Mitchell “Mitch” Turner

Computer Science Professor[60], Northwest University[52]

Mitch is 55 years old and lives in the eclectic college town of Rhodes, Oregon, home of Northwest University.

Often times in the morning, you can spot Mitch listening to his iPhone and muttering out loud while he’s keeping healthy by walking to and from work. Commuting, exercising and learning at the same time is one of the ways Mitch makes time for new languages such as Spanish, German, Japanese, and Chinese[59].

Every moment in life matters to Mitch. He is driven to have an impact on things that really matter, such as the health of the whole Earth’s ecosystem, which is under threat in so many ways[55].

Background Knowledge and Skills

- Mitch is a senior computer science professor[60] at Northwest University. Much of his time is spent collaborating with scientists across many universities, working on a diversity of projects from wildfire management to bird migration to teaching machines how to read.

- Mitch spends considerable time on all aspects of grants. While at Northwest, Mitch has brought in $30 million of grant funding[61].

- Mitch has important roles outside of Northwest, including serving as the president of an international organization supporting the advancement of artificial intelligence[62], and also being the chief technical officer of a local big data startup[61].

- Mitch is a well-known figure in the artificial intelligence community. He often travels to conferences around the world. Recently Mitch has been in the news discussing safety issues related to artificial intelligence[63].

- Building a great group of machine learning faculty, staff, and students at Northwest University is a profound achievement for Mitch[58].

- One of Mitch’s talents is making complex systems easy to understand, being able to connect small details to the big picture.

- Mitch puts together innovative programs that combine many fields of science to solve tough cross-domain problems such as modeling the ecosystems of the entire world[57].

Motivations and Strategies

- Mitch is an expert with the tools he uses most often[11]. For example, Mitch will make special macro commands in his email client to perform complex steps of actions more quickly[7].

- Mitch learns new tools only when they are part of important research or if he knows they will save him time[2,28]. He doesn't spend his little free time trying new software tools or exploring obscure functionality of the software applications and tools he uses[6,28,48].

- When Mitch organizes information, he uses a combination of tags and folders[31]. He has developed a sophisticated tag schema over time[14] and uses this tag schema frequently[33] to organize his email. In Mitch's ideal world, all of his information would be organized and easily accessible using tags[24].

- Mitch tags his email with a rich set of tags that supports project, task, people, and event management[17,12,24,46].On average, Mitch uses about 300-350 tags to organize and retrieve information.

- Email is the cerebral cortex for much of Mitch's work[34,21]. Mitch uses the calendar built into his email client to manage his time[50]. Mitch's assistant has access to his calendar to streamline travel and event planning [15].

- While Mitch maintains a todo list in Emacs, Mitch's inbox also represents "work to be done"[19]. A significant portion of Mitch's task management revolves around "inbox management"[21].

- Finding a way to save 15 minutes of time a day would make Mitch very happy. Many weeks, Mitch only has three to four hours of unallocated time on his calendar.

- Mitch will often only try something once. If it doesn't work, he doesn't go back to it[39].

- The main goals of Mitch's information organization strategies are quick retrieval and context recovery. Once he finds a strategy that works for him, he tends to stick to it[26].

- Every now and then, Mitch will pick up and learn a new tool to help him better organize some part of his work[35].

Attitudes about Technology

- Mitch likes technology to be simple and predictable[20,45]. He depends on the software applications he uses to get work done quickly and efficiently[32]. Much of this depends on retrieval[22,44].

- Mitch is interested in tools that can consistently save him time, even if they aren't perfect[32]. He will take the time to do things today that will save him time tomorrow. This is how Mitch puts time in the bank[29].

- Mitch is an early adopter of using machine learning to help him be more efficient and effective with the various communication, knowledge management, task management, project management, and other tasks related to his work[7,56].

- Mitch appreciates when there is consistency between the small cognitive actions he takes in an application and his bigger picture cognitive model of how things should work[1].

- As Mitch is a machine learning expert, he is often aware of how his actions might affect how his intelligent email assistant is working[37,40]. In his ideal world, the assistant would be invisible and something he wouldn't even remember that it's there working in the background[36].

- Most of the workflows required for Mitch's job as a professor flow through email[21]. As much as Mitch uses an intelligent assistant to help with tags, he would also like the assistant to help him save time dealing with these workflows[38].

Software Environment

- Mitch originally was a UNIX user and still uses some UNIX tools, such as Emacs, which he uses to manage his primary todo list[19,9]. He currently works in a Microsoft Windows environment as this is the only environment that supports the advanced intelligent email assistant that he depends on to help him manage all the email he gets[11,10].

- Mitch has used an intelligent email tagging assistant that integrates into Microsoft Outlook for the past seven years[25].

- Mitch depends on his lightweight notebook computer for almost all of his communication and information storage[25].

- Along with Microsoft Outlook, Mitch makes extensive use of Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Microsoft OneNote, and Adobe Acrobat[23].

Using Software

- Mitch makes decisions regarding when to create tags and when to use certain features of his intelligent email assistant based on a decision-theoretic framework that is based on his own perceptions of cost, risk, investment, and pay-off[2,3,5,6].

- Using tags is a notational strategy for Mitch. Tags also function as mnemonic cues to help Mitch recover context[4, 64].

- As many of Mitch's tags represent work to be done, when Mitch is using tags, and when the intelligent email assistant is helping Mitch with tags, these actions are effectively performing tasks that directly relate to his goals in using email[8].

- Similarly, when Mitch is using tags in email, as many of these tags represent some aspect of task management, Mitch may experience any of these common seven problems[16]:

    - Keeping track of lots of concurrent actions: One's own to-dos and to-dos one expects from others.
    - Marking things as important or outstanding amongst the less important items[49].
    - Managing activity extending over time or keeping track of threads of activity and discussions.
    - Managing deadlines and reminders, which may be associated with particular messages or other content.
    - Collating related items (e.g., an extended thread or responses to a survey) and associated files and links.
    - Application switching and window management.
    - Most important, getting a task oriented overview, at a glance, rather than scrolling around inspecting folders.

- Due to the high demands on Mitch's time and project and information overload, using software can be a lot more stressful at times, especially when it doesn't work well. It is important for software to help Mitch recover context[41,43].

- With email, if there a lot of important threads in a given day, Mitch may feel more overloaded[42].

- Mitch uses email to triage important work, such as moderating the machine learning section of the arXiv web journal[30].

- Time and time pressure have a strong effect on how and why Mitch uses his software[51].

Data Source Table

#	Category	Source	Factoid
1	behavior	AI1	Consistency between micro-level and macro-level cognitive mechanisms.
2	behavior	AI1	Cost: attention units to get the work done. (Presumably the activity also has monetary costs, such as purchase of software, but this is external to the model.)
3	behavior	AI1	Investment: attention units expended toward a potential reward, where the reward can either be external to the model (such as payment for services) or an attention investment pay-off.
4	behavior	AI1	Management of complexity as a cognitive task involves linguistic and representational strategies that can in themselves be viewed as notational, and subject either to direct manipulation of the notation or more abstract interaction.
5	behavior	AI1	Pay-off: reduced future cost, also measured in attention units that will result from the way the user has chosen to spend attention.
6	behavior	AI1	Risk: Probability that no pay-off will result, or even that additional future costs will be incurred from the way the user has chosen to spend attention.
7	Personal	S000C1	So here is IJCNN, and so it's labeled as Conf. And I even have a button here which assigns Conf and moves it to done because very common action. Well, before TaskTracer was working. He gets them all right, so I don't really need that button now. I can just hit Done and have the same effect. But before, when EP2 wasn't available, a third of my mail is probably conference spam.
8	Personal	S000C1	And, of course, I also use OneNote, and I have OneNote folders for people, too.
9	Personal	S000C1	And I've put a thing into my to-do list which I keep in Emacs.
10	Personal	S000C1	"I used to live in UNIX. It was Herlocker and TaskTracer that got me to move over to Windows. I don't see myself changing back to Linux/UNIX unless there was TaskTracer for Linux/UNIX."
11	Personal	S000C1	this one particular tag was, in fact, shared between this and Outlook and Word – and the file system.
12	Personal	S000C1	The subject uses tags as part of his information management and retrieval strategy. Has used some form of intelligent assistant for past 6-7 years.
14	email	AI1	Management of complexity as a cognitive task involves linguistic and representational strategies that can in themselves be viewed as notational, and subject either to direct manipulation of the notation or more abstract interaction.
15	Personal	S000C1	Like this message that's sitting here right now – so Sara Paulson and I – you know, Sara is my assistant. Sara can see if there is a conflict on my calendar.

#	Category	Source	Factoid
16	email	PM5	We identified seven specific problems that participants in our study experience with task management in email: 1. Keeping track of lots of concurrent actions: One's own to-dos and to-dos one expects from others. 2. Marking things as important or outstanding amongst the less important items. 3. Managing activity extending over time or keeping track of threads of activity and discussions. 4. Managing deadlines and reminders, which may be associated with particular messages or other content. 5. Collating related items (e.g., an extended thread or responses to a survey) and associated files and links. 6. Application switching and window management. 7. Most important, getting a task oriented overview, at a glance, rather than scrolling around inspecting folders.
17	email	PM8	Email has become an overloaded tool supporting far more than just messaging. It requires sophisticated integration with other resources such as document management and event management.
19	email	S000	"I don't know that I have a strict rule between what goes into my to-do list and what stays in the inbox."
20	email	S000	"it's right enough of the time that I kind of assume it's right"
21	email	S000	"Stuff in my inbox is either has not been read yet or it has been read and I've moved it to my done folder. So I have a big folder that I keep all of the messages that I'm done with. And I either am really done with it or I have added an entry in my to-do list that tells me what I need to do. And then the other stuff that's in my inbox that I have read is something else that I need to do that is maybe less work."
22	email	S000	"the main reason I put a tag on something is for retrieval of relevant emails".
23	email	S000M1	"My desktop environment mostly consists of Microsoft Office, including Outlook and OneNote. I also use Acrobat a lot."
24	email	S000C1	Tags can help us retrieve email more quickly and easily, saving us time and sparing us frustration.
25	email	S000C1	An add-in for Microsoft Outlook, that together with a Java-based service, use machine learning techniques to learn how to automatically tag the subject's email as it arrives in the inbox Runs locally on the subject's constrained environment laptop, a resource.
26	email	S000C1	Often times, "getting things done" means "show me all the email messages concerning my latest grant". And this is where tags come into the picture.
28	email	S000C1	We did observe that the subject stopped using the "reset tag" feature after realizing that an investment in it did not pay off.
29	behavior	S000C1	Because if I had to do it all myself it would be equivalent to if it was wrong 100% of the time. So he fact that it is right 75% of the time

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			or something is – saves me three quarters of the time it would take. And since I get so much mail and I have to manage it somehow I would have to be foldering or tagging anyway."
30	email	S000C1	Yet the assistant can become a part of everyday life and we end up depending on it, even missing it.
31	info-org	PM4	For the 28 users who had created file and email folders, the average file/email overlap was 7.0 folders (sd.5.6).
32	info-org	S000	"Because if I had to do it all myself it would be equivalent to if it was wrong 100% of the time. So the fact that it's right 75% of the time or something is –saves me three quarters of the time it would take. And since I get so much mail and I have to manage it somehow I would have to be foldering or tagging anyway."
33	info-org	S000	"I would guess that maybe there's one new tag a week on average"
34	info-ret	IOR3	Participants were usually able to remember whether a particular message was in their mailbox. Also, memory for specific information about each message was generally good; people remembered content, purpose, or task related information best, correctly recalling over 80% of this type of information, even when items were months old. However, frequent filers tended to remember less about their email messages.
35	info-ret	OTH4	The second factor leading to obstacle closure was the visibility of expected benefit. In Attention Investment terms, she expended attention when she perceived the benefits of overcoming the obstacles to be greater than the cost.
36	mental-model	S000	"I mean, if I also had the ability to highlight a word and say, "This is an important word. Make sure you've got a weight on this." That might be nice. But I really don't want to do that. I just want to tell it the right tags because I'm tagging it to get work done and I don't really want to spend time teaching it stuff."
37	mental-model	S000	"I took off the old tag, so EISI 2014 just got a bunch of negative training data and 2015 doesn't have any yet positive training data."
38	mental-model	S000	"if you ask me about any tag, I can probably give you my mental policy, and if I can't, it's probably because I need to improve it".
39	mental-model	S000	"It didn't seem to do anything good. Because the problem was when I retrained it they were just fat again so they –I think. That's my hypothesis. That if I just reset them and don't retrain them maybe that would be a good. But yeah, I'm not convinced it's actually doing anything. That's just my impression that it wasn't solving the problem."

#	Category	Source	Factoid
40	mental-model	S000	MS: Did you end up with both tags on those messages? TD:No, I deleted the service one, then. MS:So you leave the most specific tag. TD:Generally. I'm probably not consistent on that. I have the same thing happening on conferences. There's where I am thinking like a machine learning guy and saying, "Well, if I leave the conference tag on there then the conference tag will be happy with these which it should be because they are about conferences." And so that won't confuse it as much. So I am thinking like that. But I don't think end users should ever be thinking like that.
41	multitasking	PM1	Sharing time between several projects, at an individual level, may result in perception of work as disrupted and fragmented, in elevated levels of time pressure, and in fewer opportunities for recuperation between periods of intense and strenuous work. Other negative consequences of sharing time between many projects are decreased competence development, and less improvement in work routines. Switching from one project to another can result in considerable amount of set-up time. On the other hand, there are also indications that multi-project settings can provide for increased learningand a rich work content.
42	multitasking	PM5	The factors that seem to relate most to a sense of overload are the number of threads one is tracking per day, and the length of the intervals between messages in those threads.
43	multitasking	S287	Oh, I hate context recovery. Context switch is a huge cost for me. Did you do your homework as a kid? It was so easy then… Interruptions now… much harder. Interruptions are awful. Turn off email when I have a terrible deadline. That and the todo list helps me recover context. What am I doing next?
44	multitasking	MT3	Knowledge workers' productivity is inhibited due to software bloat, information overload, and communication overload.
45	paradox	PDX1	Users focus on end products at the expense of prerequisite learning. Mitigate: Make learning the system easy. Example: Training wheels. Undo.
46	proj-mgmt	PM7	In dispersed R&D teams IT can support four basic tasks. (1) Coordination of decentralized project activities. (2) Exchange of technical information. (3) Promotion of creativity and quality. (4) Formation of a personal network and development of trust.
48	proj-mgmt	PM8	Email users are heavily invested in their existing tool. They are thus unlikely to adopt an entirely new tool that requires them to move their legacy email archives and learn new software without some top-down organizational imperative (such as organizational edicts or moving to a new company with different supported software).
49	task-mgmt	IOR6	Some messages are flagged or tagged with higher importance and the inbox is occasionally flag-sorted such that flagged messages bubble to the top. Many users resend messages to themselves

#	Category	Source	Factoid
50	time-mgmt	S143	Calendar is time management. Email is todo management. Sometimes I put time to do things on the calendar, so I have reserved time to review a paper for a student or something like that. Sometimes I will send myself emails as reminders to do things.
51	time-mgmt	PM1	Time focus, schedules and time limits are important in almost all kinds of projects, and time pressure is an important driving force for work progress.
52	personal	S000W1	Turner's broad influence was recognized in 2013 by Northwest University when he was selected to be a "Distinguished Professor," the highest honor for faculty. He has also earned exclusive "Fellow" status in both the American Association for the Advancement of Science and the Association for Computing Machinery.
55	personal	S000W1	"I realized I wanted to have an impact on something that really mattered — and certainly the whole Earth's ecosystem, of which we are part, is under threat in so many ways. And so if there's some way that I can use my technical skills to improve both the science base and the tools needed for policy and management decisions, then I would like to do that. I am passionate about that."
56	personal	S000W1	"We take this data which is rather large and messy and apply techniques of machine learning to convert them into accurate models for prediction and recognition," Turner says.
57	personal	S000W1	Additionally, Turner has been one of the leaders in bringing together a consortium of faculty from seven different graduate programs from the colleges of agriculture, engineering, forestry and science to create a program in ecosystem informatics that supports education in the combined fields of ecology, mathematics, computer science, and engineering.
58	personal	S000W1	He is also proud of the AI machine learning group of outstanding faculty, students and staff that Northwest has built up over the years to become internationally prominent.
59	personal	S000W1	"I love my work. So I really enjoy spending time on it," he says, but admits to having one major hobby which is learning the languages of all the different places he has had the opportunity to visit including Brazil, Chile, Spain, Germany, Japan, and China."So if you see me walking home muttering to my iPod, it's because I'm listening to language tapes while I'm getting some exercise," he says with a smile.
60	Personal	S000W2	Mitchell Turner, Distinguished Professor of Electrical Engineering and Computer Science (May 5, 2013) (School of Electrical Engineering and Computer Science, College of Engineering)
61	Personal	S000W3	"He has obtained more than $30 million in research grants over his career, helped build a world-class research group at Northwest University, and created three software companies. Turner also co-founded two of the field's leading journals and was elected first president of the International Machine Learning Society."

#	Category	Source	Factoid
62	Personal	S000W4	President: Mitchell Turner (Northwest University, USA)
63	Personal	S000W5	"It's wonderful, because this will provide the impetus to jump-start research on AI safety", said AAAI president Mitchell Turner. "This addresses several fundamental questions in AI research that deserve much more funding than even this donation will provide."
64	Personal	S000P1	“Tags aren’t perfect, but they work better than anything else I know of. Ideally, I could get to all of my information using tags and use tags for context recovery.”