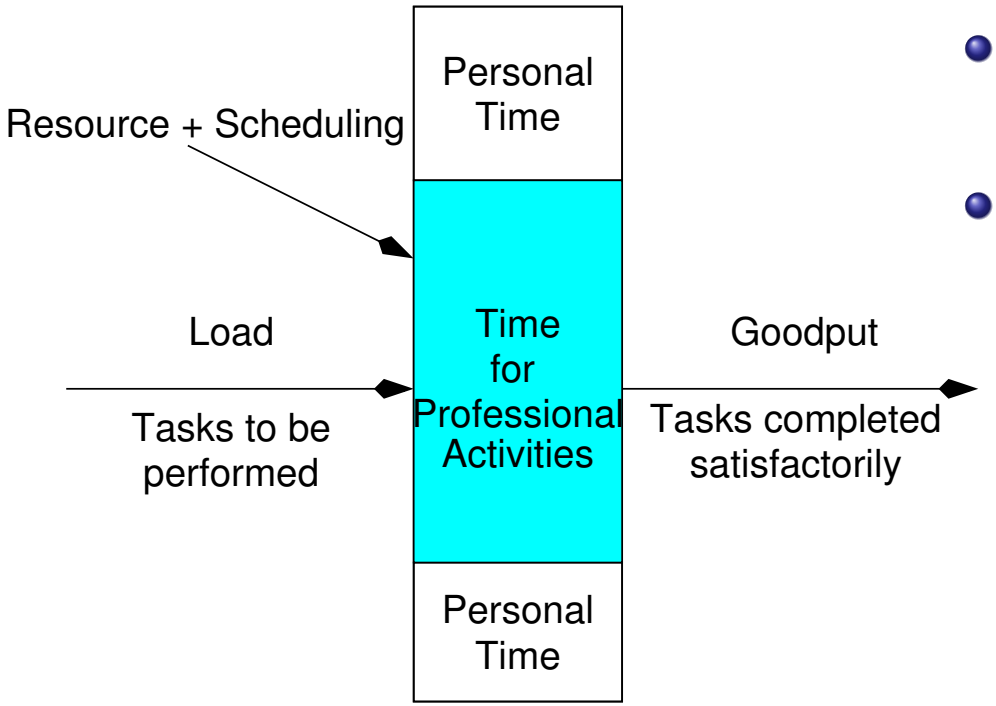
Time Management for the Young Researcher

Anurag Kumar

Department of Electrical Communication Engineering
Indian Institute of Science, Bangalore 560012, India

Resource Allocation and Scheduling Problem

- Much of networking research is about time management!

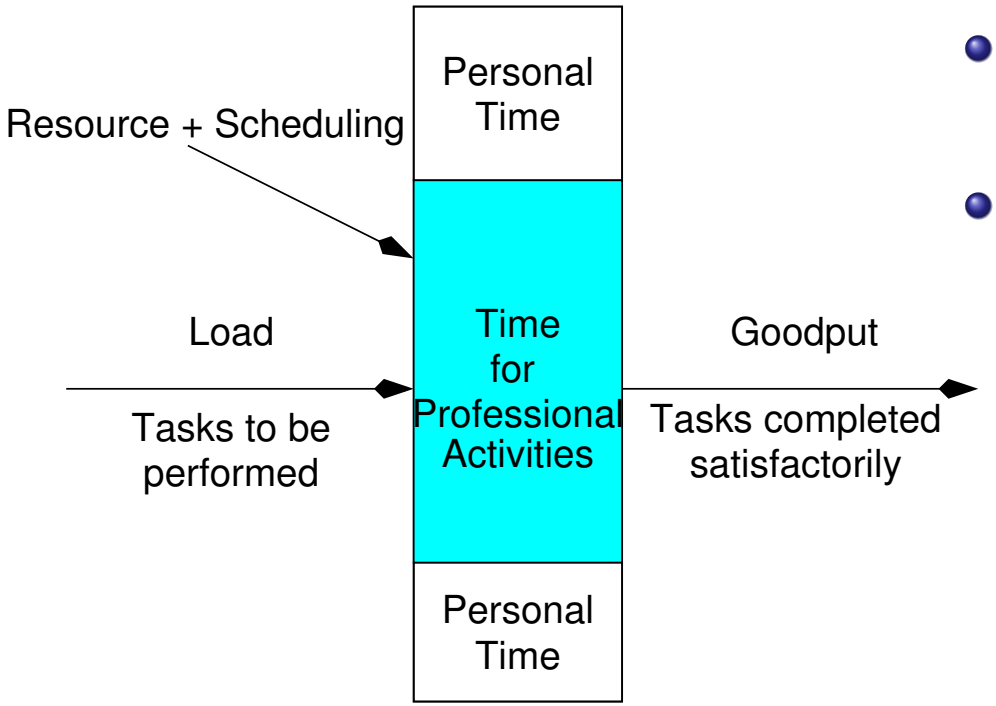


- Time is a resource that you allocate among your activities
- If you do not allocate enough of it to a particular activity, there is only so much of load that you can carry for that activity
  - Typically, personal load is fixed (except in emergencies)
  - Professional load depends on how much we want to accept

- Once time is allocated, the amount of load we can carry depends on how efficiently we process the tasks

Resource Allocation and Scheduling Problem

- Much of networking research is about time management!



- Time is a resource that you allocate among your activities
- If you do not allocate enough of it to a particular activity, there is only so much of load that you can carry for that activity
  - Typically, personal load is fixed (except in emergencies)
  - Professional load depends on how much we want to accept

- Once time is allocated, the amount of load we can carry depends on how efficiently we process the tasks

Scheduling Your Activities

- Make to-do lists on your phone or computer
  - Keep one paper-list at a place where you see it frequently for tasks to be done over the next few days
- Reduce overheads
  - Do not allocate time in very short quanta: the start-up time might begin to dominate
- Prioritise your activities, depending on their completion schedule
- Minimise scheduling shocks by anticipating the common ones
  - Back-up your files regularly (even keeping a laptop on standby with your home-directory ready on it!)
  - Check calculations (or proofs) thoroughly the first time they are done, as your subsequent work might depend on their correctness

Scheduling Your Activities

- Make to-do lists on your phone or computer
  - Keep one paper-list at a place where you see it frequently for tasks to be done over the next few days
- Reduce overheads
  - Do not allocate time in very short quanta: the start-up time might begin to dominate
- Prioritise your activities, depending on their completion schedule
- Minimise scheduling shocks by anticipating the common ones
  - Back-up your files regularly (even keeping a laptop on standby with your home-directory ready on it!)
  - Check calculations (or proofs) thoroughly the first time they are done, as your subsequent work might depend on their correctness

Scheduling Your Activities

- Make to-do lists on your phone or computer
  - Keep one paper-list at a place where you see it frequently for tasks to be done over the next few days
- Reduce overheads
  - Do not allocate time in very short quanta: the start-up time might begin to dominate
- Prioritise your activities, depending on their completion schedule
- Minimise scheduling shocks by anticipating the common ones
  - Back-up your files regularly (even keeping a laptop on standby with your home-directory ready on it!)
  - Check calculations (or proofs) thoroughly the first time they are done, as your subsequent work might depend on their correctness

Create Your Personal (or Lab) Standards

- Important to agree on documentation standards when people collaborate
  - A PhD student and his/her advisor is also a collaboration
- File naming standards (bib entries, figure file names, version management), and directory structures
- Cross-referencing labels
  - The only way to manage large documents is good cross-referencing within the document
  - Use the file name as the label
- Plots and Tables
  - Are usually the output of a computational program
  - Include the name of the program and the parameter values in the file name
- Remember that reviews of a submitted journal paper might come 6 months to a year later
  - Organise your names and directories so you can track your files down many months later, when you are probably doing something very different

Create Your Personal (or Lab) Standards

- Important to agree on documentation standards when people collaborate
  - A PhD student and his/her advisor is also a collaboration
- File naming standards (bib entries, figure file names, version management), and directory structures
- Cross-referencing labels
  - The only way to manage large documents is good cross-referencing within the document
  - Use the file name as the label
- Plots and Tables
  - Are usually the output of a computational program
  - Include the name of the program and the parameter values in the file name
- Remember that reviews of a submitted journal paper might come 6 months to a year later
  - Organise your names and directories so you can track your files down many months later, when you are probably doing something very different

Create Your Personal (or Lab) Standards

- Important to agree on documentation standards when people collaborate
  - A PhD student and his/her advisor is also a collaboration
- File naming standards (bib entries, figure file names, version management), and directory structures
- Cross-referencing labels
  - The only way to manage large documents is good cross-referencing within the document
  - Use the file name as the label
- Plots and Tables
  - Are usually the output of a computational program
  - Include the name of the program and the parameter values in the file name
- Remember that reviews of a submitted journal paper might come 6 months to a year later
  - Organise your names and directories so you can track your files down many months later, when you are probably doing something very different

Create Your Personal (or Lab) Standards

- Important to agree on documentation standards when people collaborate
  - A PhD student and his/her advisor is also a collaboration
- File naming standards (bib entries, figure file names, version management), and directory structures
- Cross-referencing labels
  - The only way to manage large documents is good cross-referencing within the document
  - Use the file name as the label
- Plots and Tables
  - Are usually the output of a computational program
  - Include the name of the program and the parameter values in the file name
- Remember that reviews of a submitted journal paper might come 6 months to a year later
  - Organise your names and directories so you can track your files down many months later, when you are probably doing something very different

Literature Search and Study

- Web search today can yields 100s of "relevant" references
- Need to be selective in which papers you read thoroughly
- Save all the articles you think are relevant on your computer
- Read the abstracts, skim through the content, to filter out articles worthy of a thorough read
- Read mostly on the computer, making notes using a PDF markup tool
- Print out only those very few articles that you really plan to read symbol-by-symbol, until they become dog-eared

Literature Search and Study

- Web search today can yields 100s of "relevant" references
- Need to be selective in which papers you read thoroughly
- Save all the articles you think are relevant on your computer
- Read the abstracts, skim through the content, to filter out articles worthy of a thorough read
- Read mostly on the computer, making notes using a PDF markup tool
- Print out only those very few articles that you really plan to read symbol-by-symbol, until they become dog-eared

Use Technology

- Get a laptop and keep all your work on it
  - They are reliable, compact, energy saving, and avoid the need for a UPS
  - Backup often; get a pocket HDD (very high capacities are available)
  - Keep a compressed copy of your home directory on a flash memory stick, preferably on your person
  - Keep an SD card mounted in your laptop, and copy work-in-progress into that card
- Get a smart-phone
  - Keep your appointments and schedule on it
  - Keep all your life-reminders on it (insurance renewals, tax payments), from now until the foreseeable future
  - Offloads your brain of worries that you might forget something
- Read research papers, and even e-books, using a PDF markup tool
  - Xournal, Okular, Adobe Acrobat Professional
  - So when you come back to look at the paper, your margin notes help you get back into it quickly

Use Technology

- Get a laptop and keep all your work on it
  - They are reliable, compact, energy saving, and avoid the need for a UPS
  - Backup often; get a pocket HDD (very high capacities are available)
  - Keep a compressed copy of your home directory on a flash memory stick, preferably on your person
  - Keep an SD card mounted in your laptop, and copy work-in-progress into that card
- Get a smart-phone
  - Keep your appointments and schedule on it
  - Keep all your life-reminders on it (insurance renewals, tax payments), from now until the foreseeable future
  - Offloads your brain of worries that you might forget something
- Read research papers, and even e-books, using a PDF markup tool
  - Xournal, Okular, Adobe Acrobat Professional
  - So when you come back to look at the paper, your margin notes help you get back into it quickly

Use Technology

- Get a laptop and keep all your work on it
  - They are reliable, compact, energy saving, and avoid the need for a UPS
  - Backup often; get a pocket HDD (very high capacities are available)
  - Keep a compressed copy of your home directory on a flash memory stick, preferably on your person
  - Keep an SD card mounted in your laptop, and copy work-in-progress into that card
- Get a smart-phone
  - Keep your appointments and schedule on it
  - Keep all your life-reminders on it (insurance renewals, tax payments), from now until the foreseeable future
  - Offloads your brain of worries that you might forget something
- Read research papers, and even e-books, using a PDF markup tool
  - Xournal, Okular, Adobe Acrobat Professional
  - So when you come back to look at the paper, your margin notes help you get back into it quickly

How Long Should a PhD Take?

- Typically 3 to 5 years after a Masters, and 4-6 years for a Direct PhD after a BE
- Out of these years, allow at least 3 semesters for post-graduate course work
- Aim for 4 to 6 solid chapters, each with a significant body of contribution
  - In addition to the Intro, Literature Survey, and Conclusion
  - No hard and fast rules here: John Nash's thesis was just 28 pages
- Allow about 6 months for each main body of work
- This also means that you need to let go of a problem that is not producing results, after reasonable time has been spent on it

How Long Should a PhD Take?

- Typically 3 to 5 years after a Masters, and 4-6 years for a Direct PhD after a BE
- Out of these years, allow at least 3 semesters for post-graduate course work
- Aim for 4 to 6 solid chapters, each with a significant body of contribution
  - In addition to the Intro, Literature Survey, and Conclusion
  - No hard and fast rules here: John Nash's thesis was just 28 pages
- Allow about 6 months for each main body of work
- This also means that you need to let go of a problem that is not producing results, after reasonable time has been spent on it