Writing & Video Tips
I&E Summer Scholars Program
Sandra Furnbach, P.E.– June 2014
$25,000 in Cash Prizes: The Start Something Challenge

Wednesday, June 18, 2014 6:30-8:30PM
Location: Culinary Conference Center at HCCC, Jersey City, NJ

To register:
Call: 201-432-4316 x 110 or
E-mail: Justyna@RisingTideCapital.org
NJ Tech Meetup #50
With featured speaker:

Steve Jacobs, CIO Gilt
Tuesday, July 22, 2014 at 6:45 PM
Location: Babbio Center, Stevens Institute of Technology, Hoboken

6:45 (sharp!) - 7:15: Speed Networking
7:15-8: Welcome/Startups Present
8-9: Feature Speaker/Q&A
9+: Closing Remarks

Stevens students/faculty can register free - Stevens students/faculty
Scivantage FinTech Incubator Program - APPLICATION DEADLINE
Apply online before Application Closes:

Thursday, July 3, 2014 05:00PM

May 15, 2014: Applications Open
July 3, 2014: Applications Close
July 10, 2014: Pitch Day Participants Selected
July 23, 2014: Pitch Day
July 30, 2014: Incubator Program Begins
October 30, 2014: Incubator Investor Demo Day

Register at Stevens/ScivantageProgram
2nd Annual NYCRIN Network Meeting
Monday, July 21, 2014  9:30 AM - 4:00 PM
Location: John Jay College of Criminal Justice
899 10th Ave, Dining Hall
New York, NY 10019

About the Event: The New York City Regional Innovation Network (NYCRIN) is a highly interactive innovation and entrepreneurship consortium of over 25 prominent universities in Connecticut, New Jersey, New York, and Pennsylvania. As a Node within the National Science Foundation Innovation Corps (I-Corps) program, the goal is to build and leverage the network to improve the innovation ecosystem and academic-based startup success in the NYCRIN region. This event is an opportunity to meet the NYCRIN leadership team, learn about the node objectives and plans, find out more about the I-Corps program and benefits, and network with the 25+ universities within our node. Attendees will learn how their institutions can take advantage of our growing entrepreneurial ecosystem and how they can benefit by collaborating with neighboring universities.

Schedule:
9:30-10:00: Arrival
10:00-10:15: Welcome
10:15-10:45: NYCRIN State of the Node
10:45-11:15: I-Corps 101
11:15-12:00: I-Corps Success Stories
12:00-1:00: Poster Session / Lunch
1:00-2:30: Concurrent Workshops
• Leveraging Lean Launchpad for Your Researchers
• How to Best Promote I-Corps on Your Campus and Best Practices for Building Teams & Finding Mentors
• Lean Workbench for Creating and Tracking Startup Metrics that Matter
2:30-3:30: Networking Reception
I&E Requirements

- I&E Summer Scholars - Expected Outcomes of Program
  - 250 word Summary of project – Due July 18th
  - 2-Min Video – Due July 18th
  - Poster – Due August 8th
  - Final Report – or accepted substitute – August 8th
# Poster Template

For I&E Summer Scholars & Stevens Scholars

- 34” x 48” Large
- Poster Session - Fall 2014
- Guest Speaker & Outside Guests

<table>
<thead>
<tr>
<th>Project Title</th>
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<tbody>
<tr>
<td>Student Name, Graduation Year, Major</td>
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<tr>
<td>Advisor’s Name/Department</td>
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<table>
<thead>
<tr>
<th>Introduction</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Box 1</td>
<td>Box 3</td>
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<tr>
<td>Feel Free to change box headings and sizes</td>
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<table>
<thead>
<tr>
<th>Experiment (?)</th>
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<td>Box 2</td>
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<tr>
<th>Conclusion</th>
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<tr>
<td>Box 4</td>
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</table>
Spell Check: Spell check all figures and images too!

Images: Start collecting images now of your work – a photo can explain better than words sometimes, a graph, a table, a chart, etc.

Audience: Who is the audience of this poster session? Will they be an expert in my area? The event is a collection for different majors, all about what we do here at Stevens!

Subject Matter: Think of the bigger picture – how does this fit in, to the overall research mission? Fight Cancer, Teach Children Better.
  • Novel / innovative features of research – the “so-what” or the “who-cares”
  • Potential commercial application or impact of research
**ABSTRACT**

Immersive virtual environments (IVEs) are common in research and game design, allowing for a high level of detail. However, exploring virtual environments can be challenging, especially for non-experts. This project aimed to create an immersive virtual environment that provides a high level of detail and engagement by utilizing a gesture-based interface.

**HOW IT WORKS**

In this project, we used the Xbox Kinect to create a gesture-based interface that allows users to navigate through a virtual environment. The Kinect sensor captures the user's hand movements and translates them into commands that control the virtual environment.

**FUTURE**

In the future, we plan to expand upon the gesture-based interface to include more complex interactions, such as selection and manipulation of objects within the virtual environment.

**POSTER EXAMPLES**

**HDACIs (Histone Deacetylase Inhibitors)**

**Student Name**

Dr. XX, and XX

**Introduction**

HDACIs (Histone Deacetylase Inhibitors) are a class of drugs that are used to treat cancer. They work by inhibiting the activity of HDACs, which are enzymes that remove acetyl groups from histone proteins, leading to the deacetylation of histones and the subsequent condensation of chromatin. This can result in the inhibition of gene expression and cell proliferation.

In order for cells to divide, they must replicate their DNA, and in order for this to happen, the chromatins must detach from the histone. What HDACIs do is prevent replication of cells by not allowing histone and chromatin to detach. By doing this, cancer cells are unable to grow and spread throughout the body. TSA (trichostatin A) is an HDCAI that does this as well as activate P27 and P53. What these proteins do is activate apoptosis which is a process in which the cell kills itself, in my case, specifically cancer cells.

**Experiment**

For my experiment, I started off by growing cancer cell cultures in four different plates. The plates were divided into 17, N-17 with TSA, WT, and WT with TSA. The N-17 and WT are different types of cancer cells, which act as my control. Once the cell lines were grown, they were prepared into samples by using a technique called BCA Protein Assay. This technique allows me to prepare these cells to be analyzed in a technique called Western Blot. In this technique the cells are run in a gel where the proteins in the cell migrate depending on their molecular weight.

The samples or then transferred on a membrane where they can be bound with specific antibodies that bind to proteins of interest, which in this case are P27 and P53. After placing primary and secondary antibodies on the membrane a picture was taken of the membrane that showed different bands that relate to the concentration to protein in the sample.

**Results**

After I took the picture and analyzed the data, I noticed that the two lanes containing the samples with TSA had very dark bands compared to the control lanes. What this means is that the concentration of the proteins, specifically P27 and P53, which was determined by their molecular weights, are much higher. The higher the concentration of P27 and P53 the better because they force cancer kills to kill themselves in a process known as apoptosis. The results are shown in the pictures.
Introduction

There is need to develop surfaces having nano or micro structure that can reduce or even eliminate problematic ice accumulation during exposure to winter weather conditions. To aid in this effort, apparatus has been constructed inside a refrigerated wind tunnel both to form ice on different types of surfaces and to gather data on the strength of its adhesion.

Design and Development

The first hardware stage has a multiple sample mount for icing a variety of surface specimens simultaneously. It can be positioned to any x-y-z location and sloping angle of attack within the cold/moist airstream. The second stage is a centrifuge used to quantitate the shear force required to shed ice from a sample mounted on its rotating arm.

Functions are performed uninterrupted in a dedicated environment that maintains sample integrity throughout testing.

Large throughput and associated high efficiency are unique benefits of this experimental system.

Conclusion

A test system has been established for the systematic study of ice accumulation and its surface adhesion. This is another step along the path to developing viable anti-icing surfaces.

Results

Each system component performed as intended during preliminary operation under actual icing conditions. Sample transfer between stages of the apparatus was smooth and fast, with little heat influx through the briefly opened door of the wind tunnel’s experimental chamber.

The centrifuge operates vibration free up to approximately 3000 RPM, which is sufficient for shaking out of ice adhesion on superhydrophobic surfaces.

Techniques

Mammalian Cell Culture and Lysis Procedures: A line of H4 cells are grown and cultivated through centrifugation. The resulting pellets are frozen, thawed, and placed in tissue buffers which contain detergent and protease and phosphatase inhibitors in order to extract the membrane.

Affinity Purification of Antibodies: Serum that was collected from rabbits was subjected to phosphorylated Nup 180 to create immune antibodies. These antibodies are then isolated from the serum by binding to their specific antigen on the microbeads membrane and further purified through acid washes. The antibodies are then used as probes for the specific antibody in the SPR.

Immuno precipitation and cell cycle synchronization: Immuno precipitation (IP) was performed as previously described with some modifications, namely, the addition of phosphatase inhibitors. 10 mM sodium Vanadate, phosphate cocktail inhibitor (10 mM sodium orthovanadate, polyvinyl alcohol, and protein kinase-C inhibitors) were used to ensure that the antibodies were specific for the phosphorylated epitope. The immune complex was then analyzed by SDS-PAGE and transferred to a nitrocellulose membrane. The membrane was incubated with anti-phospho antibody (Cell signaling, Danvers, MA) and visualized by silver staining (SilverQuest, Pierce) or by zymography (Bio-Rad) for Nup 180 analysis.24 Nup 180 cells, grown in Chemi-Phast (Invitrogen) with 10% FBS, peroxide, and staurosporine, were synchronized using a double thymidine block-24. Progression through the cell cycle was monitored using an anti-phospho antibody (Cell signaling, Danvers, MA) and visualized by silver staining (SilverQuest, Pierce) or by zymography (Bio-Rad).

Conclusions

This experiment returned purified antibodies against Nup 180 phosphorylated at serine 1127. Nup 96 phosphorylated at serine 135 and Nup 98 phosphorylated at serine 353 isolated from rabbit serum. The antibodies were then used to immunoprecipitate the protein at varying stages of the mitotic cycle.

The results from the researchers involved in this work to further our understanding of the Nuclear Pore Complex (NPC). When mutations occur in specific Nups, the pore structure can be transformed allowing for undesired transmembrane across the pore. These mutations can lead to diseases of the cell such as leukemia, premature aging, heart disease, and cancer of the liver. Once antibodies against the specific Nupa are isolated, it is anticipated that they can be used as disease markers for diagnosis and prognosis of patients. Ideally, the antibodies would detect early diseased states, therefore increasing the value of each antibody that is developed.
• Yearbook Summary - 150 word maximum

• Key points to consider:
  • Who is the audience of this yearbook? (Explain to your grandma or a 7 year old child!)
  • This year book is a collection for different majors, all about what we do here at Stevens!
  • Think of 1 sentence to describe your project
  • Think of the bigger picture – how does this fit in, to the overall research mission? Fight Cancer, Teach Children Better,
  • Novel / innovative features of research – the “so-what”?
  • Potential commercial application or impact of research
The goal of this project is to advance the design of surfaces for aircraft and wind turbines to reduce the accumulation of aerodynamic robbing ice droplets upon them when subject to cold and moist operating conditions. Promising are superhydrophobic materials. They have surface texture that greatly suppresses wettability. Fabricated to possess three dimensional character, such a surface traps air between its deep, narrow, and closely spaced micro structures to create an interface that minimizes the contact area with an adjacent liquid. In an effort to study anti-icing properties that accompany superhydrophobicity, apparatus has been constructed within a refrigerated wind tunnel both to form surface frost on superhydrophobic planar samples and to gather data on the shear force needed to shed it.
Example-Hydrophobic Materials

- Grammatical/Structural problems
  - There are several spelling errors and grammatical errors.
  - Read your work out loud to yourself & proof-read
  - Have your advisor read it before you send it to me
  - Keep the tense & narrative the same

- Content Problems
  - Why do you want to study this?
  - How many of these wind turbines are in use?
  - What is your contribution to the project?
  - Too much technical jargon?
  - Why Shear force?? Etc.
Graphene is a 2D layer of sp3 bonded carbon atoms. Due to its interesting electrical properties it may serve as an alternative to silicon. Despite a wide range of applications the major obstacle is producing large areas of high quality graphene. Pristine samples currently may only be produced by mechanical exfoliation, an unpractical method for large scale production. Chemical vapor deposition on substrates such as copper shows promising results for large area growth. By tuning the growth via the various gas flow rates large areas of high quality graphene may be produced. My research involves tuning this process, as well as transferring the graphene onto various substrates. This work will continue into other projects, such as creating a band gap in graphene and creating various devices that will hopefully be patented.
Submission

Yearbook Summary

• Submit online – http://www.stevens.edu/provost/oie/2013Yearbook

• Get comments/review

• Resubmit online

• 2013 & 2012 Yearbook – Available Online

• http://www.stevens.edu/provost/sites/default/files/I%26E_2012_Yearbook.pdf
Office of Innovation and Entrepreneurship

VISION

The Office of Innovation and Entrepreneurship (OIE) seeks to redefine the traditional university-industry technology transfer process by creating an unconventional entrepreneurial solution -- the Academic-Innovation-Transfer process. The key to success is the establishment of an open system in which competent partners with diverse backgrounds combine their complementary expertise to create technological innovations that lead to successful technology transfer ventures. Such key partnerships include those between faculty, students, entrepreneurs, venture capitalists and investors, industry partners, and representatives of government entities and regulatory agencies. The vision of the OIE is to:

Achieve a global recognition of Stevens as a premier technological institute of academic entrepreneurs.

MISSION

- About OIE
  - Objectives
  - Functions & Responsibilities
  - Visit Us
- Programs & Scholarships
  - OIE Programs & Events
  - OIE Academics
  - Thomas H. Scholl Lecture by Visiting Entrepreneurs
- People
  - OIE Office
  - Meet the Vice Provost
- Faculty Support
  - Forms & Agreements
  - Policies & Procedures
- Inventors Handbook
  - Overview
  - Patents
  - Inventions
  - Protection
  - Notebook
  - IP Process
- Funding Programs
- Technology Transfer
  - Patent Portfolio
  - Licensing
- Programs & Events
  - Learn More
- OIE Events
  - No events at this time
- OIE News
  - Innovation Expo
OIE Academic Programs

Stevens offers the following opportunities and awards to further Entrepreneurship for students.

INNOVATION & ENTREPRENEURSHIP (I&E) UNDERGRADUATE SUMMER RESEARCH PROGRAM

Undergraduate students engage in research, innovative design and/or business projects for a period of ten weeks under the active supervision of a Stevens Faculty member.

Submission Opens March 10th!!!

Application Information

- Announcements - 2014
- Guidelines - 2014
- Projects - 2014

*NEW* STUDENT PROPOSAL SUBMISSION PROCESS

- Once advisors have been identified, candidates should prepare the information required for the online submissions process with their faculty advisors.
- Applicants must submit online via the online submission form.
- PDF Documents Required:
  - Proposal (max 1 page) Required – DOWNLOAD TEMPLATE
  - Budget Proposal with Justification (max 1 page) Optional – DOWNLOAD TEMPLATE
  - Resume (max 1 page) Required
  - Photocopy with Student D Required
  - Advisor Signature Form – DOWNLOAD TEMPLATE

Student proposals can be submitted between dates, 10 March - 11 April 2014.

The deadline for submitting a proposal is 5:00PM 11 April 2014.
2013 Yearbook Submission Form

Student First Name: *

Student Last Name: *

Student E-mail Address: *

Advisor Name(s): *

Project Department: *

Student Major: *

Student Graduation Year: *

Research Project Title: *

Research Project Summary: *

Please enter 150 words or less.

Submit
Video of Project

- Videos should be 1-2 minutes long
- Videos should clearly state the IMPORTANCE of your research
- Similar to the summary, we want the big picture, your contribution, as well as the “so-what” or the “who-cares”
- You can use this video on your linked in page, and as part of your resume!
- Must have a title page/image, etc. Your name, your advisor’s name, your department, your project title
- Must include the Stevens Logo
- See Branding Website- http://www.stevens.edu/sit/about/branding-identity
Video Examples

Julian Chaves, Visual Arts & Technology & Michelle Little, Engineering Management

Sharon Rooker, Mechanical Engineering (webcampus room for interviews)

Matthew Bombard & William Calhoun, Financial Engineering
Tips for Shooting a Video

Check files: make sure you can shoot and download the video. Check if the necessary space is available.

Audio/Video check: clean the lens, record a sample video. Examine the audio/video quality. This will be useful for determining how loud the speaker should talk.

Hold your shots: having extra video content is useful in the editing process. It is always better to overshoot than to undershoot.

Keep the video steady: excessive zooming, shaking, and panning (moving the camera side to side) is distracting. Make camera movements slow and smooth.

Minimize noise: don’t breath heavily while recording, shoot in areas with minimal background noise.

Remain zoomed out: zooming in will magnify shaking and unwanted camera motion. Instead, move closer to the target for a closer shot.
Tips for Shooting a Video

Avoid backlight: when shooting during the day, keep the sun behind the camera. The best times to shoot are early and late in the day. bright midday sun makes the shot look washed out.

Use a tripod: this helps keep shots steady.

When interviewing: leave some headroom above the persons head. The bottom of the frame should be around the third and fourth buttons on a standard dress shirt. This leaves adequate room for editing a title for the speaker.

Edit Content: Decide on content, and script before shooting, ask people to review.

Set the stage: Interview advisors, potential costumers, graduate students, etc.
- **Videolicious** – FREE! Can make videos up to 1 minute - [https://videolicious.com](https://videolicious.com)
- **Vimeo** - [https://vimeo.com/](https://vimeo.com/)
- **New Nikon Camera 3200** - can borrow from our office – probably has video features (2 days at a time)
- **Flip Video Cam & Stand** – can borrow from our office (2 days at a time)
- **Stevens Branding Guide** - [http://www.stevens.edu/sit/about/branding-identity](http://www.stevens.edu/sit/about/branding-identity)
- **Stevens Webcampus** – green room
• You all need to sign up for a photo session time
• Please wear lab coats or professional attire
• Do not wear anything with a logo, as we cannot use the photo!!!
• Please coordinate with your lab mates/partners and advisors
  • We want some photos of you alone, some with your group
  • We want some photos of your prototype, equipment, testing, etc.

Photographer Information: Julius Pavlov  x8987
E-mail:  jpvavlov@stevens.edu

DO NOT MISS YOUR APPOINTMENT
I&E Photo Session Information

Please be available the entire time slot

If there are multiple students working in the same lab location, please coordinate your time block, so that the photographer has to visit only once.

<table>
<thead>
<tr>
<th>Students Name</th>
<th>Location</th>
<th>Cell Phone</th>
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<tbody>
<tr>
<td>July 1st (Monday)</td>
<td>1</td>
<td></td>
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<tr>
<td>1 to 4 time block</td>
<td>2</td>
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<tr>
<td>July 2nd (Tuesday)</td>
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<td>1 to 4 time block</td>
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