ResearchLink

*Taking the search out of Undergraduate Research*

Feasibility Presentation
March 16, 2016
CS 410
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Ms. Brunelle serves as an Assistant Chair of the Old Dominion University Computer Science department and is the Chief Departmental Advisor. She is married to a computer scientist and has three sons that are working toward PhDs in Computer Science. She is also self-taught artist and proudly shares photos of her art with her students through her website. Ms. Brunelle recently welcomed her first grandchild into the world, filling her universe with joy.
Dr. Jing He is an Associate Professor in the Computer Science Department at Old Dominion University. She has a Ph.D. in Structural & Computational Biology & Molecular Biophysics, a M.S. in Applied Mathematics, & B.S. in Applied Mathematics. Dr. He served as a co-chair for the Computational Structural Bioinformatics Workshop in 2014.
The Team

Asim Amjad
Kevin Ashley
Kitt Parker
John Raha
Matthew Redenius
Dinah Watkins

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What will be presented?

- Facts & Figures
- Problem
- Current Process
- Future Process
- What Is ResearchLink?
- Competition
- Benefits
More than Studying

Prospective graduate students need more than lectures and textbooks. To fully prepare themselves for the rigorous demands of graduate school, students need to participate in undergraduate research.
The Problem

Undergraduate research opportunities are not effectively communicated to and from intended stakeholders (faculty, students, external organizations).
Computer Science Graduate Students

- **2014:**
  - 2,430 ODU Graduate applicants
  - 796 Graduate enrollments
  - 139 Computer Science Graduate students

- **2020 STEM Jobs**
  - Computer Researcher represents 1% of Computing jobs

[ODU Factbook]
Data Related to Problem

- Undergraduate research demands integration into curriculum programs
- Encourage effective/optimized collaboration
- Undergraduate research, benefits for all stakeholders
- Multiple obstacles to undergraduate research exist
Contribution & Trends for Global Research

2014 Contribution to Global Research

Trend Towards Research
Research & Development Budget & Growth Rates

**Budget for 2015**

<table>
<thead>
<tr>
<th>Agency</th>
<th>Billions $</th>
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<tbody>
<tr>
<td>NASA</td>
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<tr>
<td>NSF</td>
<td>5.7</td>
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<tr>
<td>STEM</td>
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**2015 Growth Rate**

<table>
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<tr>
<th>Agency</th>
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<td>NASA</td>
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<tr>
<td>STEM</td>
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The Current Process

- Research opportunity becomes available
- External Research Coordinator contacts ODU
- ODU contacts students via...
- Word of mouth
- Email
- Bulletin posted on faculty door
- Students contact ODU Research Coordinator

*Miscommunication of opportunity information to correct department
*Outdated delivery method of opportunity information
*Miscommunication or misunderstanding of opportunity information
*Deleted
*Forgotten
*Loss of bulletin before follow up
Characteristics of the Problem

- Outdated delivery methods (bulletins)
- Lost or forgotten emails
- Word of mouth miscommunication and misunderstanding
- Lack of notifications
- Missed opportunities
The Customer

• Universities
  • Old Dominion University (Case Study)
  • Other Universities
  • Community Colleges

• Funding Agencies
  • National Science Foundation (NSF)
  • National Institute of Health (NIH)
  • National Aeronautics and Space Administration (NASA)
Solution Goal

A communication system to provide information to all stakeholders involved in undergraduate research. Solution will distribute research opportunities to the proper end user based on department, faculty requests and other interests.
The Solution

Research Link
Old Dominion University

Taking the search out of Undergraduate Research
Modified Process

Research opportunity becomes available from any affiliated organization

Organization has a profile and posts opportunity directly

Provides a link between organizations and interested parties

User Friendly Interface

Internal Support

Profiles can be created allowing for customized interaction with ResearchLink

Administration

Students

Faculty
Characteristics of the Solution

- Establish direct communication between organizations and target university
- Notification system for all stakeholders
- Trending of organizations and past opportunities
Objectives to Achieve the Solution

- Customizable Profiles (Organizations, Faculty & Students)
- Automated Filtering
  - Based on profile
- Time-line Management (expiration of posts)
- Department level profiles
- Interdisciplinary feature to facilitate collaboration between departments
- Student research idea proposal submission
- Data Mining
Functional Components

- **ResearchLink Portal**
  - Automatic student registration
  - Mobile friendly
  - User/faculty/company Profiles
  - Authorized users and visitors

- **Database of opportunities**
  - Searchable
  - Student and faculty proposals
  - Research related internship opportunities
  - Internal and external research opportunities
# Competition Matrix

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<tr>
<th>Characteristics</th>
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<th>Berkeley</th>
<th>MIT</th>
<th>Pivot</th>
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<td>✗</td>
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How Does the Student Benefit?

• **Always Informed**
  - Automated notifications of new opportunities via email
  - Emails include links to immediately apply for research position
  - Alerts specific to student’s major
  - Opportunities are updated and sent out in real time

• **Centralized Location**
  - Application process is no longer scattered
  - One website to learn about and apply for undergraduate research
How does the University Benefit?

• Helps put the University on the map
  • There’s a reason big name Universities like Harvard, UCLA, and Yale all have large portions of their website dedicated to undergraduate research
  • ResearchLink will consolidate the school’s existing opportunities into an easy to understand portal
  • This makes potential graduate students far more likely to apply
Benefits for Research Organizations

• Connectivity
  • Organizations can make profiles to ensure their opportunities are always visible to the public
  • With simple to use filters, clients can post about research positions and know it goes to qualified, interested students
  • Clients can also browse a list of students who have completed undergraduate research to aid in finding potential future employees
Questions
References

• Computer Science Undergraduate Degree Program. *Old Dominion University Computer Science Department.*