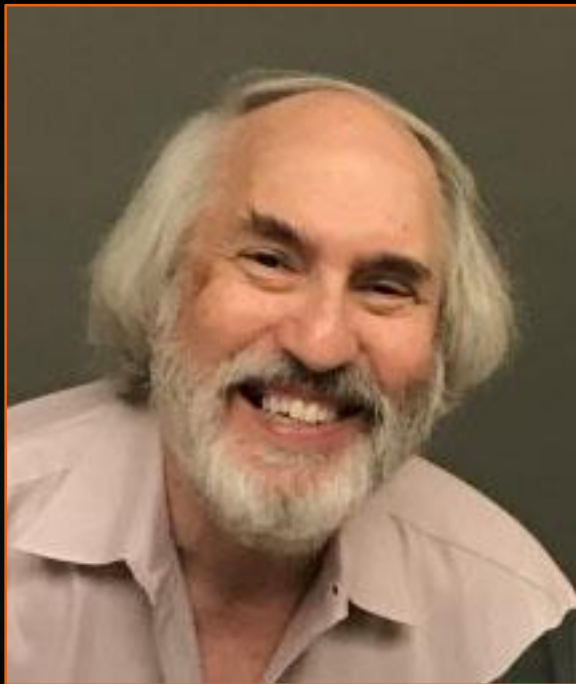


February 24, 2022  
*Designing Exoskeletons and Prosthetic Limbs  
that Enhance Human Performance*



# ENGR110/210

## Perspectives in Assistive Technology



David L. Jaffe, MS  
Instructor

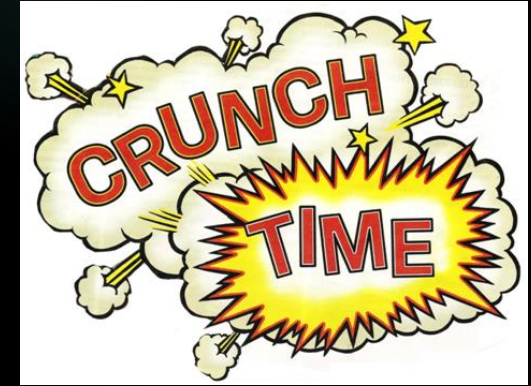
16  
Years

# Questions, Comments, Suggestions, or Concerns?



Please notify me of your comments, suggestions, and concerns so I can explain / address / correct them before the end-of-term course evaluation.

# Week 8



- It's project crunch time
- Brainstorm, Select, Prototype, Test, Analyze, Repeat, Report
- Contingency plan
- Submit progress reports, schedule progress meetings with Bennett or me - **Last Week**





# Reminder - Work with Extreme Diligence



- ▶ Time is your most precious resource
- ▶ 12 days until End-of-term Project Presentations
- ▶ Prepare for end-of-term presentation - Tue, Mar 8<sup>th</sup>
- ▶ Enjoy end-of-term project demonstration - Thu, Mar 10<sup>th</sup>



# Students working on Individual Projects



- ▶ Project presentations:
  - ▶ Schedule for Week 9
  - ▶ Outside of class
  - ▶ By Zoom or in-person

# Remaining class sessions

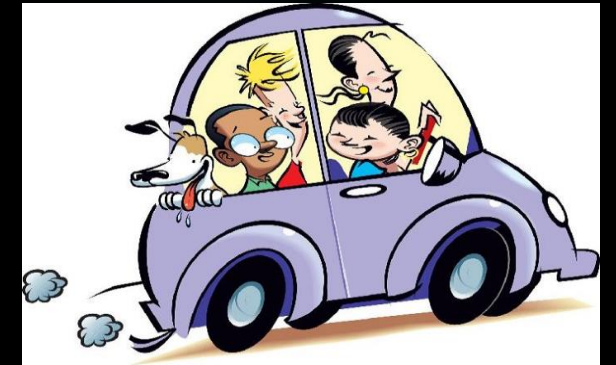
- ▶ **Field Trip to the Magical Bridge Playground**

- Olenka Villarreal
- Tue, Mar 1<sup>st</sup>



- ▶ **Wheelchair Fabrication in Developing Countries (by Zoom)**

- Ralf Hotchkiss
- Thu, Mar 3<sup>rd</sup>



# Week 10 Class Sessions

- ▶ Tue, Mar 8<sup>th</sup>  
End-of-Term Student Team Project Presentations
- ▶ Thu, Mar 10<sup>th</sup>  
Student Project Demonstrations + Burritos



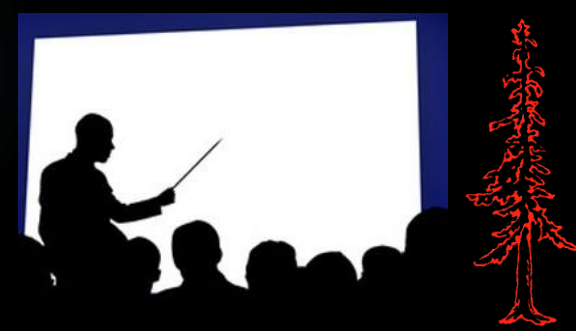






# Week 9 Project Activities

- Finalize fabrication, perform user testing
- Focus on Tuesday's team presentation - **Tue, Mar 8<sup>th</sup>**
- Project demonstrations - **Thu, March 10<sup>th</sup>**



# Final Presentations - Tue, Mar 8<sup>th</sup>



- ▶ Cover your entire quarter's effort
- ▶ Tell a complete story, but focus on what you have achieved since the mid-term
- ▶ Emphasize how your team addressed the problem
- ▶ **7 minutes, no demos, no audience questions**
- ▶ Show your prototype in your slides - point to features
- ▶ **Email Google Docs url to Dave by noon Tuesday**
- ▶ One video of prototype in use
  - ▶ Upload video to YouTube and include its **active** link in your slides
- ▶ Be prepared to evaluate other teams' presentations
- ▶ Dress professionally



# Dress Professionally

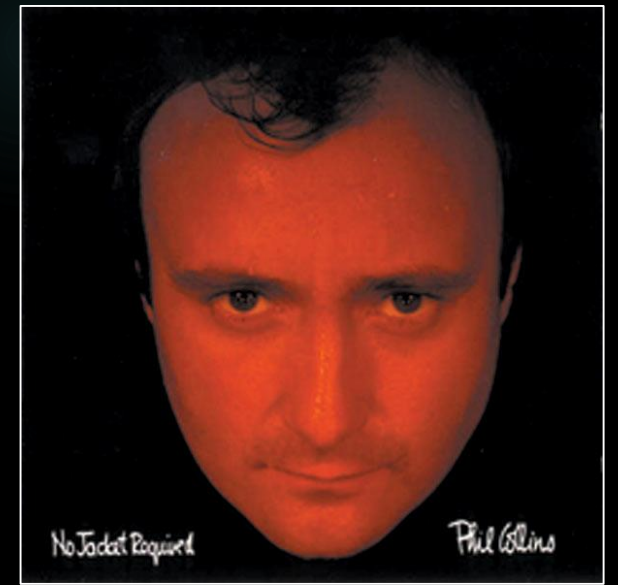
- ▶ No t-shirts, sweatshirts, hoodies
- ▶ No flip-flops, sandals
- ▶ No shorts, jeans, holes in pants
- ▶ No baseball or stocking caps



Mark Zuckerberg

“Each item of clothing makes a statement about who you are”

“Dress for the grade you want”



No Jacket  
Required





# Perform Professionally



Starting now, you will be evaluated as a professional, no longer as a student

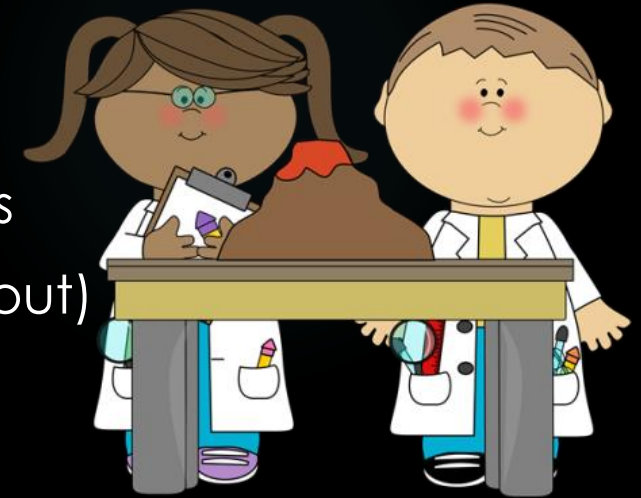




# Project Demonstrations - Thursday

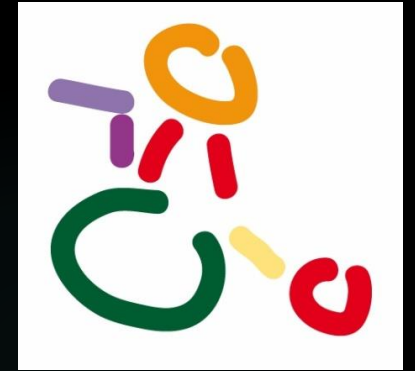


- ▶ Bring all prototypes to class
- ▶ Meet in classroom to fill out a course evaluation form
- ▶ Project demonstrations in classroom
- ▶ No posters or handouts - informal “trade show” presentations
- ▶ Demonstrate prototype’s functionality (make sure I check it out)
- ▶ Check out other teams’ projects
- ▶ Burritos & drinks
- ▶ Community members attending
- ▶ Invite project suggestors, users, friends who contributed to your project’s success
- ▶ Bring laptop to show additional videos and images of your process



# Project Considerations

- ▶ Your prototype should be functional, but not necessarily ready for market
- ▶ Contingency plans if things don't work out
- ▶ Add a team or Stanford logo
- ▶ Never apologize for what you did or what you were not able to achieve
- ▶ Mention future plans
- ▶ Remember “Everything is a prototype”



# Course Evaluations



1. Dave's in-class evaluation on Thursday
2. Cardinal Course Student Survey ✓
3. VPTL's evaluation - online (on your own)



	Strongly Agree	Agree	Disagree	Strongly Disagree
The instructor had a nice haircut.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The instructor knew how to cook.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The instructor had a good singing voice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shaving cream was used.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dogs were permitted in class.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The instructor had a masculine nose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





# Final Report



- ▶ Cover your entire quarter's work
- ▶ Include material from mid-term report
- ▶ Consider mid-term report mark-ups
- ▶ Due week of March 14<sup>th</sup>





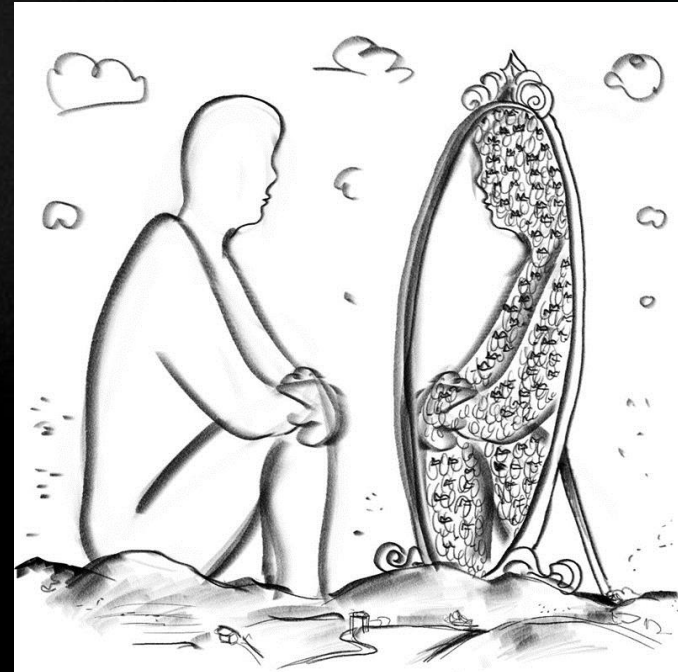
# Individual Reflection



- ▶ How you felt about your course, project, user, team experience
- ▶ Due week of March 14th

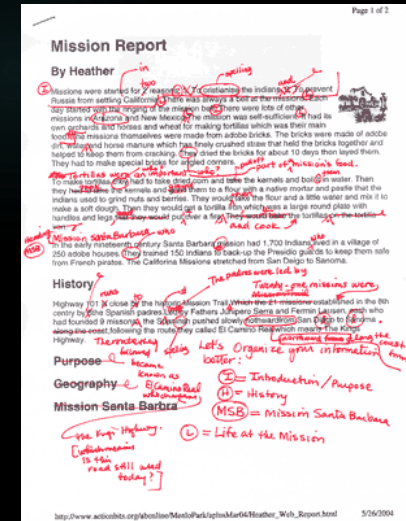
We do not learn from  
experience... we learn  
from reflecting on  
experience.

- John Dewey



# Mid-term Report Markups

- ▶ Students are welcome to meet with me to discuss reports
- ▶ Some are comments, some are suggestions, some are corrections
- ▶ Some relate to syntax, spelling, grammar, format
- ▶ Reports should reflect a **professional** engineering style
- ▶ Not just for my viewing, provides practice writing professional journal articles and funding proposals
- ▶ An example for your future employer
- ▶ **Reports and presentations are key professional communication skills that must be mastered**



# Other Items



- ▶ Driver and Passenger Signup Document for Field Trip to Magical Bridge Playground on Tue

# Passengers' Signup for Field Trip to Magical Bridge Playground next Tuesday



## Driver and Passenger Signup Sheet

*Magical Bridge Playground*

Tuesday, February 4th

Departure Point and Time: Littlefield Center @ 4:30pm

Driver's name, cell & email: Dave Jaffe                      650/892-4464      davejaffe@stanford.edu  
Car make, model, color: Black Honda Civic Si  
Passengers:  
1. Name: \_\_\_\_\_ Cell: \_\_\_\_\_  
2. Name: \_\_\_\_\_ Cell: \_\_\_\_\_  
3. Name: \_\_\_\_\_ Cell: \_\_\_\_\_

Driver's name, cell & email: Dan Hurley  
Car make, model, color: Tan Chevy Silverado  
Passengers:  
1. Name: \_\_\_\_\_ Cell: \_\_\_\_\_

### Additional carpool drivers and passengers:

Driver's name, cell & email:                      Name: \_\_\_\_\_ Cell: \_\_\_\_\_  
Car make, model, color: \_\_\_\_\_  
Passengers:  
1. Name: \_\_\_\_\_ Cell: \_\_\_\_\_  
2. Name: \_\_\_\_\_ Cell: \_\_\_\_\_  
3. Name: \_\_\_\_\_ Cell: \_\_\_\_\_  
4. Name: \_\_\_\_\_ Cell: \_\_\_\_\_

- ▶ Please sign up with a car pool driver.
- ▶ Let me know if you are biking, a solo driver, or driving with specific classmates so I can send you a map and directions.
- ▶ Please make your best effort to arrive at the playground shortly after 4pm.



Tuesday, March 1<sup>st</sup>



*Virtual Field Trip to the Magical Bridge Playground*

Olenka Villarreal

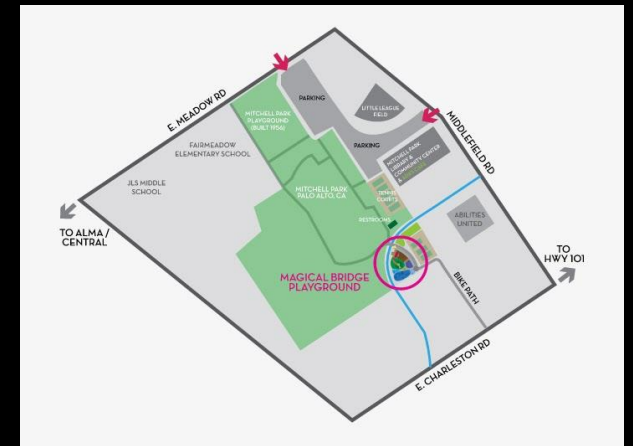
# Tuesday, March 1<sup>st</sup>

## *Where Everyone Can Play!*



Field trip to Magical Bridge Playground

Olenka Villarreal



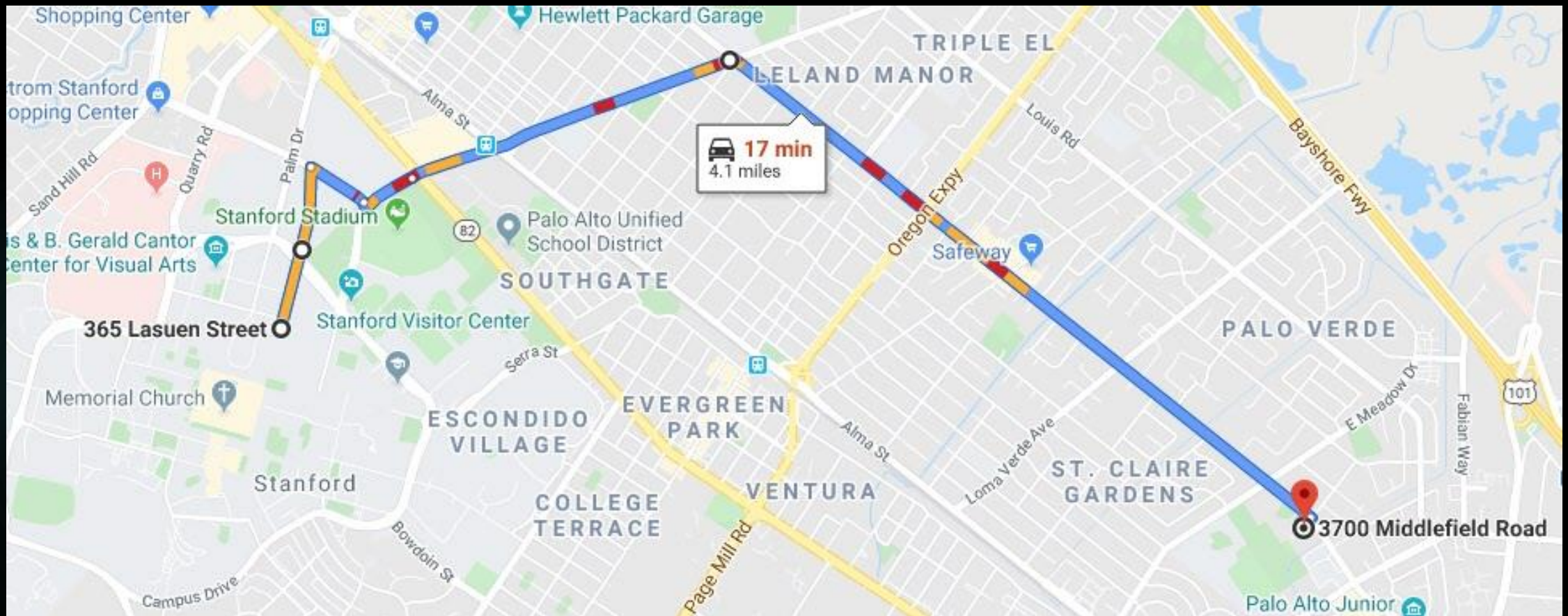




Field Trip to the Magical Bridge Playground



# Directions to Magical Bridge Playground



# Directions to Magical Bridge Playground



1. Take Lasuen to Galvez, turn right
2. Cross El Camino Real - becomes Embarcadero
3. Right turn onto Middlefield Rd.
4. Right turn at Mayview into Mitchell Park Library & Community Center - 3700 Middlefield Rd., Palo Alto
5. Park in lot
6. Meet in front of Ada's Cafe



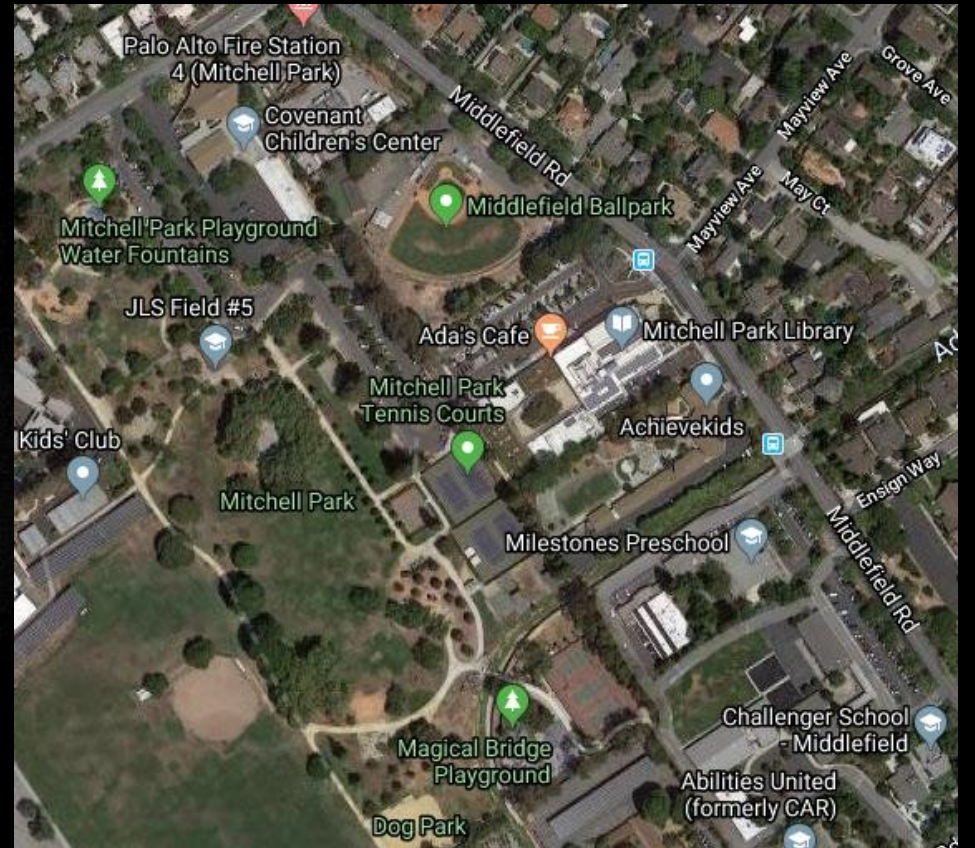
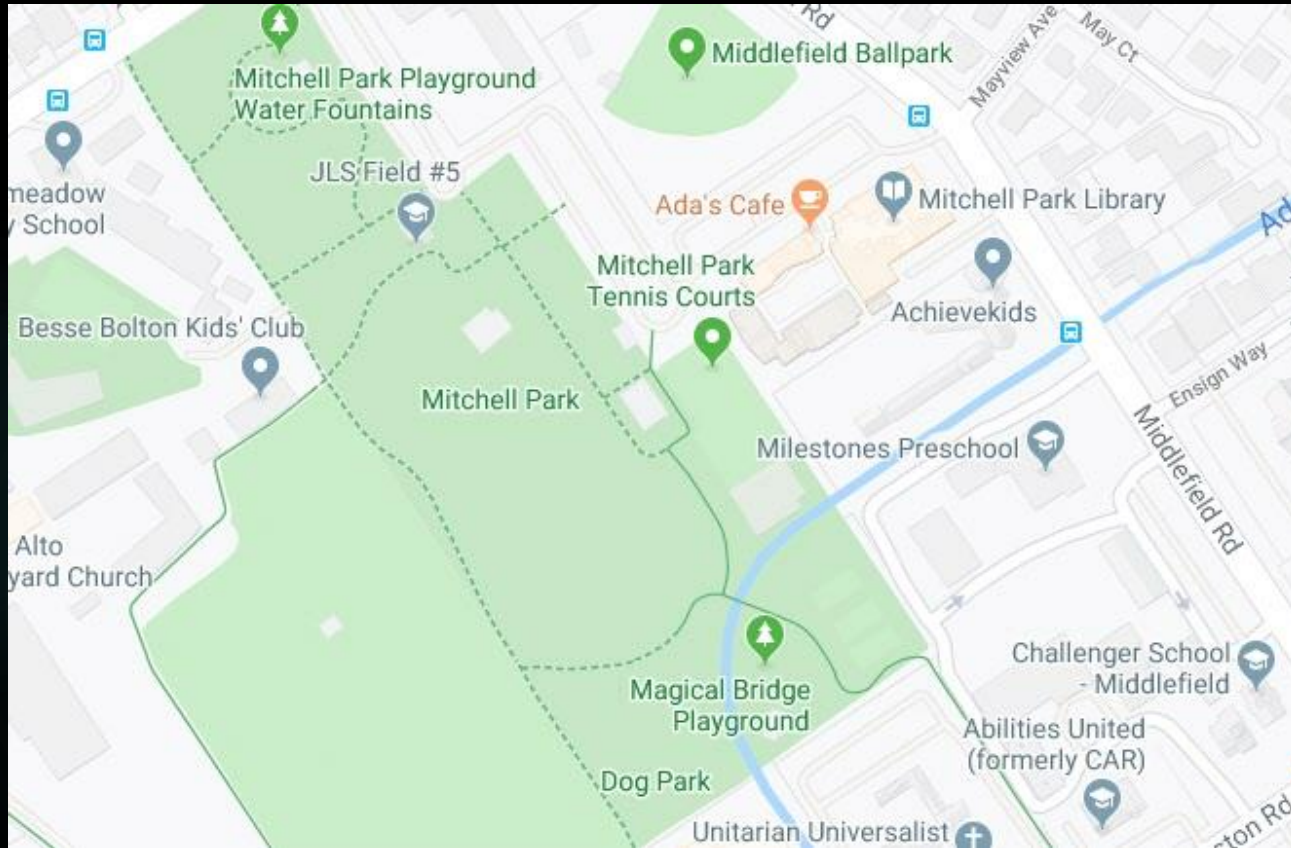


# Park in lot



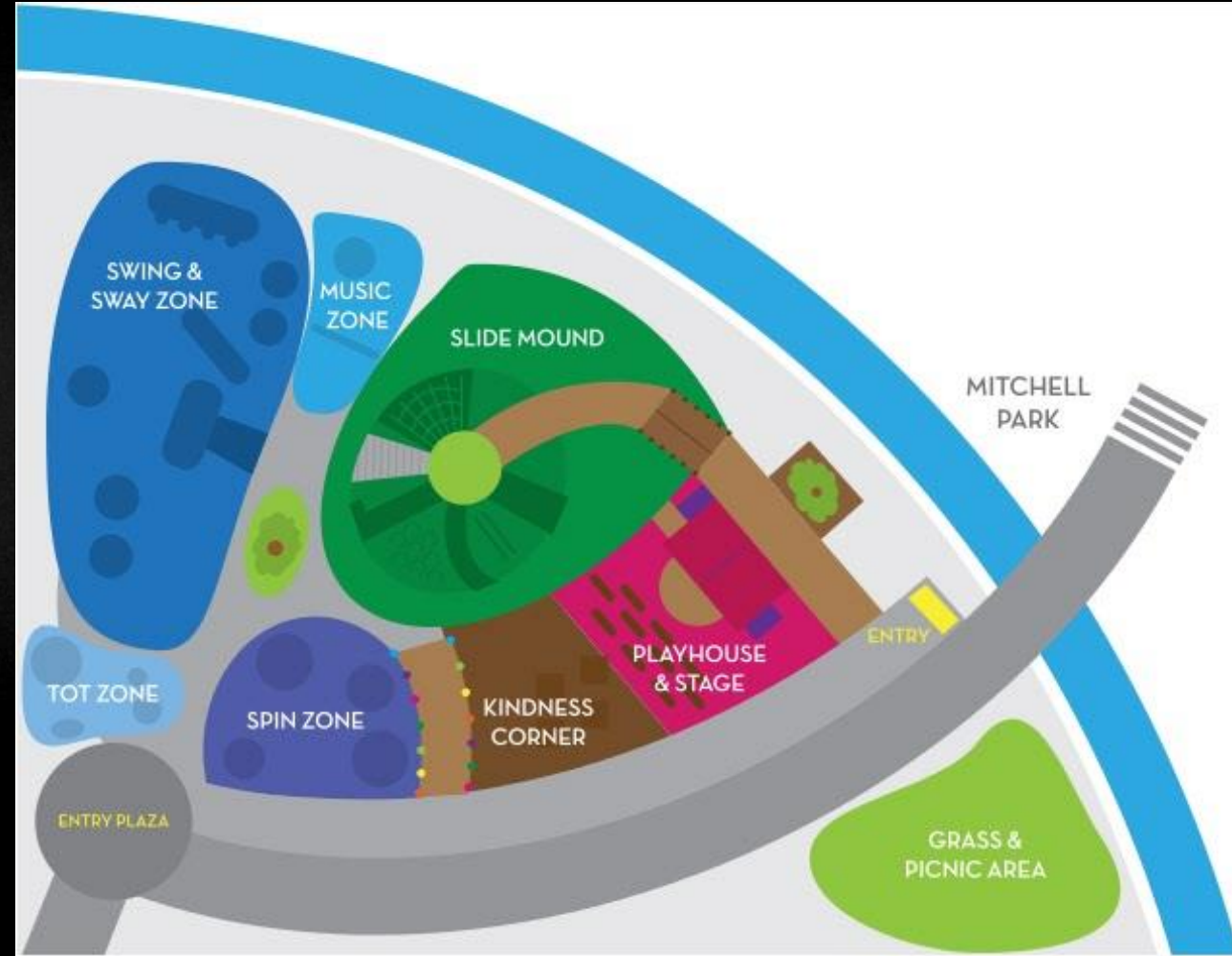
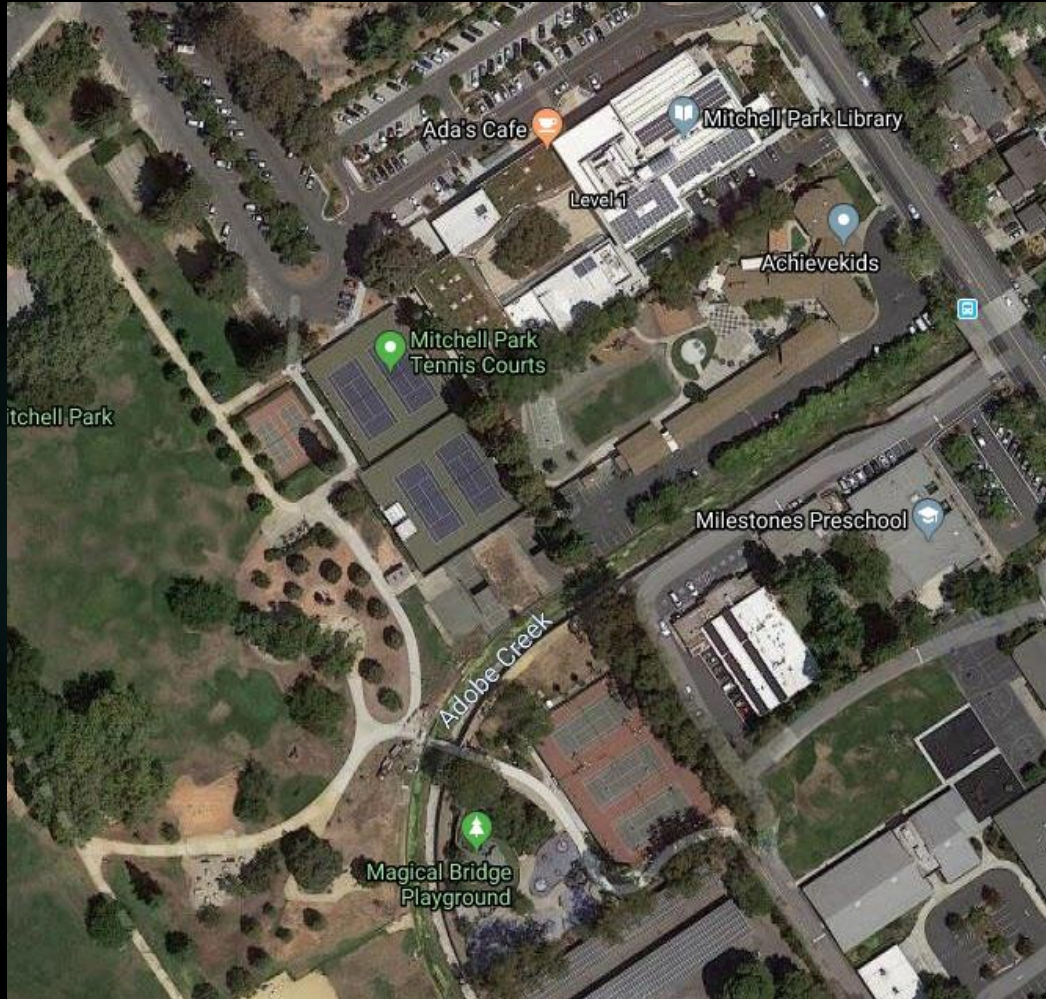


# Aerial Terrain View





# Magical Bridge Playground





# Meet in front of Ada's Cafe





# Today



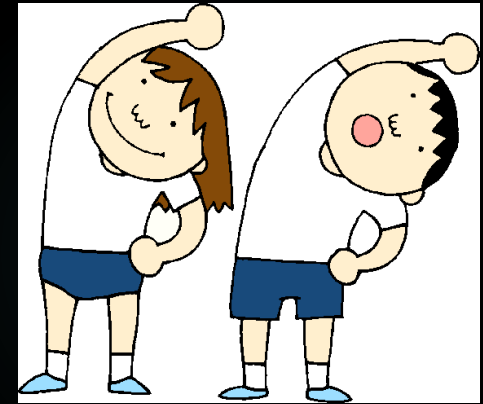
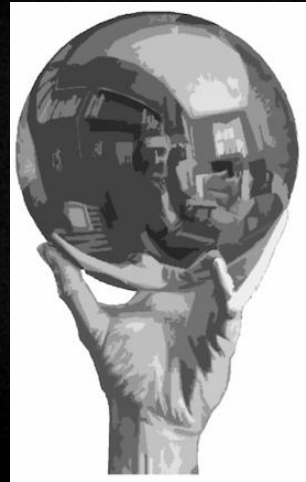
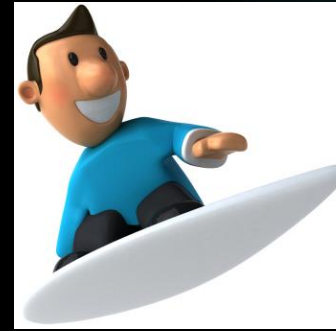
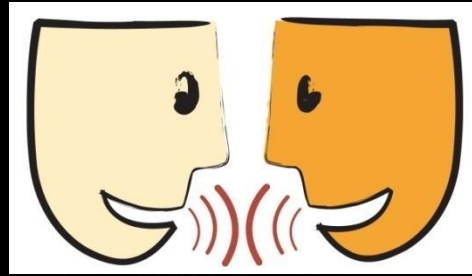
*Designing Exoskeletons and Prosthetic Limbs  
that Enhance Human Performance*

Steven H. Collins, PhD

Stanford University - Mechanical Engineering

# Break Activities

- ▶ Stand up and stretch
- ▶ Take a bio-break
- ▶ Text message
- ▶ Web-surf
- ▶ Respond to email
- ▶ Talk with classmates
- ▶ Reflect on what was presented in class



# Short Break

