UG Research Day: IIT Palakkad

Nitin Saxena
CSE, IIT Kanpur
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What’s UG Research?

- UG Education prepares you for the professional world.
- Doing courses, labs; giving assignments, quizzes, exams.
- Applying known techniques, to known problems.
- UG Research: Embarking on the unknown.

- UG Research: A desire to solve the unsolved!
Why UG Research?

- Unless you do assignments, you won’t learn a topic.
- Unless you do research, you would lose your curiosity to learn and invent.
- Research tells you the frontiers of an area.
- It inspires you to not only invent but also learn the old better!
Is Research hard?

- Doing something new, always seems hard.
- But, that’s the wrong question.
- Focus on your interest, and identify small open problems.

- You can’t solve big problems, before you solve small ones!
Communication gap between faculty and UG?

- There may seem a gap, due to the difference in expectations.
- Try meeting more, and working harder in your homework, to understand what the question is.
- As you get more familiar in an area, your language improves, and so does the communication!
Research as career?

● Every UG student should try his/her hands in a research project.
● However, research may not excite everyone at the same age.
● So, judge for yourself after you’ve done it.

● You should choose a career in which you’re excited about the work.
Encouraging research as career?

- For UG students who show a deeper interest in research:
  - Faculty should give project, and extra reading, options in course projects.
  - Faculty should involve them in active research projects.
  - Work towards a publication, or a product development.
My UG Research experiences.

- Started working on primality as BTP in July 2001.
- Read about the old results.
- Had tons of meetings discussing the ideas.
- Invented a lot of new directions, and concrete results.
- Wrote it up formally in reports; and presented multiple times.
- All properties came together in July 2002, to yield the historic “PRIMES is in P”!
Institutional support.

- Each course should have an (optional) advanced component.
  - Seminar, Survey, Project, Thesis, etc.
- Have dedicated “UGP” or Theses.
- Funds for travelling to conferences/workshops.
- Admit bright UG students to MT/PhD in the 4th year.
- Create research groups where Postdocs mentor PhDs, PhDs mentor MTs, MTs mentor BTs, BTs mentor Interns.
Courses, Surveys, Breadth-development

In-depth Projects; short- or long-term

Target problem-solving, publication, and product-development

Expand the scope of your Research exponentially!