ADVISING & SUPERVISING STUDENTS

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ICSE’18 New Faculty Symposium
A little about me

• People Aspects of Software Engineering
  – Engineering Gender-Inclusive Software
  – End-User Software Engineering
  – Information Foraging by Developers

• Professional “high”s:

  “The moment that stood out for me: Dr. Burnett ... interested in working with me in the future.”

• Personal “high”s
GROWING YOUR RESEARCH STUDENTS
The Faculty Job & Your Students

• Woo hoo, you got a faculty job!
• **Tip #1:** Now you need research students.
  – **Tip #2:** And you need to start them growing.
• My path:
  – Taught a grad class on my topic.
  – Started reading group for credit → survey paper.
  – REUs too.
  – Recruited from the class/group.
• Action? (how many past this stage?)
Action plan: Get/grow (5 minutes)

• Pair up, make your plan on:
  – Grow: What you’re going to TEACH next to grow them
  • OR
  – Get: From where you’ll RECRUIT your next grad/REU.

• Reminders from “My path”:
  – Taught a grad class on my topic.
  – Started reading group for credit ➔ survey paper.
  – Recruited from the class/group.
Research Students’ Productivity (REUs & Grad students)

- **Tip #3**: Pay them!
  - $ or credits.
  - That way, they owe you, and must progress.

- **Tip #4**: They work for you.
  - Agenda, and assign from it.

- **Tip #5**: Pair them up!
  - Co-author, pair-program, etc.
  - They’ll learn more, stay more on track, sap less of your energy.
Action plan: Pay/assign/pair (5 min.)

• Talk about:
  – Pay: **What** are you going to pay them with?
    • OR
  – Agenda/projects: What are you going to **assign** next to manage your number of “threads”?
    • OR
  – Pair: How can you pair them to make your **students** better and your life more sane?
Research Students’ Productivity

- Tip #6: Transparency of expectations & progress.
  - How much/where will they work for you?
  - What papers will they co-author this year?
  - On what schedule? (They create it.)
  - Regularly: are they progressing on that schedule?
  - If not, how are they going to fix it?
  - Regularly: Are the other students on schedule?

- Tip #7: Cull the duds from your group!

- GenderMag tool+
- Papers count: Alannah
- ICSME '16?
  - David: 6
  - Will: 2
  - Charles: 4
  - Sruti: 5
  - Sean: 2
  - Bhargav: 2
  - Amber: 2-4
  - Shannon: 1-3
  - Chris: 4
  - Alannah: 2-4

- David-IFT paper in
- Tahmid’s paper of
- some VFT paper:
- ICSE'17 (deadline Aug)
  - ? a GenderMag paper
  - another Sruti/Shan:
- CHI'17 (deadline Sep)
  - ? a GenderMag paper

- Sean, Taylor, maybe others
  - first author. Peggy probably should send to FSE or ICS
  - Coke to CHI instead?)

- Help them with obstacles, but…
COMMUNICATIONS
TO STRETCH YOUR STUDENTS
Communications
(REUs, Grad students, Class students)

• **Tip #8**: To the “dud”:

  “How do you think it’s going?”

• Exercise (5 min.):
  – practice culling a dud.
Communications
(REUs, Grad students, Class students)

• **Tip #9**: When discouraged:
  – “The brain is a muscle.”
    • (with specific guidance)
  – “I’m stretching you.”
  – “This takes a long time. It took <x> forever to get here.”
  – “If you already knew how to do this stuff, why would you need me/school?”

• Practice (5 min.)
Communications
(REUs, Grad students, Class students)

• **Tip #10**: To the undiscovered great student:
  – “Have you ever considered grad school?”

“The moment that stood out for me: Dr. Burnett ... interested in working with me in the future.”
RESEARCH UNDERGRADS
Tip #11: Get REU-in-a-box
www.ncwit.org/reubox

• Research Experience with Undergraduates.
• An In-a-box is a “kit”.
• This In-a-box supports:
  – Hands-on.
  – One-on-one research experience.
  – Guided by a faculty member.
    • With just the faculty member
    • Or in a small team (faculty member, graduate students, one or two REUs).
Section 1.3 Why important: To students and to CS/IT?

• Engagement:
  – Hands-on research engages students in their undergrad degree.

• “Trying it on”:
  – Helps students consider grad degrees & research.
  – Want the best students to consider all their options.

• Personal:
  – Helps *retain* and *recruit* women and underrepresented groups in CS/IT.

• Help with CS/IT diversity
“My research experience is the reason I’m here today.”
Section 1.4 Why should you? (Yes, even pre-tenure!)

• Productivity:
  – Get work done on your research agenda.

• Relationships with:
  – Tomorrow’s top researchers.
  – Pretrained grad students.

• Grant money!
  – NSF “broader impacts” points for your grants.
  – Financial support is available for REUs.
Section 2: Before the REU

Who will fund?
How much time?
What will we do?
How to find students?
Managing expectations?

See Section 2 of REU-In-A-Box!
Section 2.5-2.6, 6.3: Managing Expectations

Faculty:
Explain what research is.
Select a ‘right-sized’ project.
COMMUNICATE expectations early!
Plan how you want to structure the project.

Students:
With a research mentor whose interests match yours.
Research not as clearly defined as classroom problems.

SPEAK UP! If you don’t understand something, bring it up and discuss.
Section 3: During the REU

• Team building -
  – communication
  – accountability
  – group and professional skills

• Management challenges

See Section 3 of REU-In-A-Box!
Section 4: After the REU

• Post-REU self-assessment (student).

• Post-REU self-assessment (faculty).

• Leveraging the REU: next steps.
Sections 4.1, 6.8: Students Leveraging the REU

• Update their resumes!
  – REU experiences look great!
• Coauthor a paper or poster on their research.
  – eg, at a conference.
• They’re in a good position to apply for:
  – travel scholarships to conferences.
  – undergrad (or grad) scholarships/fellowships.
  – paid research opportunities at other locations.
• Think about grad schools.
Where are they now?
The “babies”

The “teens”

The “adults”
FINAL REMARKS
Help Your Students Soar!

• Students + professor = team!
• When one looks good, all look better!
• How:
  – Nominate for an award.
  – Place them in great internships
    • align with their career goals.
  – Make them try for opportunities.
• Make them be the best they can be.