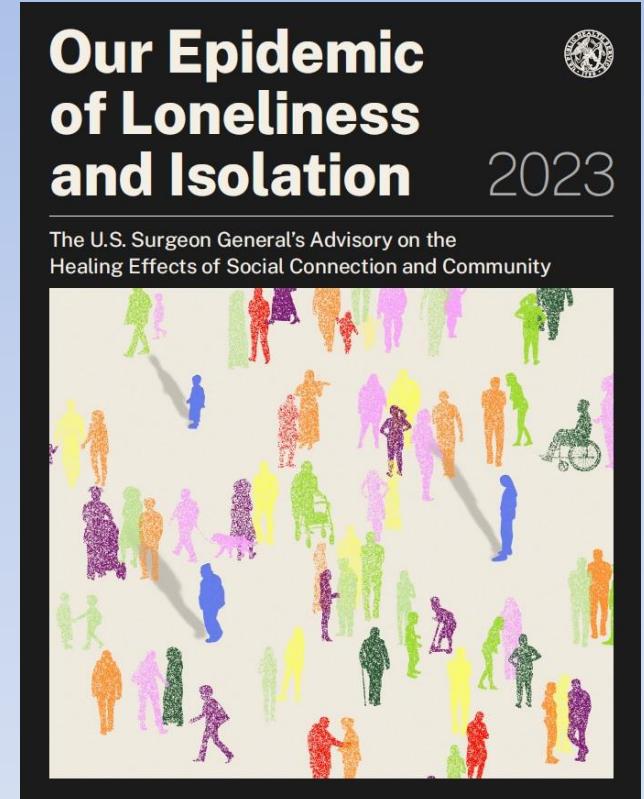
Published 4 weeks ago on June 14, 2023

By David Taub, Senior Reporter

- <https://gwire.com/2023/06/14/new-bitwise-lawsuit-alleges-ponzi-scheme-what-happened-in-fresno-court/>

# Social Connections: Trust

- Humans are wired for social connection, but we've become more isolated over time
  - Social connection is as essential to our long-term survival as food and water. But today, loneliness is more widespread than other major health issues in the U.S. Our epidemic of loneliness and isolation is a major public health concern.
- Social connection is vital to community health and success
  - Socially connected communities enjoy better population-level health. They are more prepared for - and resilient in the face - of disaster situations. They also experience greater economic prosperity and reduced levels of crime and violence.



# Github.Com Code Sharing

- Everyone should be aware.

The image shows a GitHub profile page for the user 'everestso'. The profile picture is a portrait of a man with short brown hair. The profile name is 'Dr. David Ruby, PhD' and the handle is 'everestso'. Below the profile are buttons for 'Edit profile' and 'Follow'. The bio section lists '92 followers' and '2 following'. It includes links to 'CSU, Fresno', 'Fresno, California', and several URLs related to Dr. Ruby's work at CSU Fresno. The 'Achievements' section shows a single achievement icon. The 'Highlights' section is empty. To the right of the profile is a photo of a small, hairless dog lying on a concrete surface in front of a dark wooden fence. The dog is looking towards the camera. The photo has a caption 'Gitana'.



# Cloud Notebooks w/ Google Colab & Github

Summer22 / Tensor1.ipynb

everestso Created using Colaboratory

Preview Code Blame 1584 lines (1584 loc) · 691 KB

[Open in Colab](#)

In [1]:

```
import tensorflow as tf
x = tf.constant("Hello World")
tf.print(x) #will print out "Hello World"
print(x)
```

Hello World  
tf.Tensor(b'Hello World', shape=(), dtype=tf.string)

Code

main Go to file .gitignore 111BB1CE-97E1-487E-8DCF-2EC... ChatGPT1.ipynb Chess8123a.ipynb MNIST1.ipynb Part1\_MNISTsol.ipynb Part1\_TensorFlowSOLipynb Part2\_Music\_GenerationSol.ipynb README.md SimpleDecisionTrees.ipynb Tensor1.ipynb Tensor2MNIST.ipynb gitana1.jpg tensor1.ipynb tensor2b.ipynb

github.com/everestso/Summer22/blob/main/Chess8123a.ipynb

Summer22 / Chess8123a.ipynb

Preview Code Blame 449 lines (449 loc) · 461 KB

```
def DisplayDepth(depth, gameString):
    pgn = io.StringIO(gameString)
    game = chess.pgn.read_game(pgn)
    board = game.board()
    iter = 0
    for move in game.mainline_moves():
        moveSan = board.san(move)
        board.push(move)
        iter += 1
        if (iter % 2) == 0:
            print(f'\n{iter // 2}. {moveWhite} {moveSan}')
            display(SVG(chess.svg.board(board=board, size=400)))
        else:
            moveWhite = moveSan
        if iter >= MoveNumber(depth, BLACK) : break
```

In [10]:

```
DisplayLocation(CurrentDepth, CurrentColor, CurrentGame)
```

# Tableau Public

- <https://public.tableau.com/app/profile/david.ruby>

The screenshot shows David Ruby's profile on Tableau Public. At the top, there is a navigation bar with links to various services like GitHub, LinkedIn, and Zoom. Below the bar, the Tableau Public logo and a "Create" button are visible. A banner at the top of the profile page encourages new users to read a step-by-step guide. The main area features a circular profile picture of David Ruby, his name, and his title as a Lecturer at Computer Science at Fresno, California, United States. There is also an "Edit Profile" button. Below this, social media icons for Twitter, LinkedIn, and a globe are present. The profile summary includes metrics for "Vizzes" (0), "Favorites" (5, highlighted in orange), "Following" (0), and "Followers" (0). A "Create a Viz" button is located in the top right corner of this section. Below the summary, four of David Ruby's published visualizations are displayed as cards:

- A Viz About Nothing | #VOTD** by Lisa Trescott: A network graph titled "RELATIONSHIPS of SciFi". It shows clusters of nodes with numbers 1, 2, and 1-3. It has 82 likes and 6,415 views.
- Digital Gender Gap** by Kavin Kumar G: A visualization showing the digital gender gap across the world. It includes a map of internet users and text about gender gaps in technology fields. It has 13 likes and 313 views.
- Black American Firsts and the Achievement Gap** by Alice McKnight: A complex visualization comparing Black American firsts in various fields like politics, sports, and science against the achievement gap. It has 67 likes and 4,779 views.
- Back to the '80s** by Tristan Guillemin: An analysis of favorite sci-fi movies from the 1980s. It features a scatter plot of movie titles and their popularity. It has 145 likes and 11,269 views.

# Salesforce Tower San Francisco

- Tallest Building in SF when completed in 2018.



# Professional Certification

- Google Cloud

- <https://cloud.google.com/certification/machine-learning-engineer>
- Professional Machine Learning Engineer

The screenshot shows the Google Cloud website with the navigation bar at the top. Below the navigation, there's a sidebar on the left with links for the certification, including 'Exam overview', 'Exam guide', 'Certification home', 'Certification FAQs', 'Exam terms & conditions', 'Register', 'Certified directory', and 'Google Cloud training'. The main content area features the title 'Professional Machine Learning Engineer BETA' in large bold letters. A detailed description follows: 'A Professional Machine Learning Engineer designs, builds, and productionizes ML models to solve business challenges using Google Cloud technologies and knowledge of proven ML models and techniques. The ML Engineer is proficient in all aspects of model architecture, data pipeline interaction, and metrics interpretation and needs familiarity with application development, infrastructure management, data engineering, and security.' Below this, a section titled 'The Professional Machine Learning Engineer BETA exam assesses your ability to:' lists several competencies with checkmarks: 'Frame ML problems', 'Architect ML solutions', 'Prepare and process data', 'Develop ML models', 'Automate & orchestrate ML pipelines', and 'Monitor, optimize, and maintain ML solutions'.

# Professional Certification

- Amazon
  - Amazon Web Services

## AWS Certified Machine Learning – Specialty

Validate your ability to build, train, tune, and deploy machine learning models using the AWS Cloud.

[Schedule an exam](#)

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The AWS Certified Machine Learning - Specialty certification is intended for individuals who perform a development or data science role. It validates a candidate's ability to design, implement, deploy, and maintain machine learning (ML) solutions for given business problems.

**Abilities Validated by the Certification**

- Select and justify the appropriate ML approach for a given business problem
- Identify appropriate AWS services to implement ML solutions
- Design and implement scalable, cost-optimized, reliable, and secure ML solutions



AWS Certified Machine Learning - Specialty (0:37)

# Memories of Trails



**David W. Aha** ([Bio Vitae](#))

Naval Research Laboratory  
Navy Center for Applied Research in Artificial Intelligence  
Washington, DC



**Goal Reasoning:  
Emerging Applications, Foundation, and Prospects**

**David W. Aha**  
Head, Adaptive Systems Section  
Navy Center for Applied Research in Artificial Intelligence  
Naval Research Laboratory (Code 5514); Washington, DC  
[david.aha@nrl.navy.mil](mailto:david.aha@nrl.navy.mil)



IAAI-17 | AAAI Robert S. Engelmore Memorial Lecture | 2017 February 6

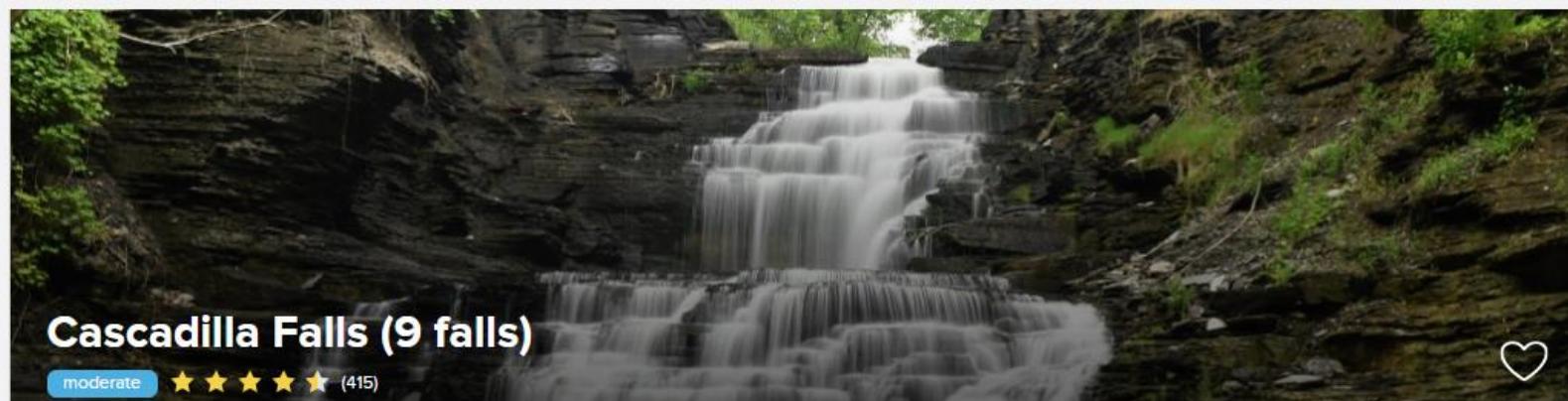
## Education

- 1992-93 NSERC International Post-Doctoral Fellowship, University of Ottawa, Canada
- 1991-92 APL/Johns Hopkins University Post-Doctoral Fellowship, Laurel, MD
- 1990-91 SERC Post-Doctoral Fellowship, Turing Institute, Glasgow, Scotland
- 1990 Ph.D. (Computer Science), University of California, Irvine
- 1985 M.S. in Computer Science, Syracuse University
- 1983 B.S. in Computer Science, Syracuse University, Magna Cum Laude with Honors, University Scholar (the highest undergraduate honor bestowed by SU)
- 1979 Walt Whitman High School; South Huntington, New York

## Employment (Non-Educational)

- (1993-) Naval Research Laboratory
- (1982) PAR Technology Corporation, Summer
- (1981) Fairchild Republic Company, Summer

# Memories of Trails: Gorges, Ithaca, NY



## Cascadilla Falls (9 falls)

moderate ★★★★☆ (415)

South Hill Town Recreation Way

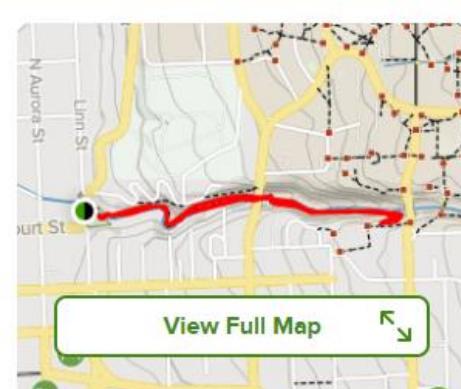
Photos (391) Directions Print/PDF Map Share More

Cascadilla Falls (9 falls) is a 1.1 mile heavily trafficked out and back trail located near Ithaca, New York that features a waterfall and is rated as moderate. The trail is primarily used for hiking, walking, nature trips, and bird watching and is accessible year-round. Dogs are also able to use this trail but must Show more

Length 1.1 mi Elevation gain 298 ft Route type Out & back

Dogs on leash Hiking Nature trips Walking Bird watching Forest

Partially paved Views Waterfall Wildflowers



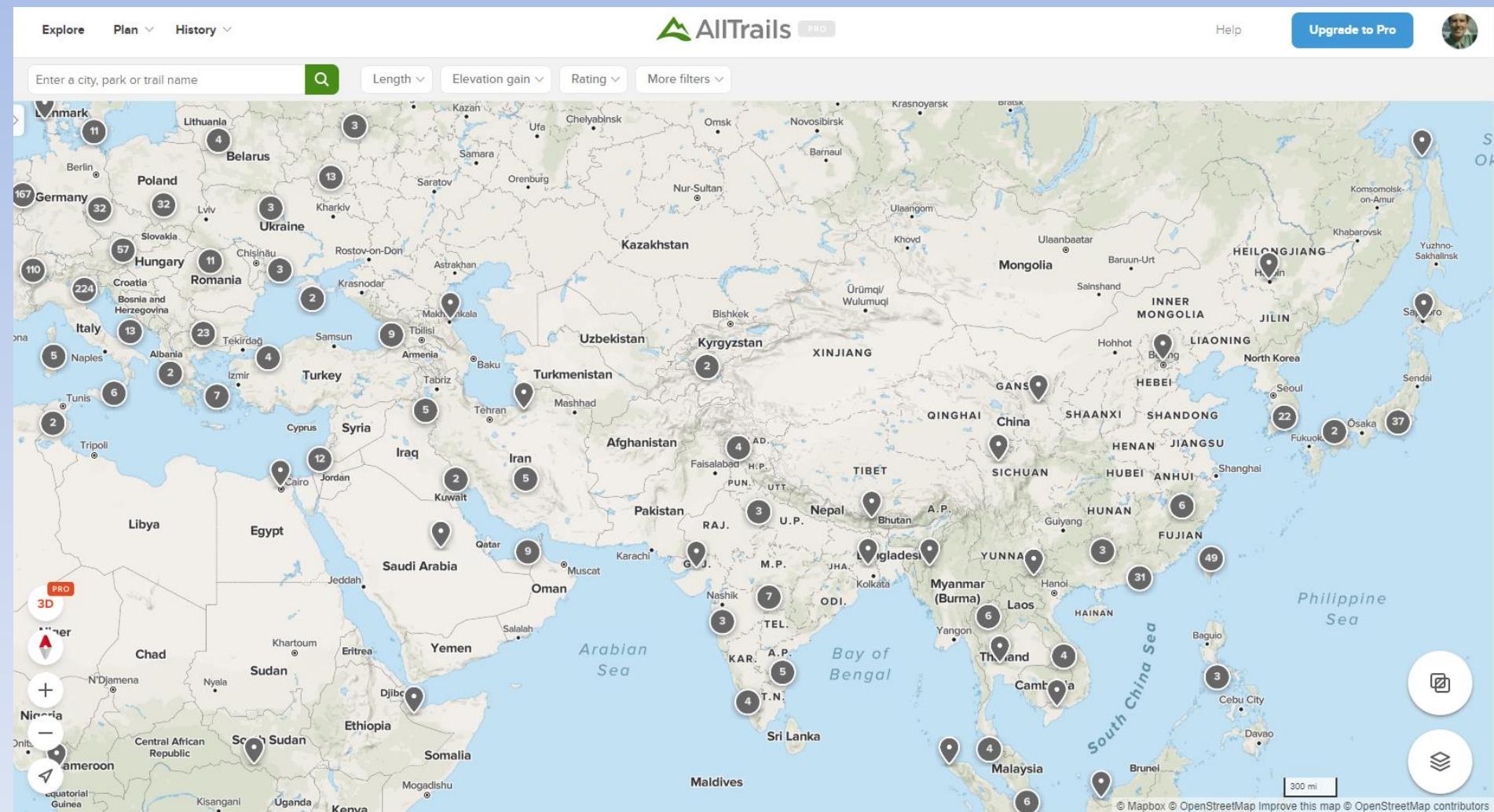
Suggest Edit

Nearby trails

# Ithaca, NY Falls

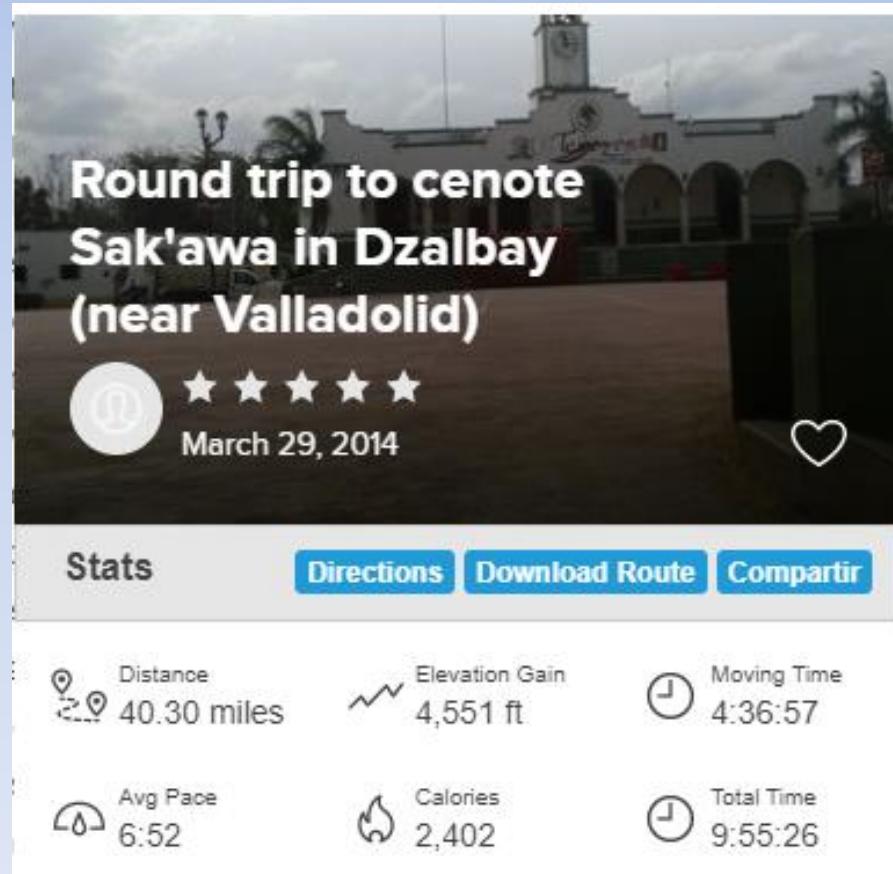


# International Trails?



# Sak'awa (clear water in Mayan), Dzalbay, Yucatán, Mexico

- Scientifically Interesting International Sites:
  - Cenotes



# Sak'awa (clear water in Mayan), Dzalbay, Yucatán, Mexico

◀ More Activities

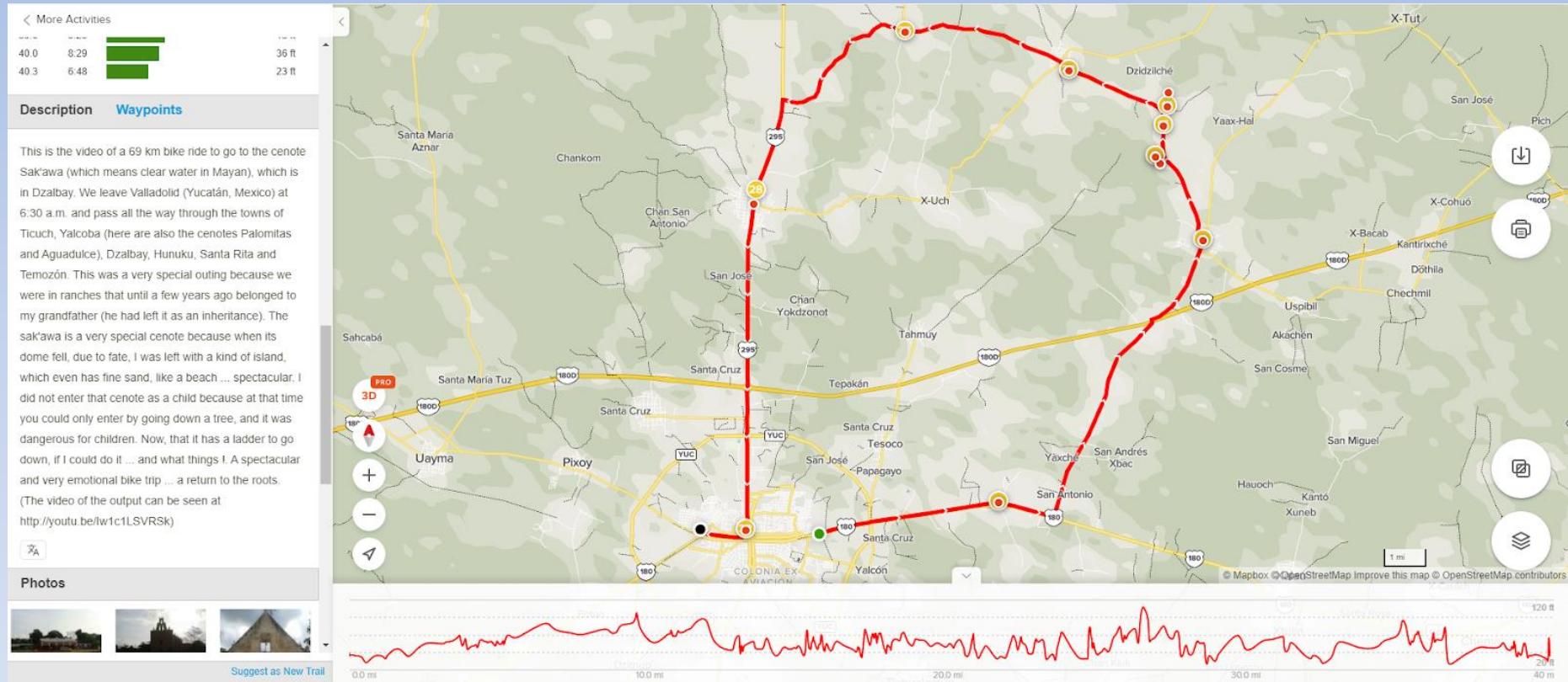
my grandfather (he had left it as an inheritance). The sak'awa is a very special cenote because when its dome fell, due to fate, I was left with a kind of island, which even has fine sand, like a beach ... spectacular. I did not enter that cenote as a child because at that time you could only enter by going down a tree, and it was dangerous for children. Now, that it has a ladder to go down, if I could do it ... and what things !. A spectacular and very emotional bike trip ... a return to the roots.  
(The video of the output can be seen at <http://youtu.be/lw1c1LSVRSk>)

X A

Photos

The map displays the Yucatán Peninsula with a highlighted cycling route. The route starts in Mérida, goes through Motul, Conkal, Tixkokob, Cacalchen, Izamal, Homún, Huhí, Tecoh, Tekit, Oxkutzcab, and Tekax de Álvaro Obregón. It then branches off to pass through several cenotes: Chan Cenote, Popolnah, Leona Vicario, and Chanmilá. The route continues along the coast through Puerto Morelos, Playa del Carmen, and San Miguel de Cozumel. Major roads labeled include 172, 176, 295, 180, 1800, 269, 295, 295, 180, 1800, 2050, 3050, and 307. The map also shows the Rio Lagartos, El Cuyo, and Isla Mujeres. A legend on the left indicates 'PRO 3D' and 'JL'. A scale bar shows 10 m. The bottom right corner includes copyright information: © Mapbox © OpenStreetMap Improve this map © OpenStreetMap contributors.

# Sak'awa (clear water in Mayan), Dzalbay, Yucatán, Mexico



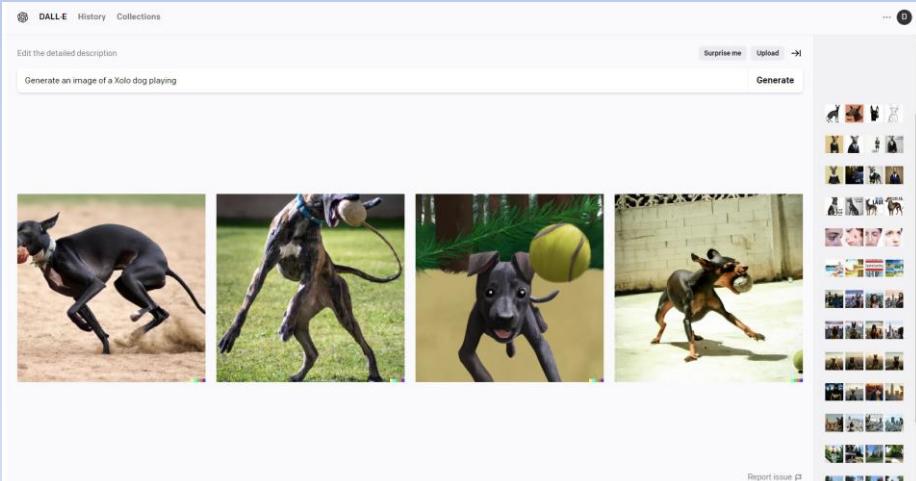
# Cenote



# Content

# Computer Science/ Artificial Intelligence

- ChatGPT/Language Models
- <https://labs.openai.com/>



**ChatGPT**

	<b>Logo</b>
Developer(s)	OpenAI
Initial release	November 30, 2022; 4 months ago
Stable release	March 23, 2023; 29 days ago <sup>[1]</sup>
Type	Generative pre-trained transformer Chatbot
License	Proprietary
Website	<a href="https://chat.openai.com/chat">chat.openai.com/chat</a>

Artificial Intelligence  
Stuart Russell, Peter Norvig

Expand   Collapse	
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## 23.1 Language Models

Formal languages, such as first-order logic, are precisely defined, as we saw in Chapter 8. A **grammar** defines the syntax of legal sentences and **semantic rules** define the meaning.

Natural languages, such as English or Chinese, cannot be so neatly characterized:

- Language judgments vary from person to person and time to time. Everyone agrees that "Not to be invited is sad" is a grammatical sentence of English, but people disagree on the grammaticality of "To be not invited is sad."
- Natural language is **ambiguous** ("He saw her duck" can mean either that she owns a waterfowl, or that she made a downwards evasive move) and **vague** ("That's great!" does not specify precisely how great it is, nor what it is).
- The mapping from symbols to objects is not formally defined. In first-order logic, two uses of the symbol "Richard" must refer to the same person, but in natural language two occurrences of the same word or phrase may refer to different things in the world.

If we can't make a definitive Boolean distinction between grammatical and ungrammatical strings, we can at least say how likely or unlikely each one is.

We define a **language model** as a probability distribution describing the likelihood of any string. Such a model should say that "Do I dare disturb the universe?" has a reasonable probability as a string of English, but "Universe dare the I disturb do?" is extremely unlikely.

# Consider ChatGPT

- Consider class related prompts.
- <https://chat.openai.com/>
- We'll circle back around.

# ChatGPT:

- What year was The nancy drew mystery the hidden staircase written?
  - "The Hidden Staircase," the second volume in the Nancy Drew Mystery Stories series, was originally published in 1930. The book was written by Carolyn Keene, a pseudonym for a number of authors who wrote under the series. The first and many of the early volumes were written by Mildred Wirt Benson.