IPRO 321: Establishing an Undergraduate Research Journal
What IIT does have:
• Office of Undergraduate Research
• ResearchWeb
• More than 29 research centers

“As an undergraduate, you’ll have the opportunity to participate in faculty-led research alongside both undergraduate and graduate student — research that contributes important advances in a variety of fields. You might have the opportunity to present your findings at a national conference or you might see your name published in a scientific journal.”
Objectives

• Create editorial structure and peer-review process
• Design a print journal
• Develop a web site
• Receive IIT's official recognition
• Obtain stakeholder support
• Recruit students
Introduction

Team

Problem Solving & Project Work

Achievements

Team Leaders

Meagan Sarratt

Ciaran Shaughnessy

Edit/Design

Saul Moreno

Chris Roberts

Bertha Vandegrift

Programming

Mike Dvorscak

Donald Taylor

Andrew Yates

Stakeholder

Sapna Desai

Scott Mochinski

Sophia Pilipchuk

Adviser: Professor Robert Ellis
Team Dynamics

- Project plan developed at beginning of the semester
- Tasks assigned at meetings
- Entire team briefed by each sub-team at meetings
- Team goals and values aligned
- Continuous collaboration via meeting minutes/Google Docs
Fall 2009

ILLINOIS TECH ResearchWeb

- My page
- Project
- Search
- Tools

Research Web Screenshot
Spring 2010

Welcome to ResearchWeb

ResearchWeb integrates and connects the current undergraduate students at Illinois Institute of Technology with colleagues, faculty members and resources. It facilitates the performance of undergraduate research at the Illinois Institute of Technology. It encourages undergraduates to get more involved in research.

- Guide undergraduate students in their first attempts to be part of a research team.
- Increase communication of research opportunities to IIT students.
- Ease the undergraduate research hiring process for professors.
- Enhance collaboration between current undergraduate researchers with colleagues working in different projects or laboratories.
- Disseminate information about upcoming research conferences and competitions.
- Enhance communication between current undergraduate researchers and undergraduates not involved in research who are interested in specific research projects.
- Facilitate the creation of undergraduate research journals.

DATES

- 2010-11-28 - Radiology Society of North America
- 2011-01-05 - 2011 Joint Mathematics Meeting
- 2011-01-26 - Principles of Programming Language
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Edit & Design Team

Researched:
• Editorial standards
• Submission guidelines
• Peer-review processes
• Print journal designs
• Web site layouts
Edit & Design Team

Peer-review Process

Staff Structure

- Business Manager
  - Editor in Chief
    - Editors
    - Copy Editors
    - Section Editors
    - Layout Editors
    - Webmaster
    - Peer Reviewers

Introduction          Team
Problem Solving & Project Work
Achievements
Stakeholder Team

Researched:
- Common undergraduate journal practices
- University administration involvement
- Student interest

![Student Interest in Reading Journal](chart.png)

- Yes (144)
- No (26)

(170 students surveyed)
Stakeholder Team

Engaged:
• Research faculty
• Student staff of other journals
• Student organization leaders
• IIT officials
• Stakeholders
• Potential faculty advisors

“My research experience has allowed me to gain broader insight into my chosen field of study and has given me the opportunity to better understand and apply the skills I learn in the classroom.”
– Sophia Pilipchuk, Biomedical Engineering
Programming Team

Researched
• Relevant technologies

• Web site usability

• myiit compatibility

• ResearchWeb integration

Ruby Programming Language
Programming Team

Developed
- Model
- Controller
- View

Model-View-Controller Design

class SectionEditor
  has_one :bio
  has_many :drafts

<html>
<head>
<title>URJiit</title>
<meta charset="utf-8"/>
</head>
</html>
Finite-state machine modeling editorial process
BAX-induced cell death may not require interleukin 1 beta-converting enzyme-like proteases

Yong J. Ochoa DT, Konnoyo M, Li

Expression of BAX, without another death stimulus, proved sufficient to induce a common pathway of apoptosis. This included the activation of interleukin 1 beta-converting enzyme (ICE)-like proteases with cleavage of the endogenous substrates poly(ADP ribose) polymerase and D4-GDI (GDP dissociation inhibitor for the rho family), as well as the fluorogenic peptide DEVD-afc. The inhibitor benzyl oxy carbonyl-Val- Ala-Asp-fluoromethyl ketone (zVAD-fmk) successfully blocked this protease activity and prevented FAS-induced death but not BAX-induced death. Blocking ICE-like protease activity prevented the cleavage of nuclear and cytosolic substrates and the DNA degradation that followed BAX induction. However, the fall in mitochondrial membrane potential, production of reactive oxygen species, cytoplasmic vacuolation, and plasma membrane permeability that are downstream of BAX still occurred. Thus, BAX-induced alterations in mitochondrial function and subsequent cell death do not apparently require the known ICE-like proteases.

IIT Undergraduate Research Journal

The Illinois Institute of Technology's new journal to shine a light on undergraduate research

News

12-02-2010 Accepting staff position applications
11-29-2010 URJIIT receives IIT's official recognition

ResearchWeb Opportunities

ResearchWeb connects undergraduate students at the Illinois Institute of Technology with colleagues, faculty members, and resources. It facilitates the performance of undergraduate research at the IIT. ResearchWeb also encourages undergraduates to get more involved in research.
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Announcements

Federal Work Study (FWS) funds are now available through the Office of Undergraduate Research (OUR) to support undergraduate research in the Fall 2010-Spring 2011 academic year. Positions must be posted and applied to here on ResearchWeb. For more information see the announcement. FWS funds require a 25% match, and the OUR has some matching funds available through this application.

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http://www.urjiit.edu
Methods
• Brainstorming
• Iterative prototyping
• Surveying
• Strategic planning
• Unit testing
• User-centered design
Benefits

- Students gain experience reviewing and writing
- Students are rewarded for conducting research
- IIT can showcase its research programs and opportunities
Impact

- Encourage and reward research across all disciplines
- Improve the undergraduate research environment at IIT

Risk

- Lack of submissions
- Lack of support from students and/or the university

Challenges

- Developing journal/web site distinctiveness
- Maintaining university support
- Recruiting students to staff the journal
- Recruiting peer reviewers
Ethical Considerations

• Personal data privacy
• Team conflict resolution
• Submission confidentiality
• Peer review process
• Author education
• Conflict of interest
Innovation

- URJiit web site integrated with ResearchWeb
- IPRO inclusion
- Video and poster submissions
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+ Officially recognized student organization
Future of URJiit

Learning to Select Robotic Grasps Using Vision on the Stanford Artificial Intelligence Robot
Lawson Wang

Grasping is an essential ability for manipulation for robots such as the Stanford Artificial Intelligence Robot (STAIR) to be useful in real-world environments. They must know how to grasp. While this is a well-studied problem in the case when a full 3-D model of the target object is known, it is difficult for real-world scenarios, where the robot must rely on limited perception to model the scenario. This paper presents a novel approach for grasping that only uses local 3-D information acquired from sensors. Given data of the environment from 3-D sensors, our algorithm generates armpit configurations that may potentially achieve a good grasp. Then, computer features capture desirable properties of potential grasps based on sensor data, which our learning algorithm then uses to predict how likely the grasp will be successful. This algorithm was tested on STAIR in real-world grasping of single objects and in grasping with cluttered environments. Significant improvements in both cases were found.

IIT UNDERGRADUATE RESEARCH JOURNAL
The Illinois Institute of Technology's first Journal to shine a light to the development and collaboration of Undergraduate research

NEWS!
06.17.10  SUBMISSIONS ARE NOW BEING ACCEPTED
06.20.10  SUBMISSIONS ARE NOW BEING ACCEPTED
06.30.10  OTHER

THE FIRST RESEARCH JOURNAL AT THE PALM OF YOUR HANDS!
Share information! This algorithm was tested on STAIR in real-world grasping of single objects and in cluttered environments. Significant improvements in both cases were found.

Future of URJiit

IPRO 321

Achievements

Undergraduate Research Journal of Illinois Institute of Technology

Architecture — Business — Engineering — Psychology — Science & Letters — Technology

CSL Awards Summer Undergrad Research Stipends

The Soviet Union and the Six-Day War

Economic & Political Results of Cuts to Formlab Funding

Advanced Engineering & Manufacturing Program

IPROs Go Green!

Proteins of Plathypus Venom
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Paul Pettigrew, Studio Assoc. Prof., Architecture
Stephen Sennot, Assist. Dean of Academic Affairs, Architecture
Charles Uth, Senior Engineering Librarian, Galvin Library
Carol DeBiak, Science/Mathematics Librarian, Galvin Library

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Natacha DePaola, Dean, Armour College of Engineering
Russell Betts, Dean, College of Science and Letters
Harvey Kahalas, Dean, Stuart School of Business
Ellen Mitchell, Dean, Institute of Psychology