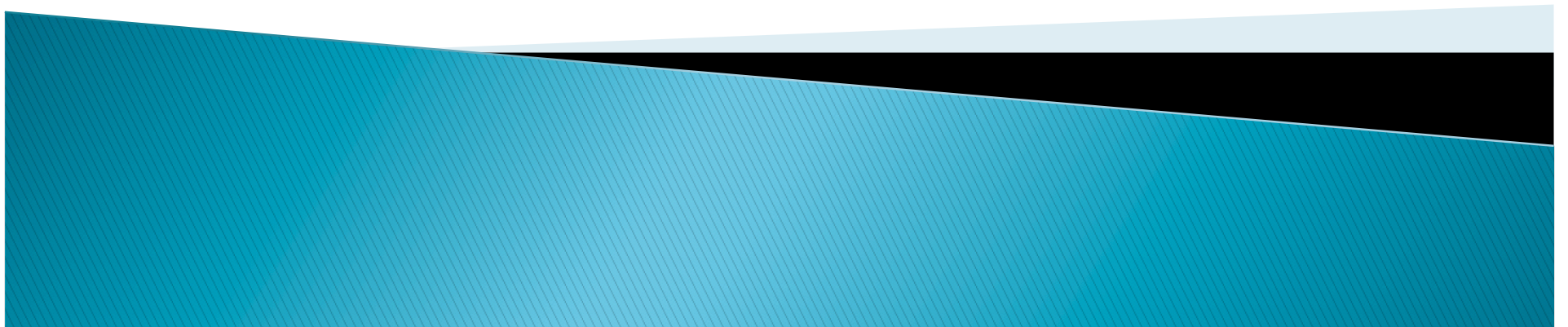


# ME490B: Senior Engineering Design

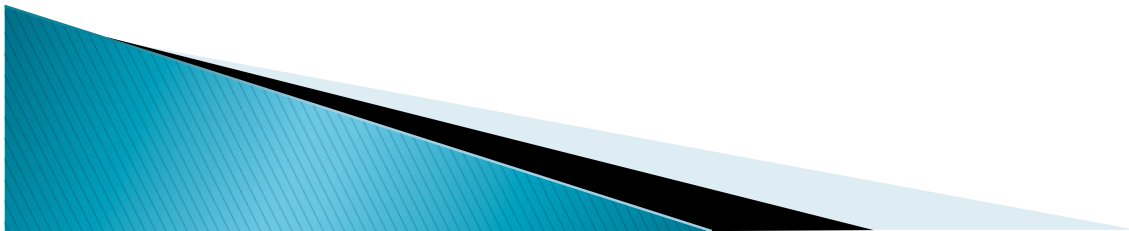
SDSU FA2014

Dr. Alex Simpkins



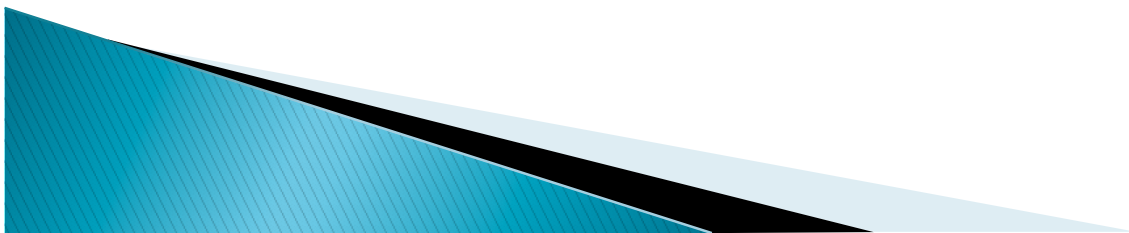
# Today

- ▶ Overview and introductions
- ▶ About Dr. Simpkins
- ▶ Layout of course
- ▶ Grading
- ▶ Course materials
- ▶ Meetings and overviews of project status



# INSTRUCTOR

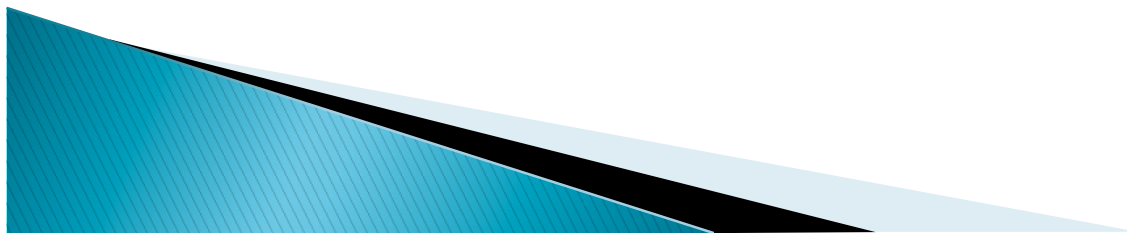
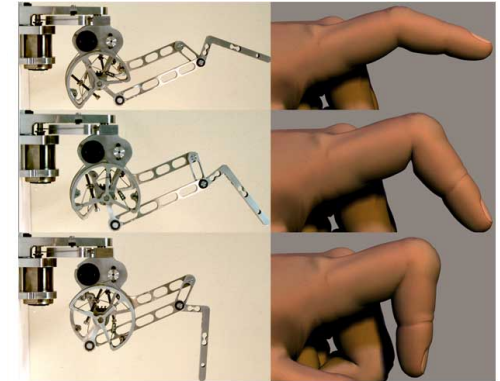
- ▶ **Dr. C. Alex Simpkins**
  - Lecturer in Mechanical Engineering
  - Consultant, CEO RDPRobotics, LLC
- ▶ **Teaching Expertise**
  - Mechanics, Dynamical systems and control
  - Design, mechatronics, cognitive science/  
psychology/neuroscience

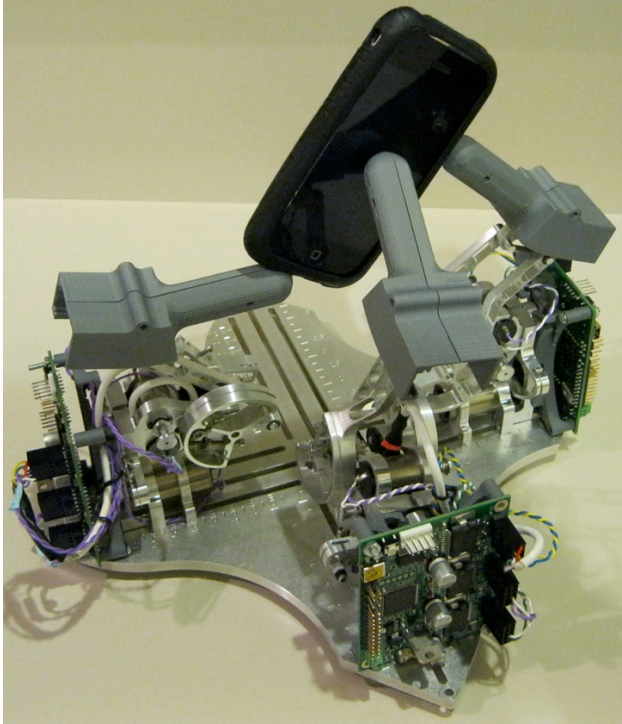
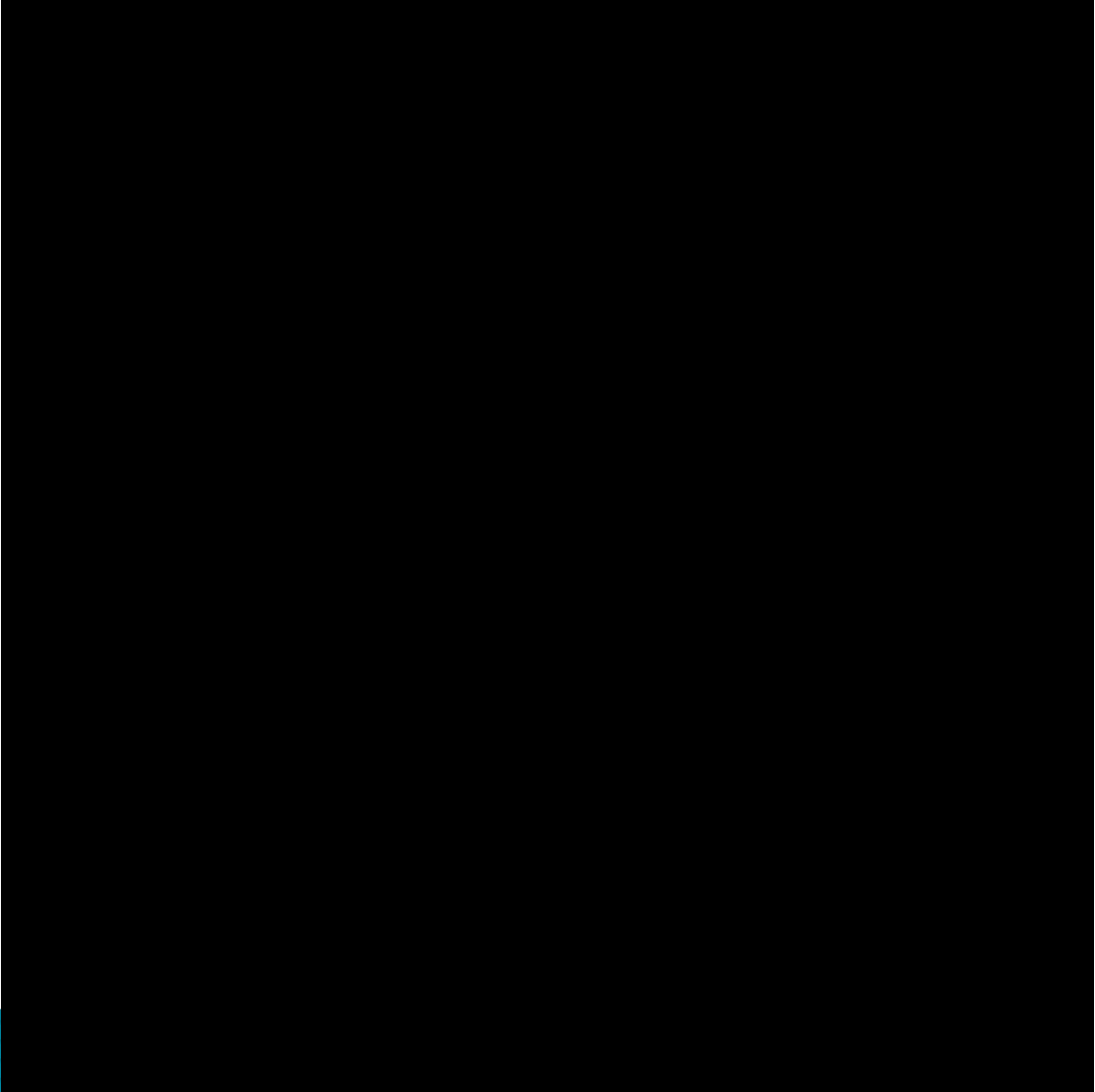


# INSTRUCTOR

## ▶ Research

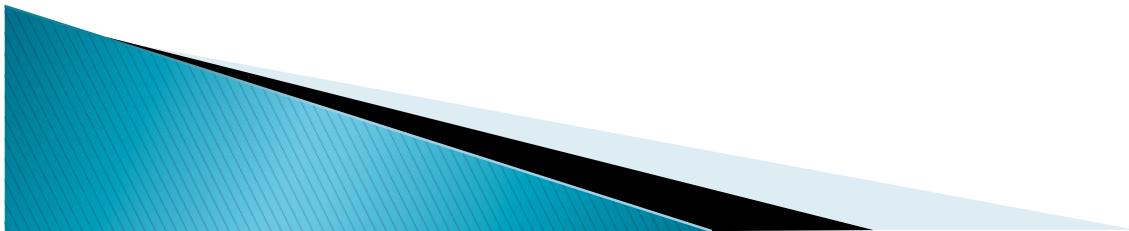
- Biomimetic robotics
- Locomotion/manipulation
- Learning systems
- Haptics and vibration
- System identification and robust and optimal control
- Rapid prototyping, design and embedded systems
- Etc😊





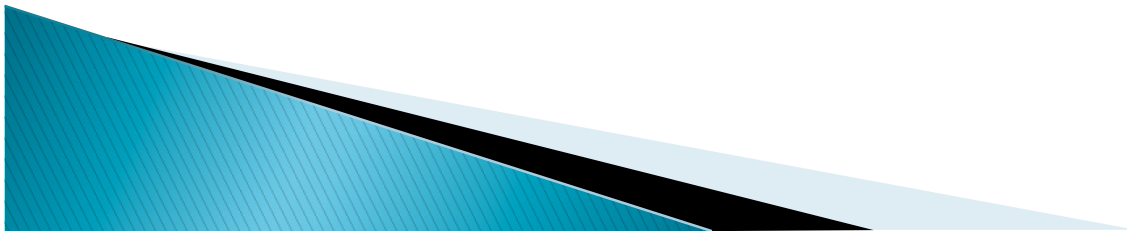
# Format for course

- ▶ We will follow Prof. Mansfield's formula this semester for continuity
- ▶ Weekly lectures/case studies
- ▶ Meetings with each group
- ▶ You will be responsible for having weekly meetings with your sponsor/advisor



# SLO

- ▶ (1) An ability to apply knowledge of mathematics, science, and engineering.
- ▶ (2) An ability to design and conduct experiments, as well as analyze and interpret data.
- ▶ (3) An ability to design a system, component, or process to meet desired needs.
- ▶ (4) An ability to function on multi-disciplinary teams.
- ▶ (5) An ability to identify, formulate, and solve engineering problems.
- ▶ (6) An understanding of professional and ethical responsibility.
- ▶ (7) An ability to communicate effectively.
- ▶ (8) The broad education necessary to understand the impact of engineering solution in a global and societal context.
- ▶ (9) A recognition of the need for an ability to engage in life-long learning.
- ▶ (10) A knowledge of contemporary engineering issues.
- ▶ (11) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- ▶ (12) Have the ability to apply principles of engineering, basic science, and mathematics (including multivariate calculus and differential equations) to model, analyze, design, and realize physical systems, components or processes.
- ▶ (13) The ability to work professionally in both thermal and mechanical systems areas.



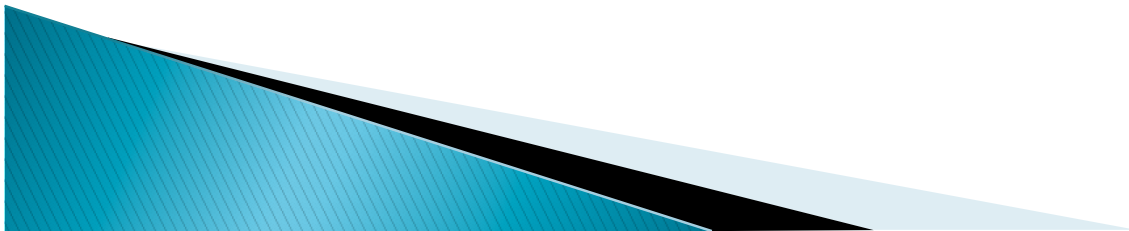
# Grading

- ▶ Each faculty or industry sponsor established their own grading policy when presenting their projects to the class.
- ▶ ***For the students whose projects I advise, my grading weighting factors will be as follows:***
  - Average of each individual's weekly performances as measured against the initial project task time line for that student: 35%
  - Two Powerpoint presentations (average of individual performance and overall quality of PowerPoint presentations): 20%
  - Design notebook, final report and other specified deliverables (eg hardware, software applications, test protocols, etc): 45%
  - Peer evaluation weighting factor: to be determined.



# Course materials

- ▶ Blackboard for grading
- ▶ Course website for
  - Handouts
  - Lectures
  - Links
  - Announcements
  - [http://casimpkinsjr.radiantdolphinpress.com/pages/me490b\\_fa2014](http://casimpkinsjr.radiantdolphinpress.com/pages/me490b_fa2014)



# Weekly report will follow prior format

ME 490 B Weekly Report Form		Group: 14	Project: Main Sail Design	Week No's: 1
<b>Date</b>	<b>Past Week's Activity &amp; Progress</b>			
16-Feb	sailing in san diego bay			
5-Feb	looked at existing main sail			
26-Feb	began describing sail shape and how it works			
<b>Date</b>	<b>Status with respect to schedule, comments</b>			
5-Mar	well within the allotted schedule. Plan to begin actual Staghound Mainsail design durring april and do all comparison and final analysis of design in early may.			
	currently finding optimal draft, camber, and roach and how the 5 coefficients are affected			
<b>Date</b>	<b>Plans for next week.</b>			
12-Mar	presentations			
11-Mar	rehearsal of presentation			
03/05 - 03/11	homework - define coefficient of pressure, drive and side coeffecients,and coefficient of lift and drag and how they relate to "good sail shape"			
<b>Date</b>	<b>Problems, road blocks, help needed, etc</b>			
5-Mar	need wind tunnel access			
<b>General Remarks:</b>				

