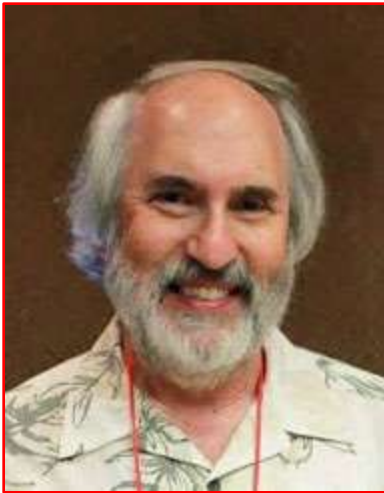January 7, 2016

ENGR110/210
Perspectives in Assistive Technology

David L. Jaffe, MS

Instructor

Questions?

Thanks

- Students:
  - Enrolling in the course
  - Lecture comments
- Haas Center for Public Service
  - Funding
- Community members
  - Participation and "adding to the conversation"
- Project suggestors
  - Suggesting great projects

Enroll on Axess

Students: If you haven't already done so, please enroll in ENGR110/210 on Axess.

Enrolled students: please sign this list in every class session to confirm your attendance.

ENGR110/210 Enrolled Student Attendance List
January 5, 2016

Email address - @stanford.edu	Name of Enrolled Student	Email address - @stanford.edu	Name of Enrolled Student
	Anderson, Nina Marie		Srivastava, Charu
	Arkin, Matthew Hunter		Stowers, Amanda Kay
	Blackwood, Thomas Edward		Strong, Elizabeth Anne
	Blum, Zachary Jake		Talreja, Rohit Sanjay
	Bohl, Emily Marie		Travis, Barrett Keagy
	Buendia, Julio Daniel		Troxel, Tom John
	Bush, Isabel Frances		Turpin, Autumn Nicole
	Catania, Michelle Alexis		Wang, Lucy Yiming
	Creadore, Lauren Theresa		Watkins II, Paul
	Ferrer, John Michael Galan		Wei, Alyssa Mariko Kuuleilani
	Flowers, Caroline		Weinstein, Zachary Michaud
	Friedman, Elise R.		Weltkemper, Luke
	Garcia, Victor Alfonso		Wu, Susan
	Guo, Michelle		Xue, Evelyn Evelyn
	Homsi, Natalie Yara		Zeng, Anna Sijia
	Ibrahim, Lina Ismail	Other students not listed above: (not yet enrolled)	
	Law, Jason Christopher		Trzpit, Thomas Paul
	Lee, Christina		
	Lee, Sophia Miranda		
	McCabe, Andrew Chapman		
	Migimatsu, Toki		
	Miller, Maia		
	Moss, Jess Larissa		
	Pang, Emily Ming-Chun		
	Pang, Jonathan Edward		
	Peeps, Olivia Manning		
	Pham, Harry Toan		
	Sawhney, Kartik		
	Simpson, Brinny		
	Sneed, Lynne Thompson		

Important to verify your attendance at
every class session

Candidate Team Projects

2016 Candidate Team Projects

Team projects are for students taking the course for three credit units.

ENGR110/210
Perspectives in Assistive Technology

David L. Jaffe, MS
Tuesdays & Thursdays   4:30pm - 5:50pm
Thornton Center – Classroom 110

Contact Information for Teaching Staff & Project Resource People

David L. Jaffe, MS	Course Lecturer	davejaffe@stanford.edu
Deborah Kenney	Occupational Therapist	kenney5@comcast.net
Doug Schwandt	ME Design Consultant	doug.schwandt@gmail.com
Gary M. Berke	Director of Prosthetics	gmberke@stanford.edu
Jules Sherman	Designer & Entrepreneur	jules@julessherman.com

Course Website: http://engr110.stanford.edu

Considerations for Team Formation

Project preference
All team members should have a strong desire to work on the same project.

Team's engineering skill set
The team's expertise and skills should match those required to address the project's challenges.

Undergraduate / graduate student
It would desirable if team members were either all undergraduate or all graduate students as this makes it easier to continue projects into the Spring Quarter.

Desire to continue project work into Spring Quarter
Ideally, all team members should commit to continue their project work into the Spring Quarter.

Personality
There should be a compatible mix of personalities in the team.

Friends and team members
A good friend does not necessarily make a good team mate.

Project Pitch Schedule for Thursday, January 7th
(Presentation order subject to last minute changes)

Projects pitched by their suggestors:

1. **Power for Veterans Project** - Jenny Kiratli (by video)
2. **Authoring Grade School Lessons on Disability and/or Assistive Technology** - Maria Barrera
3. **Information Support System to Destigmatize Mental Health in the Black Community** - Lynne Sneed
4. **Knee Brace Project** - Gary M. Berke
5. **Art Tools Project** - Wendy Kuehnl & Roger Young
6. **Aesthetic Brace Fairing Project** - Max Conserva
7. **Educational Design Kit for Children with Disabilities** - Greg Brown
8. **iPhone and Me Project** - Sachiko & Paul Berry
9. **Customize Abby's Scooter Project** - Abigayl Tamara
10. **Horseback Riding at Home Project** - Molly Hale
11. **Jogging and Running Aid for the Blind and Visually Impaired** – Brian Higgins
12. **Project employing the Leap Motion Controller** - Elizabeth Ruscitto & Cade Peterson
13. **Magical Bridge Playground Project** - Olenka Villarreal

Projects pitched by Dave:

14. **Walking Stick Project** - for Barbara Beskind
15. **Improved Walker Project** - for Barbara Beskind
16. **Wheelchair Backup Alert** - for Karen Parecki
17. **Enhanced access to touch screen devices** - for Deane Denney
18. **Enhanced bed control for veterans with spinal cord injury** - for Deane Denney

Dave's suggested projects:

19. **Creative Expression**
20. **Designing Your Afterlife**
21. **Student-defined team projects**

Project contacts, photos, and web links - browse to:
http://engr110.stanford.edu/team-projects.html

Team Formation Preparedness

Since there is no guarantee that other students will have similar project interests, you should be prepared to do one of the following:

1. convince others to work with you on one of your chosen projects
2. consider working with another student on a project he/she has chosen
3. work on your selected project as a team of one

Today's Handout - Project Preference for Students Working on Team Projects

Perspectives in Assistive Technology – Winter 2016
Project Preferences for Students Working on Team Projects (3 credit units)

Student name: _____

As each project is pitched, indicate your general interest in one of the first three columns with a ✓ or ✗. At the end of the all the presentations, select your top five project preferences in the fourth column - optionally providing its ordinal (1st, 2nd, 3rd, 4th, 5th) ranking.

☹	☺	☺	Indicate Top Five	Project Name
				Power for Veterans Project
				Authoring Grade School Lessons on Disability and/or Assistive Technology
				Information Support System to Destigmatize Mental Health in the Black Community
				Knee Brace Project
				Art Tools Project
				Aesthetic Brace Fairing Project
				Educational Design Kit for Children with Disabilities
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				Wheelchair Backup Alert
				Enhanced access to touch screen devices
				Enhanced bed control for veterans with spinal cord injury
				Creative Expression
				Designing Your Afterlife
				Student-defined team projects – See Dave for approval
				Other:
				Other:
				Other:

Tuesday, Jan 12th

Gayle Curtis - UX Design Consultant

Need Finding and Context Discovery for Assistive Technologies

Today's Agenda

1. Introduction of Course Resource People
2. Overview of PRL and Room 36 Resources
3. Considerations for Team Formation and Project Selection
4. Project Pitches
5. Open Question Time and Non-Random Access

Course Resource People

Deborah E. Kenney, MS, OTR/L

Douglas F. Schwandt, MS

Jules Sherman

Gary M. Berke, MS, CP, FAAOP

Product Realization Lab

Craig Milroy

Director of PRL

Marlo Kohn

Associate Director of PRL

Carly Geehr

Manager of PRL, Room 36

Eighteen PRL Teaching Assistants!

Five Minute Overview of PRL & Room 36 Resources

Carly Geehr

Purpose

Make something!

Get your concepts out into the physical world through hands-on prototyping and exploration.

Room 36 is part of the
Product Realization Lab (PRL)
and is a great on-ramp for rapid prototyping.

Resources – Coaching

Teaching assistants are available during all open hours for design and building coaching.

Room 36 Resources – Tools

- Tools:
  - laser cutters
  - 3D printers
  - electronics prototyping equipment, tools, and supplies
  - band saw
  - scroll saw
  - drill press
  - heat forming tools for plastic
  - vinyl cutter (and heat transfer press for applying vinyl to fabric)
  - sewing machines
  - X-Acto cutting surfaces and tools
  - hand tools such as wrenches, pliers, saws, and drills

Room 36 Resources – Materials

- Materials:
  - foam core
  - cardboard
  - wood
  - plastics
  - fabric
  - foam

- Bins of interesting materials are available for inspiration and use, and additional materials are available for purchase.

- Claim a project bin to store your materials and projects!

Locations
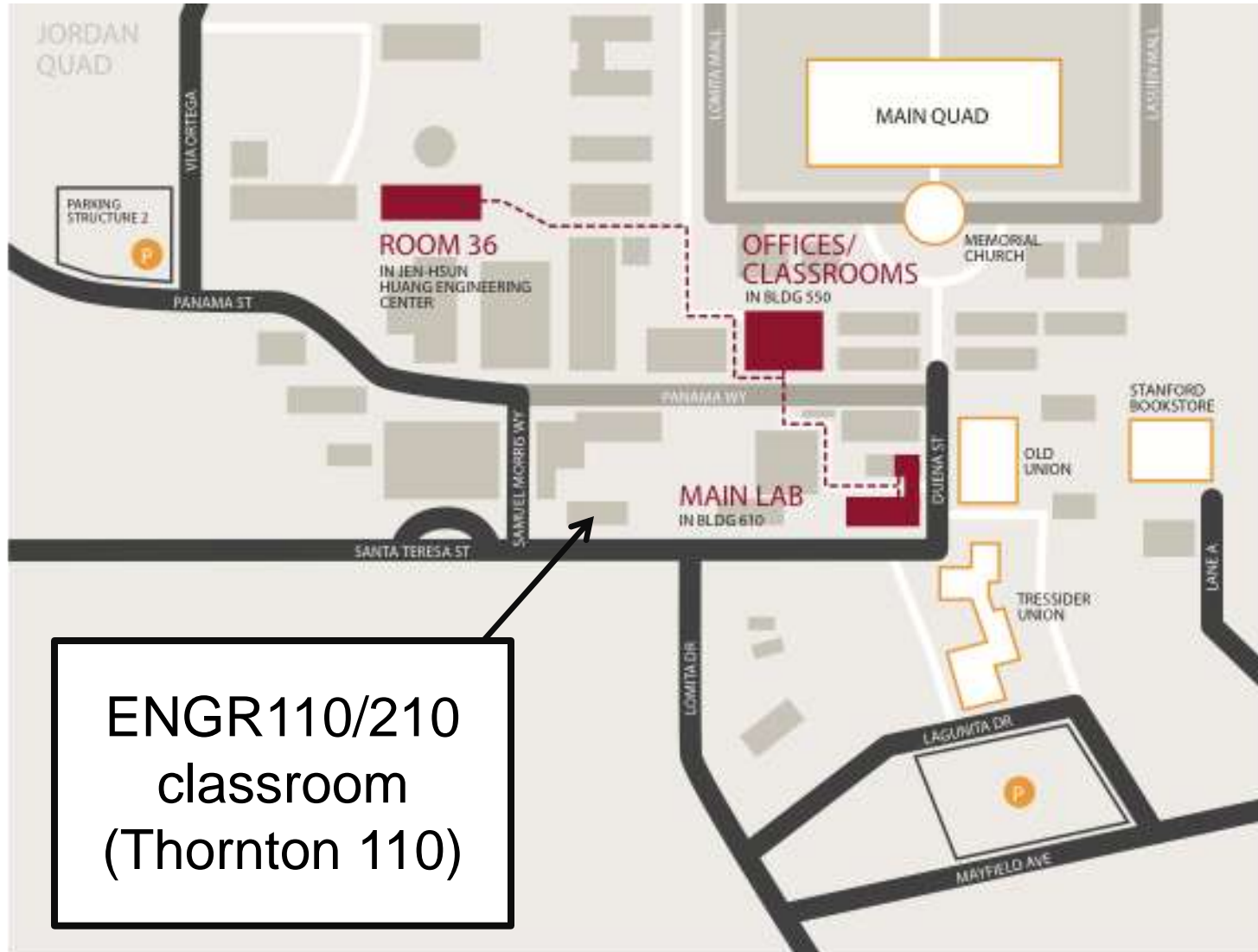
Getting Started

1. **Attend a safety orientation session.**

    *   Log on to WebShop (http://webshop.stanford.edu).

    *   Safety orientation sessions start at scheduled times and run for 75 mins.

    *   Safety sessions meet at the Main Lab in Bldg 610 (on the corner of Santa Teresa and Duena Streets).

    *   Please wear closed-toe leather shoes to your scheduled session and arrive a few minutes early to get signed in.

2. **Buy a lab pass.**

    *   Buy a lab pass from a TA during an open lab session. The PRL accepts cash and checks made payable to Stanford University.
            2 quarter pass: $80 - 1 quarter pass: $60

3. **Show up!** Come into the PRL to work. The PRL operates on a schedule of 3 daily 4-hour sessions (8am-noon, 1-5pm, 7-11pm). Check the schedule on WebShop to find open sessions in the lab area you'd like to work in.

4. **Talk to a TA about your project.** Come in and talk to a TA during an open session. They are a fantastic resource for you!

Project Pitches & Team Formation

Project Selection & Team Formation

For those working on **team** projects:

– Read project descriptions

– Fill out Project Preferences Form during pitches

– Talk to project presenters after the pitches

– Hand in Project Preferences Form

– Your preferences will be posted online

  • http://engr110.stanford.edu/preferences.html

– Inform me of team members (no more than teams of 3)

  • Freshmen & Sophomores must work in teams of 2 or 3

  • Name your team

  • Name your project

  • Name your device (after it develops a "character")

Project Preference Form for Students Working on Team Projects

Perspectives in Assistive Technology – Winter 2016
Project Preferences for Students Working on Team Projects (3 credit units)

Student name: _____

As each project is pitched, indicate your general interest in one of the first three columns with a ✓ or ×. At the end of the all the presentations, select your top five project preferences in the fourth column - optionally providing its ordinal (1st, 2nd, 3rd, 4th, 5th) ranking.

☹	☺	☺	Indicate Top Five	Project Name
				Power for Veterans Project
				Authoring Grade School Lessons on Disability and/or Assistive Technology
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				Wheelchair Backup Alert
				Enhanced access to touch screen devices
				Enhanced bed control for veterans with spinal cord injury
				Creative Expression
				Designing Your Afterlife
				Student-defined team projects – See Dave for approval
				Other:
				Other:
				Other:

Considerations for Team Formation and Project Selection (1/2)

Project preference

- All team members should have a desire to work on the same project.

Team's engineering skill set

- Match the team's skills and expertise with the project needs.

Undergraduate / graduate student

- It would be best if all team members were either undergraduate or graduate students as this makes it easier to continue projects into the Spring Quarter.

Considerations for Team Formation and Project Selection (2/2)

Desire to continue project work into Spring Quarter

- Ideally, all team members should commit to continue their project work into the Spring Quarter, but independent study is another option.

Personality

- There should be a compatible mix of personalities in the team.

Friends and team members

- A good friend does not necessarily make a good team mate.

Course load

- Can you spend the time working on a team project? Courses like ME210, ME218, and ME310 are very demanding.

Preferences

- Preferences will be posted on course website by student and by project:
  - http://engr110.stanford.edu/preferences.html

- Review other students' preferences

- Contact them and form teams

- Email Dave with selected project, team name, and team members by Friday, January 15th

- Contact project suggestors to get more information

- Prepare to "hit the ground running"

Why you may want to

If you have enrolled for <u>three units</u>, you may want to consider taking the course for <u>one unit</u> or <u>waiting until next year</u> if:

1. You are a freshman or sophomore, or
2. If you have limited fabrication experience, or
3. If you are already taking a project course, or
4. If you have to miss lectures or tours

Team Formation Preparedness

Since there is no guarantee that other students will have similar project interests, you should be prepared to do one of the following:

1. Convince others to work with you on one of your selected projects

2. Consider working with another student on a project he/she has chosen

3. Work on a project you selected as a team of one

4. Keep an Open Mind!
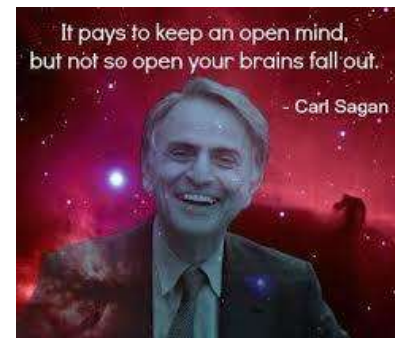
Project Selection & Team Formation

For those working on **individual** projects:

- Research an assistive technology topic
- Work on a paper design of an assistive technology device
- Create a work of art
- Engage in an aftermarket aesthetic design
- Engage in an aftermarket functionality / usability design
- Consider a listed individual project

- Meet with Dave for suggestions and approval

Project Pitches

- **Power for Veterans Project** - Jenny Kiratli & Jeff Jaramillo

- **Authoring Grade School Lessons on Disability and/or Assistive Technology** – Lucy Svoboda for Maria Barrera

- **Support System to Destigmatize Mental Heath in the Black Community** - Lynne Sneed & Paul Watkins

- **Knee Brace Project** - Gary M. Berke

- **Art Tools Project** - Wendy Kuehnl & Roger Young

- **Aesthetic Brace Fairing Project** - Max Conserva

- **Educational Design Kit for Children with Disabilities** - Greg Brown

- **iPhone and Me Project** - Sachiko & Paul Berry

- **Customize Abby's Scooter Project** - Abigayil Tamara

- **Horseback Riding at Home Project** - Molly Hale

- **Jogging and Running Aid for the Blind and Visually Impaired** - Brian Higgins

- **Project employing the Leap Motion Controller** - Elizabeth Ruscitto & Cade Peterson

- **Magical Bridge Playground Project** - Olenka Villarreal & Jay Gluckman

Projects Pitched by Dave

- **Walking Stick Project** - for Barbara Beskind
- **Improved Walker Project** - for Barbara Beskind
- **Wheelchair Backup Alert** - for Karen Parecki
- **Enhanced access to touch screen devices** - for Deane Denney
- **Enhanced bed control for veterans with spinal cord injury** - for Deane Denney

Projects Suggested by Dave

- **Creative Expression**
- **Designing Your Afterlife**
- **Student-defined projects**

Project Pitches

Power for Veterans Project – Jenny Kiratli
& Jeff Jaramillo Spinal Cord Injury (SCI) Center, VA Hospital

- Explore designs which would allow VA patients to power and recharge all their personal devices within easy reach of their bedside while being in compliance with Joint Commission regulations.

- [Video](#) (1:22)

On deck: Lucy Svoboda for Maria Barrera

Location /Setting

- Inpatient unit, hospital room at VA Hospital
- Mentors can include Research Director, floor nurses, therapists, administrative officer, and PATIENTS
- Real problem – simple solution needed!
- Your creativity and innovation are needed …

Problem

- Patients with spinal cord injury (SCI) want access to their electronics during hospital stay

- May be at prolonged bedrest (many months!)

- May have tetraplegia (quadriplegia) and reduced use of hand & arm due to paralysis

- Access to electricity limited to wall socket behind bed

- Numerous safety concerns with multiple extension cords and patient-derived solutions

Design Requirements

1. **Safety First**
   - Electrocution/shock or fire hazard
   - Tripping hazard (for staff)
   - Complies with federal & hospital standards
2. **Mobile / Stand-alone**
   - Cannot attach to bed
3. **Meets patients' needs**
   - Multiple devices
   - Within reach **from** bed
   - Accommodates limited hand function

Significance

- VERY HIGH!
- Access to electronics:
  - enhances independence
  - reduces boredom and depression
  - allows work & education to be done while on extended bedrest
- Clinical outcomes = quality of life and safety
- *Put yourself in that bed - what would you do?*

Contact

- Jenny Kiratli, PhD, SCI Center Research Director, jenny.kiratli@va.gov

- Renee Ota, RN, Floor Nurse & Chair, Safety Committee, renee.ota@va.gov

- Jeff Jaramillo, DPT, SCI Center Research Manager, jeffrey.jaramillo@va.gov

Project Pitches

Authoring Grade School Lessons on Disability and/or Assistive Technology – Lucy Svoboda for Maria Barrera

- Author Nearpod lesson modules on Disability and/or Assistive Technology suitable for use in a grade school classroom.

On deck: Lynne Sneed & Paul Watkins

Project Pitches

Support System to Destigmatize Mental Health in the Black Community – Lynne Sneed & Paul Watkins

- Create an application / object that support those who experience mental health disorders and destigmatizes mental health in the black community.

On deck: Gary M. Berke

Statistics

- 50% less likely to receive mental health treatment or counseling

- 60% less likely to receive prescription medication for mental health treatment or counseling

- Of the African Americans who have had a major depressive episode, they are 20% less likely to receive treatment

Video link (1:08-1:47): African American Mental Health Voices from NAMI

Project Pitches

Knee Brace Project – Gary M. Berke

- Explore brace designs that stay in place, incorporate a mechanism that locks the knee when needed, unlocks the knee when not needed, and is not too bulky.

On deck: Wendy Kuehnl & Roger Young

Gary M. Berke MS, CP

Knee Brace Project

Knee Bracing

- Who it works for ...

Knee Bracing

• Who it doesn't work for …

Knee Bracing

- Why Not?

  – Distribution of high forces both at the skin and at the brace

  – Falling down of brace

Project

- Design a knee brace that:

  - 1. Doesn't fall down

  - 2. Can control:

    - Hyperextension

  - And / or

    - Weakness to prevent falls

Project Pitches

Art Tools Project – Wendy Kuehnl & Roger Young

- Explore designs that would allow artists with developmental disabilities or range of motion and muscle / motor control challenges to be more independent and increase their ability to participate in art.

On deck: Max Conserva

Art Tools Project

Art Tools for Adults with
Developmental Disabilities

- Age Appropriate (for adults)
- Choice Centered
- Multi-sensory
- Motivational (to encourage user to go to the next step)
- Purpose Driven
- Reward / Award Possibilities (competitions)
- Graduated Skill Levels

Art Tools Project

Art making hand over hand with a person who has extremely limited range of motion and can not reach a table top or easel.

Art Tools Project

Art making hand over hand with a person who has limited movement in their neck to look at the artwork but can reach a table top or easel.

Art Tools Project

Art making by a person who can hold a pen, pencil, or paint brush and can reach the paper on a table top but has limited neck movement to look at the artwork being made.

Art Tools Project

Art making hand over hand with a person who has extremely limited range of arm and hand motion; has difficulty holding a pen, pencil, or brush; and can not reach a table top or easel.

Project Pitches

Aesthetic Brace Fairing – Max Conserva

- "Explore brace attachment designs that address these superficial deficiencies in my right leg - specifically the lack of girth, the abnormal angle, and the abnormal shape - essentially hiding the disfigurement. The brace attachment itself can be noticeable (and look good), but must hide the underlying disfigurement."

On deck: Greg Brown

Aesthetic Brace Fairing

Aesthetic Brace Fairing
Why Work with Me?

- I'm an engineer

- I'm motivated

- I'm available

Project Pitches

Educational Design Challenge Kit for Children with Disabilities - Greg Brown

- Explore ideas for an Educational Design Challenge Kit that will engage children (grades 6 to 8) including those with moderate sight, mobility, or dexterity limitations and evaluate their effectiveness in a classroom setting.

On deck: Sachiko & Paul Berry

Inspiring Hands-On Learning

To spark the love of learning for the next generation of thinkers, problem solvers, innovators, and creators

Starting with a big bag of
surplus materials ….

Create an **Educational Design Challenge Kit** for children with disabilities!

Toy

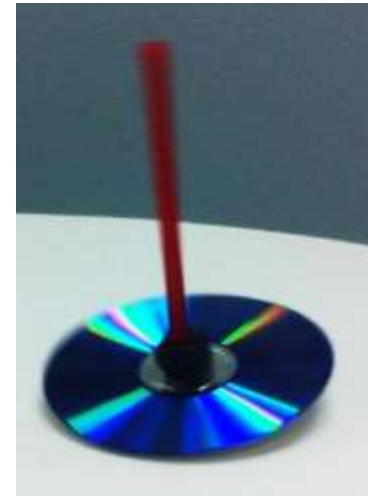

Science

Game

PLASTIC
ROUND
RED
SHINY
HOLE
4 SIDES

… ???

Raft

greg@raft.net

Project Pitches

iPhone and Me Project - Sachiko & Paul Berry

- Explore designs that would enable Sachiko to handle and operate an iPhone with one hand.

On deck: Abigayl Tamara

iPhone and Me Project

- iPhone 6 -- many potential uses for someone moving around especially while visiting unfamiliar places such as walking outdoors or in buildings or riding public transit

- Sachiko's paralyzed (and small) right hand makes it difficult:
  - To extract the smart phone from purse, pocket, or bag
  - To operate the phone when there's nothing to hold it or brace it (while using the "good" hand to tap, swipe, type, etc)

- Requirements:
  - Keep it portable, accessible, convenient
  - Let one hand operate it - the other can't help

Project Pitches

Customize Abby's Scooter Project - Abigayil Tamara

- Explore ways to add a personal aesthetic to Abby's scooter

On deck: Molly Hale

Design Criteria

- Must not damage the scooter
- Must not restrict driving controls
- Must be "undoable", removable, washable
- Consider a variety of usage occasions
- Consider fabrics, colors, finishes, patterns, and Abby's aesthetic preferences
- Consider designs that enhance nighttime visibility

Project Pitches

Horseback Riding at Home Project – Molly Hale

- Explore designs for an alternative to horseback riding that allows people with compromised bodies to experience the beneficial movements of a horse .

"THERE IS
SOMETHING
ABOUT THE OUTSIDE
OF A HORSE THAT
IS GOOD FOR
THE INSIDE OF A MAN."
~ WINSTON CHURCHILL

On deck: Brian Higgins

Hippotherapy

Adaptive Riding

Balance and Core

Rocking

Primary Muscle Memory

Peanut-shaped Physioball

Stability

My Little Pony

- Create a stable "horse"
- Easy getting onto and off the surface.
- East to straddle the surface.
- Movements mimicking a horse:
  up and down, side to side, back and forth, and diagonal movement.
- Can be fabricated with local materials.
- Easy to store.

Project Pitches

Jogging and Running Aid for the Blind and Visually Impaired – Brian Higgins

- Explore designs for an aid that runners who are the blind or visually impaired can employ to during running or jogging to enhance their running experience.

On deck: Elizabeth Ruscitto & Cade Peterson

Project Pitches

Project Employing the Leap Motion Controller - Elizabeth Ruscitto & Cade Peterson

- Explore an application for a person with a disability using the Leap Motion Controller product.

On deck: Olenka Villarreal

Elizabeth Ruscitto

Director, Developer Programs

eruscitto@leapmotion.com

Cade Peterson

Developer Programs Manager

education@leapmotion.com

What is Leap Motion?

- Leap Motion tracking makes it possible to interact with virtual spaces using your bare hands, with tracking at the fingerbone level.

Leap Motion for Virtual Reality

- Using the Leap Motion Controller with a VR headset like the Oculus Rift, you can bring your hands into virtual reality and interact directly with digital objects.

Hand Tracking

The Leap Motion system recognizes and tracks hands, fingers, and finger-like tools. The device operates within 60 cm of the user with high precision and tracking frame rate – reporting discrete positions, motions, and gestures.

○ Handedness (left or right)
○ Bones and joints from elbow through fingertips
○ Position, length, radius & orientation of each bone
○ Tracking confidence

Medical Applications
Early Community Experiments
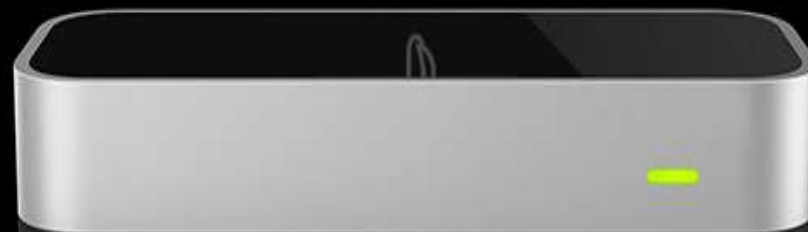
HEARING LOSS

Hundreds of thousands of people use American Sign Language in their daily lives.

PROBLEM:

From the home to the workplace and everywhere in between, deaf people face serious communication barriers.

SOLUTION:

One of *TIME Magazine*'s Top 25 Inventions of 2014, MotionSavvy's UNI is a two-way communication tool for the deaf using Leap Motion and speech technologies.

HAND TREMORS

Parkinson's disease, Wilson's disease, dystonia, and other diseases make everyday life difficult for millions of people.

PROBLEM:

There aren't many ways for patients and doctors to quickly and reliably track tremor progression over time.

SOLUTION:

Developers and researchers have been experimenting with using Leap Motion technology to measure hand tremors, including a team at UCSF.

SIGHT DISORDERS

Cross-eye and lazy eye happen when the human brain ignores input from the non-dominant eye.

PROBLEM:

There aren't many ways to retrain people's brains beyond boring clinical exercises.

SOLUTION:

A dash of gamification. Vivid Vision believes that VR and motion controls can trick the player's brain into strengthening their weaker eye. Their technology is now rolling out to eye clinics.

Time: 19:38

PHYSICAL THERAPY

After a stroke or other crippling illness, patients have a long road to restoring normal function to their hands.

PROBLEM:

Rehab exercises can feel unrewarding and repetitive. Patients often need to stay at large facilities because the technologies they need are expensive and difficult to set up.

SOLUTION:

The Burke Medical Research Institute, Ten Ton Raygun, and others have designed experimental games for stroke patients using Leap Motion technology.

What Will You Build?

Thank You

developer.leapmotion.com

developers@leapmotion.com

@LeapMotionDev

Project Pitches

Magical Bridge Playground Project - Olenka Villarreal & Jay Gluckman

Several Projects

- Explore designs to offer a new and innovative play and educational experiences incorporating multiple senses, actions, and outcomes.

On deck: Dave for Barbara Beskind

Project Pitch

Presented by Olenka Villarreal & Jay Gluckman
Magical Bridge Playground

Unique Play Zones

Inclusive Play

Kids at Play

"Accessible" Just Isn't Enough

- Not a single public playground has been designed with everyone's unique play needs in mind.

- Private funds have been raised, and groundbreaking occurred June 2014 with completion in April 2015.

- Let's start a national conversation! Community parks must serve the many kinds of people who live in the community.

- ADA standards do not meet the needs of many living with a disability.

- The Magical Bridge promises to be the nation's most innovative inclusive playground and is right here, in Palo Alto.

Suggested **Team** Projects

- Projects that employ tactile / haptic sensing including Braille

- Projects that sense body movement and produce sound, light, movement

Suggested **Individual** Projects

For students taking the course for 1 credit unit with a letter grade. These are meant to be CAD design projects with no fabrication component.

- Design of an enhanced accessible restroom

- Design of a water-based piece of playground equipment

Be Part of the Magic - Join Us!

[Magical Bridge Playground](...)
[Olenka Villarreal](...) & [Jay Gluckman](...)
650/380-1557

Project Pitches

Walking Stick Project – Dave for Barbara Beskind

- Explore a custom walking stick design for Barbara.
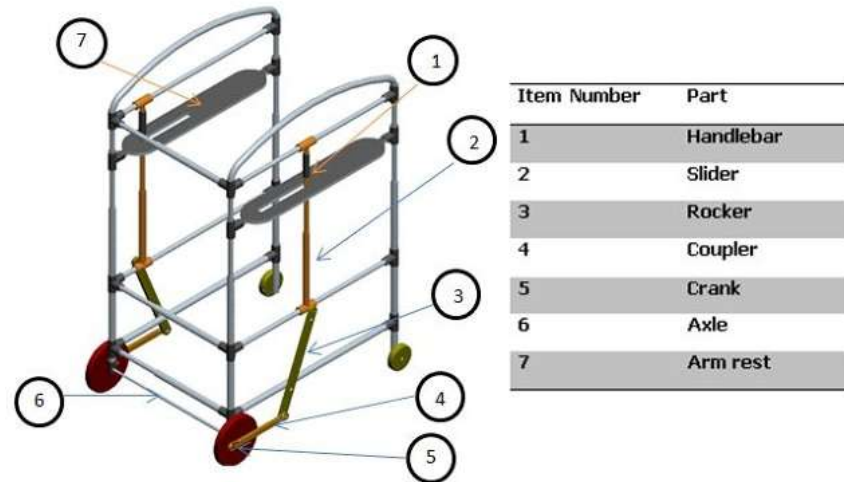

On deck: Dave for Barbara Beskind

Project Pitches

Improved Walker Project – Dave for Barbara Beskind

- Explore a new design or an aftermarket addition for a standard walker that would encourage better posture and improve balance.

On deck: Dave for Karen Parecki

Item Number	Part
1	Handlebar
2	Slider
3	Rocker
4	Coupler
5	Crank
6	Axle
7	Arm rest

Project Pitches

Wheelchair Backup Alert – Dave for Karen Parecki

- Explore mechanical or electronic designs to provide rearward visibility and warning while backing up.

On deck: Dave for Deane Denney

Project Pitches

Enhanced access to touch screen devices – Dave for Deane Denney

- Explore ideas that would enable users with limited hand control to make their selections more accurately on their personal touch screen devices.

On deck: Dave for Deane Denney

Project Pitches

Enhanced bed control for veterans with spinal cord injury – Dave for Deane Denney

- Explore solutions that would enable veterans to more easily operate their beds, including voice activation.

On deck: Dave

Project Pitches

Creative Expression

- Explore ways to enhance creative expression for people with disabilities. This could include the creation of new activities or fabrication of new tools.

Photos Tim Smith

Project Pitches

Designing Your Afterlife

- Explore ways to preserve one's essence after death. In the technology extreme, this might manifest itself as an interactive system that responds to queries, retells stories, relates experiences, shares expertise, and expresses humor. The pre-dead user would be able to create and program his / her eternal computer-based persona before her / his demise.

Project Pitches

Student-defined Team Projects

- Interview, observe, and discuss assistive technology problems with an individual with a disability or older adult. Address their desire to participate in one of the following activities by designing an adaptation to an existing device / tool or creating a new, more useful one:

  - Activities of daily living
  - Sports and exercise
  - Leisure activities and hobbies

Open Question Time
and Non-Random Access

Who is working on team projects?

What are your top choices?

Get more info from project suggestor

Identify others interested in same projects

NATALIE PRESENTS:
THE DEFINITION OF "RANDOM"

RANDOM: Made, done, happening or chosen without method or conscious decision.

Question Time

Have course questions?
Ask Dave

See Dave if you are working on an individual project

Class Dismissed