A Summer Research Experience in Robotics

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The Basics

NSF REU Site

Started in 2014
  - just got recommended for 3-year renewal

10 funded students
  - with ~10 others, from other funding
  - 65 students over 3 years (34 on site)
The Basics

~500 applications over 3 years
- 6% acceptance rate

Stipend, room, food, and travel
- roughly $8,000 per student

Resulted in contributions to 12 (!) peer-reviewed papers in first 2 years
The Basics

Four students have returned to OSU as graduate students
- and one undergrad transferred
Oregon State Robotics
Culture, Mentoring, and Space

Add REU students to an existing project
- built-in mentoring and purpose

Facilitate to dense network of near-peer mentors
Projects

Build REU projects out from existing projects
- nothing on the critical path

Double up REU students on projects
- and have extra work in reserve

Build in incremental goals
- something to show, every week
Structure and Process

Project pitches
- initial, mid-REU, final
- get feedback and practice pitching

Have the students come up with timeline
- and help them adjust it
Structure and Process

Focus on teaching that research is a process
- and often a slow one

Failure is always an option
- and is expected

Give lots of opportunities for peer critique
- teach how to give and take feedback
Grad Student Skills

Teach them the basics of
- literature review
- critiquing
- documentation

Condense what you learned into a presentation
- for me, its time management
- emphasize that these things are useful
Grad School Expectations

Most students don’t know what grad school is
  - expose the process
  - make sure they understand what it’s about

Help them apply to grad school
  - fill out your application (or OSU’s one)
  - be honest about what matters
## Timeline

<table>
<thead>
<tr>
<th>Wk</th>
<th>Topic</th>
<th>Activity</th>
<th>Assignment</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Defining a research project</td>
<td>Introductions, logistics</td>
<td>Project presentation</td>
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<tr>
<td>2</td>
<td>(No lecture)</td>
<td>Project presentations</td>
<td>Project timeline</td>
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<tr>
<td>3</td>
<td>Grad student skills and tools</td>
<td>SG Timeline evaluation</td>
<td>Project “elevator pitch”</td>
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<tr>
<td>4</td>
<td>Time management</td>
<td>Project “elevator pitches”</td>
<td>Banner posters</td>
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<tr>
<td>5</td>
<td>Critiquing technical work</td>
<td>SG Banner poster critique</td>
<td>Mid-project presentations</td>
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<td>6</td>
<td>Documenting your work</td>
<td>Mid-project presentations</td>
<td>Documentation draft</td>
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<td>7</td>
<td>Grad school, NSF GRFP application process</td>
<td>SG Documentation review</td>
<td>Application rough draft</td>
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<td>8</td>
<td>Designing a research poster</td>
<td>SG Grad student application</td>
<td>Poster draft</td>
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<td>9</td>
<td>Picking grad school, adviser Building</td>
<td>SG Poster review</td>
<td>Final presentation</td>
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<tr>
<td>10</td>
<td>professional network (No lecture)</td>
<td>Final presentations</td>
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What Did We Learn?

It’s a surprising amount of work

Coordinate your dates with other programs

Small parts of larger projects work well
  - define clear boundaries

Research Experiences for Undergraduates
  - they’re not grad students (yet)
Questions?

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