

Advice on doing Projects

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Presentation Outline

- 1 Project Landscape
- 2 My Research
- 3 Current Projects
- 4 Advice on Choosing Mentors
- 5 Miscellaneous Details

Lecture Outline

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Seriously?

Curiosity You are just itching to know.
The best kind of starting point.
Usually ends up as hobby or a dream career.

Popularity The in-group effect and cool factor.
May be rewarded with a girl friend and/or a cool job.
Variations – teacher is cool, area is popular, looks good on CV.

Less Work Project is light – lighter than a normal course.
Beware of non-*A-projector* teachers.

Kinds of Projects

Hobby Small, reinvigorating; usually resource light. Start here, if possible.

Check Yourself Integrate, synthesize concepts learnt in more than one course. Pick an application as a starting point.
GSoC / Internship may be a nice choice here.

Product Idea Rigorously perform SRS, Modeling before Coding. Gather complimentary team and launch a startup.

DON'T TAKE FORMAL PROJECTS FOR THESE SCENARIOS.

Kinds of Projects

Reengineering A better version of existing software / algorithm / system. Sometimes even reimplementation.

Research Problem is known, but the solution isn't. Sometimes, even the problem isn't very clear. You learn most here.

APPROACH TEACHERS FOR THESE SCENARIOS.

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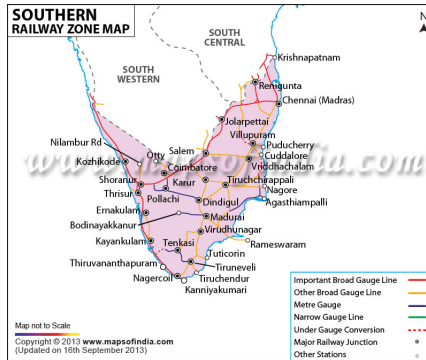
My Research

Networks-centric research

FSB Model for Networks A process view of large-scale networks (graphs).
My primary research area.

Computer Networks Design tools for measurement of computer networks.

FSB Model of Networks

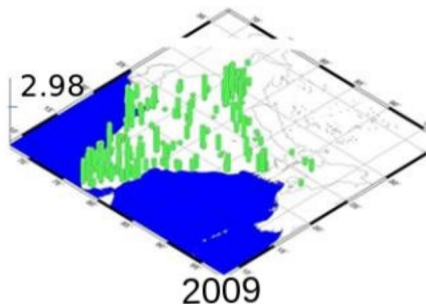


Interesting questions:

- How is this model applicable to transport and communication networks?
- How to make the network nodes follow reactive model of computation?

What do you mean by Measuring Computer Networks?

Broadband speeds across India



Interesting questions:

- Do I know about anomalies on my network / Internet? Can I account for them?
- How to enable scientific approach in network measurements?

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What are the Current Projects?

Autolab Automated and flexible evaluation of programming labs.

Ref: <https://github.com/prasadtalasila/JavaAutolab>

Coding platforms: node.js, Ansible, Docker

Desirable skills: OS, virtualization, network security

Active Students: Ankshit Jain (2015A7PS0006G)

What are the Current Projects?

TransportScheduler Implementation of FSB framework for public transit networks of India.

Ref:

<https://github.com/prasadtalasila/TransportScheduler>

Coding platforms: Elixir

Desirable skills: functional programming

Active Student: Suhas Shripad Hebbar
(2015A7PS0163G), Vedang Waradpande
(2015A7PS0028G)

What are the Current Projects?

BITS-Darshini Collaborative network measurement tool.

Ref: <https://github.com/prasadtalasila/BITS-Darshini>

Coding platforms: Java, Spring, ElasticSearch, Javascript

Desirable skills: Strong Java programming skills, ability to work with Java EE technologies

Active Student: Shilpa Raju (2015A7PS0095G)

What are the Current Projects?

IRCLogParser Analysis of IRC Chat histories for detecting communication patterns.
Ref: <https://github.com/prasadtalasila/IRCLogParser>
Coding platforms: Python2.7, networkx, igraph
Desirable skills: network science
Active Student: Rohit Kaushik (2015A7PS0115G)

MailingListParser Analysis of Mailing Lists for detecting communication patterns.
Ref: <https://github.com/prasadtalasila/MailingListParser>
Coding platforms: Python3, networkx, igraph, Boost Graph libraries
Desirable skills: network science
Active Student: Yash Pungaliya (2015A7PS0052G)

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Whom do I approach?

Typical process:

- 1 Identify one or more area(s) of interest first.
- 2 For reengineering / research projects:
 - Identify faculty/researcher working in the same area - anywhere on the planet.
- 3 For every other project:
 - Identify mentors (seniors, professionals etc) or collaborators.
- 4 Develop required competencies. Repeat steps (#2 – #3) if necessary.

Whom do I approach?

Things to take care of:

- 1 Make sure that you can adopt to mentors' style of work / quirks.
- 2 Work with someone whose judgement you respect.

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What is a Typical Project Timeline with Me?

0 – 4 months define problem, background preparation
(Informal Project)

6 months solve the problem, write software
(Formal Project)

3 months write a publication
(Formal/Informal Project)

Timeline is heavily instructor dependent.

FAQs

Q) What is the typical student profile of your project student?

Ans: Mostly a competent coder with knack for understanding research results. I look for students who enjoy software development.

Q) Can I do SOP/Reading Course under you?

Ans: Sorry, I don't offer these courses.

Q) I want to work on my idea/project. Can I come to you for advice?

Ans: By all means, welcome. You don't have to ask permission for this. You don't need to be my project student to do this.

FAQs

Q) I don't know if I am ready for a project with you. What should I do?

Ans: By all means come and have a word. I can tell you if there is an opening. You can also email me at tsrkp@goa.bits-pilani...

Q) I want to start of in a formal project. Can you skip the informal part in the beginning?

Ans: Informal period is the relaxed entry into a project. There are cases where students entered directly into a formal project. I don't recommend this route though.

Q) Do you have any other projects / can I work on a new project?

Ans: Sorry, right now, I am tied up with these projects. I can not open any new projects right now.

FAQs

Q) I want your recommendation letter? Do I need to do a project under you?

Ans: If you have done a course under me, you can have the recommendation letter. You don't need to do a project for the recommendation letter.

Q) I am interested in networking, but don't know where to start. Can you help me?

Ans: Take networking courses and electives. You can extend course projects of networking courses into full-blown projects.

Q) I am working on this project and am stuck? Can you help me?

Ans: By all means come in. I will try, but no guarantees of success.