

Hacking Your Brain For Fun and Profit

Nathaniel T. Schutta

Who am I?

- Nathaniel T. Schutta
<http://www.ntschutta.com/jat/>
- @ntschutta
- Foundations of Ajax & Pro Ajax and Java Frameworks
- UI guy
- Author, speaker, teacher
- More than a couple of web apps

The Plan

- Sleep
- Exercise
- Learning
- Managing Information
- Distractions
- Predictably irrational
- External Brain
- Road Blocks

“trying to code with *all* of the family around is nearly impossible. Normal people don't understand how we nerds concentrate”

Brian Sam-Bodden
<http://twitter.com/bsboden/status/6896250794>

Our brain is our greatest asset.

Despite recent advances, still many unknowns.

Learn more daily.

**Listener brain patterns
mirror those of speaker.**

<http://www.scientificamerican.com/blog/post.cfm?id=of-two-minds-listener-brain-pattern-2010-07-27>

Words are powerful.

Often via freak accidents.

<http://www.wnyc.org/shows/radiolab/episodes/2010/09/10>

Croatian teenager...

<http://bit.ly/9t7JW9>

Neural decoding?

<http://www.newscientist.com/article/mg20427323.500-brain-scanners-can-tell-what-youre-thinking-about.html>

Simple steps, big payback.



“programming is much easier after a night's sleep, especially if you were doing something incredibly stupid the night before”

Kent Beck

<https://twitter.com/kentbeck/status/9345238812>

**70% < 8 hours,
40% < 7 hours.**

Sleep matters.

**We're not sure
why we sleep.**

Quite vulnerable...

Not about “rest.”

Brain is incredibly active.

Key to learning.



Aids memory formation.

<http://www.sciencedaily.com/releases/2009/09/090915174506.htm>

Transfer of information.

Use it to solve problems.

Lack of sleep hurts performance.

Naps improve it.



<http://dilbert.com/fast/2009-05-26/>

Think no one naps?

35% of men 18-49
take daily naps.

26 minutes = 34%
improvement.

At 3 p.m., brain really
wants to nap.

Bad time for meetings.

Part of some cultures.

**Sleep deprivation severely
affects the brain.**

Effects felt within 24 hours.

Blood pressure rises.

**Trouble metabolizing
glucose.**

Immune system suppressed.

Body temp drops.

**1959, Peter Tripp -
stayed awake for 8 days.**

[http://www.youtube.com/watch?
v=mXrANL9aqz8&feature=related](http://www.youtube.com/watch?v=mXrANL9aqz8&feature=related)

To raise money for charity.

Hallucinations, paranoia.

Randy Gardner stayed up.

For 11 days.

For the science fair...

After 5 days, mimicked
Alzheimer's.

Hallucinations, paranoia.

Interrogation technique.

Skip a night?

30% loss in cognitive skill.

Contributes to obesity.

Feel hungrier.

Leptin goes down,
ghrelin goes up.

Sparks cravings,
longer to feel full.

Consistently getting
only 6 hours a night...

Like skipping 2 nights.

Worse, people didn't
realize they were impaired.

[http://www.spokane.wsu.edu/ResearchOutreach/
Sleep/documents/2003SLP-VanDongen-etal.pdf](http://www.spokane.wsu.edu/ResearchOutreach/Sleep/documents/2003SLP-VanDongen-etal.pdf)

Some people need less...

Insomniac gene?

<http://www.sciencedaily.com/releases/2009/09/090916153136.htm>

Sleep deprivation is
only part of the story.



<http://www.flickr.com/photos/kevcole/2327954530/>

kevcole



http://www.flickr.com/photos/steve_brace/217149481/

Stevie-B

1/10 are early
chronotype.

2/10 are late chronotype.

When are you at your best?

**Does that work
in your office?**



We evolved by walking.

A lot.

Up to 12 miles a day.

Any of you walk 12 miles a day?

Brain loves glucose.

2% of mass,
20% of energy.

Generates a lot of waste.

Exercise improves blood flow.

“Paves new highways.”

Flushes free radicals.

**Stimulates Brain Derived
Neurotrophic Factor.**

Improves brain function.

**Exercisers significantly
outperform.**

Leads to bigger brains.

At least in seniors ;)

[http://www.futurity.org/top-stories/
exercise-leads-to-bigger-brain-in-seniors/](http://www.futurity.org/top-stories/exercise-leads-to-bigger-brain-in-seniors/)

Moderate exercise led to substantial improvements.

How do we get more exercise?

Walking desks.



Besides, chairs kill.

<http://news.yahoo.com/s/bw/1019b4177071221162>

Walking conference rooms!

Walking meetings.

Boeing.

**Mayo clinic: “office of
the future.”**

Learning.

Change is constant.

Must be able to learn.

How do we do that?

Cramming doesn't work.

Elaborate, meaningful,
context.

Stories, examples.

Repeat to remember.

Spaced repetition.

Spaced Education.

[http://harvardmagazine.com/2009/11/
spaced-education-boasts-learning](http://harvardmagazine.com/2009/11/spaced-education-boasts-learning)

**Increases knowledge
and retention.**

SpacedEd.

<http://www.spaceded.com/>

Questions repeat.

Timing is key.

We forget.

Actually good that we do.

Information decay
is predictable.

Not the same for everyone.

Or every fact.

Computers can help.

Piotr Wozniak.

[http://www.wired.com/medtech/health/
magazine/16-05/ff_wozniak](http://www.wired.com/medtech/health/magazine/16-05/ff_wozniak)

SuperMemo.

<http://www.supermemo.com/>

**There is an open
source alternative.**

Mnemosyne.

<http://www.mnemosyne-proj.org/>

Learning with lists.

[http://lifehacker.com/5192079/
smartsfm-boosts-learning-with-lists](http://lifehacker.com/5192079/smartsfm-boosts-learning-with-lists)

smart.fm

<https://smart.fm/login>

Skills acquisition.

Shu Ha Ri.

<http://www.aikidofaq.com/essays/tin/shuhari.html>

“Learn the principle, abide by the
principle, and dissolve the principle.”
Bruce Lee

Understanding evolves.

William Schutz.

**Simplistic, complex,
profoundly simple.**

Looks easy at first...

Lots of confusion!

Quest continues.

Dreyfus model.

5 stages.

Novice - recipes.

**Advanced beginner -
moves beyond rules.**

**Competent - can
troubleshoot.**

Proficient - self correct.

Expert - intuition.

Rules are key for beginners.

Rules *kill* experts.

Expert = 10 years?

Most folks are advanced beginners.

Dunning-Kruger effect.

http://en.wikipedia.org/wiki/Dunning-Kruger_effect

Cognitive bias.

Lake Wobegon.

Incompetent people overestimate their skill.

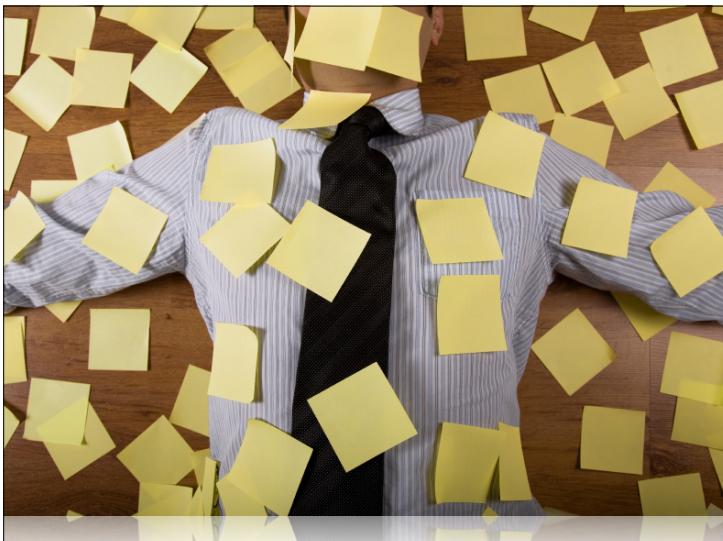
Competent people underestimate.

Confidence trumps expertise...

<http://www.newscientist.com/article/mg20227115.500-humans-prefer-cockiness-to-expertise.html>

Hmmmm...

Managing information.



Infotention.

http://www.sfgate.com/cgi-bin/blogs/rheingold/detail?blogid=108&entry_id=46677

There's a lot of
bits out there.

New languages,
technologies, approaches.

Books, articles, blogs,
podcasts, Twitter...



How do you keep up?

Attention is precious.

Don't waste it.

Be selective.

Can't read it all.

**In fact, you'll miss
almost everything.**

<http://www.npr.org/blogs/monkeysee/2011/04/21/135508305/the-sad-beautiful-fact-that-were-all-going-to-miss-almost-everything>

Cull or surrender.

**Consider an
information diet.**

Pick the areas you
care about.

Go deep on that.

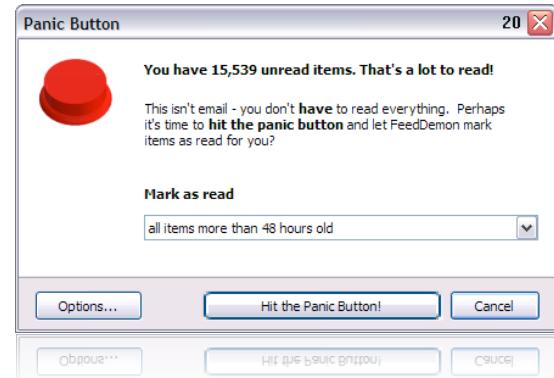
Skim the rest.

“Selective Ignorance.”

Use your friends ;)

Prune aggressively.

If you're not
reading it, delete it.



If they're not updating...



A/B stream.

Take advantage of
dead space.

Bring articles to meetings.

Read while waiting.

Listen on the way to work.

Or while you workout!

Books on “CD.”

Turn off the TV?

Average American - 151 hours of TV a month.

http://blog.nielsen.com/nielsenwire/online_mobile/tv-internet-and-mobile-usage-in-us-continues-to-rise/

Two hundred billion hours annually (U.S.)

2,000 Wikipedias a year.

100 million hours a weekend watching ads.

That's a Wikipedia a weekend. On ads.

<http://www.shirky.com/herecomeseverybody/2008/04/looking-for-the-mouse.html>

It isn't just TV though.



200 million minutes...

<http://www.wired.co.uk/magazine/archive/2011/04/features/how-rovio-made-angry-birds-a-winner?page=all>

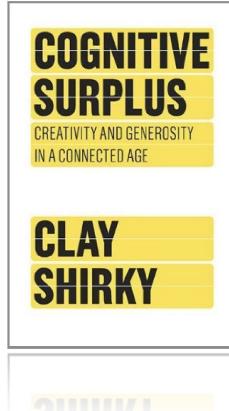
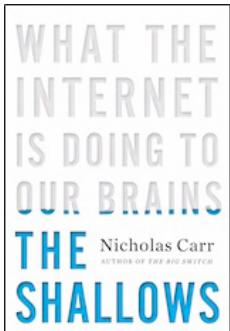
A DAY!

16 years...every hour.

That's a lot of surplus.

Does the Internet
Make You Smarter?

<http://online.wsj.com/article/SB10001424052748704025304575284973472694334.html>



Imagine what even a
small change might mean.

Distractions.

We can't multitask.

Our kids...maybe.

16 to 18 - 7 tasks

[http://www.nytimes.com/2010/01/10/
weekinreview/10stone.html](http://www.nytimes.com/2010/01/10/weekinreview/10stone.html)

early 20s - 6 tasks

30s - 5.5 tasks

Doesn't work.

**Well, if it involves
thought at least.**

Driving and cell phones?

Texting = 23x crash risk.

[http://www.nytimes.com/2009/07/28/
technology/28texting.html](http://www.nytimes.com/2009/07/28/technology/28texting.html)

Driving and distractions.

[http://www.nytimes.com/2009/07/19/
technology/19distracted.html](http://www.nytimes.com/2009/07/19/technology/19distracted.html)

Sure, you can walk
and chew gum...

but probably can't
text and walk...

[http://www.nytimes.com/2010/01/17/
technology/17distracted.html?hp](http://www.nytimes.com/2010/01/17/technology/17distracted.html?hp)

IM, email, phone call,
music, work?

Variable reinforcement!

<http://www.codinghorror.com/blog/archives/001302.html>



Linda Stone.

Continuous partial attention.

<http://continuouspartialattention.jot.com/WikiHome>

Interruptions kill flow.

15 minutes to reload.



Think about debugging.

You've created a model
in your head.



And I stop by to ask
about the game.

Sorry about that.

In context vs. out.

Project rooms work.

Its all in context.

Easy to tune out.

Adjacent possible.

Turn off interruptions.

Email, IM, etc.

Freedom.

<http://macfreedom.com/>

Stay on target!

<http://www.economist.com/node/16295664>

Run apps full page.

This is an example of writing without distractions... ↗

<http://www.hogbaysoftware.com/products/writeroom>

Set expectations.

Immediate response?

Really?

Email apnea.

[http://www.huffingtonpost.com/linda-stone/
just-breathe-building-th_b_85651.html](http://www.huffingtonpost.com/linda-stone/just-breathe-building-th_b_85651.html)

Zero inbox.

[http://video.google.com/videoplay?
docid=973149761529535925](http://video.google.com/videoplay?docid=973149761529535925)

Email bankruptcy.

<http://www.43folders.com/2006/07/28/email-bankruptcy>

Better, change
corporate policy...

[http://news.yahoo.com/tech-firm-implements-
employee-zero-email-policy-165311050.html](http://news.yahoo.com/tech-firm-implements-employee-zero-email-policy-165311050.html)

GTD.



No meeting Friday.

Quiet time/office hours.

How about scheduling meetings for < 1 hour?

Pomodoro technique.

<http://appft1.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PG01&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.html&r=1&f=G&l=50&s1=%2220090119148%22.PGNR.&OS=DN/20090119148&RS=DN/20090119148>

Pick a task.



Work.

Take a break!

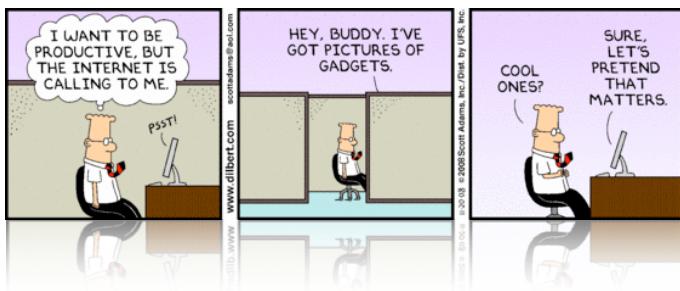
Rinse and repeat.



Take a longer break!

<http://www.pomodorotechnique.com/>

Treat yourself.



<http://www.dilbert.com/fast/2008-11-20/>

Change blindness.

[http://www.youtube.com/watch?
v=38XO7ac9eSs&feature=player_embedded](http://www.youtube.com/watch?v=38XO7ac9eSs&feature=player_embedded)



Rare things are
hard to find...

[http://www.npr.org/templates/story/
story.php?storyId=122561355&ps=cprs](http://www.npr.org/templates/story/story.php?storyId=122561355&ps=cprs)

Needles really are hard
to find in haystacks!

Prevalence effect.

We miss rare things.

Beginners Eyes.

Predictably Irrational.

Loss aversion.

[http://www.psychologyofgames.com/2010/01/04/
loss-aversion-achievements-and-trial-conversions/](http://www.psychologyofgames.com/2010/01/04/loss-aversion-achievements-and-trial-conversions/)

Losses hurt
more than gains.

Can you say stock market?

15 c vs 1 c...

73% choose truffle.

What about 14 c vs free?

Same deal right?

Nope.

69% choose the
kiss...versus 27%.

\$10 gift card...free? Or
\$20 gift card for \$7?

Most take the free one...

FREE is powerful.

With free, we overlook
the downside.

Anchoring.

Social vs. market norms.

**Ask a friend to help
you move...**

**Offer him \$10.
What happens?**



Pick up late? It'll cost you.

Guilt vs. “pay the fine.”

Delicate balance.

Once a market transaction,
hard to go back.

Companies want a
social contract...

But then they cut
benefits, picnics, etc.

Can't have it both ways.

Play matters.

External Brain.

We forget.

Computers don't.

Neither does paper.

Ideas happen.

Just hits you.



Be prepared.

Capture them when
they happen.

Pen and paper.

Hipster PDA,
Moleskine, index card.

[http://www.43folders.com/2004/09/03/
introducing-the-hipster-pda](http://www.43folders.com/2004/09/03/introducing-the-hipster-pda)

“I’ll remember that later.”

Probably won’t.

Write it down.

Ideas beget ideas...

Capture them and
you'll get more!

You'll surprise yourself.

Developer notebooks.

Haven't I done this before?

Write it down!

<http://fieldnotesbrand.com/>

<http://www.pocketmod.com/>

http://www.moleskine.com/index_eng.php



We get stuck.

What is going on here?

Explain it to a coworker.



<http://www.flickr.com/photos/clairity/2377357636/>

Doodle.

Daydream - helps you
solve problems!

[http://www.sciencedaily.com/releases/
2009/05/090511180702.htm](http://www.sciencedaily.com/releases/2009/05/090511180702.htm)

Take a walk.

Or go for a run!

Indirection can help.

Check your assumptions.

Grab a cube toy.

Put the problem down.

Still nothing?

Sleep on it.

R-mode processing.

Search and retrieve.

Non-verbal.

Not directly controllable.

Runs in the background.

Unpredictable results!

**Answer can
come days later.**

Distract the L-mode.

Prime the pump...hop
in the shower.

Brains are very
powerful tools.

Simple steps.

Big payoff!

Books

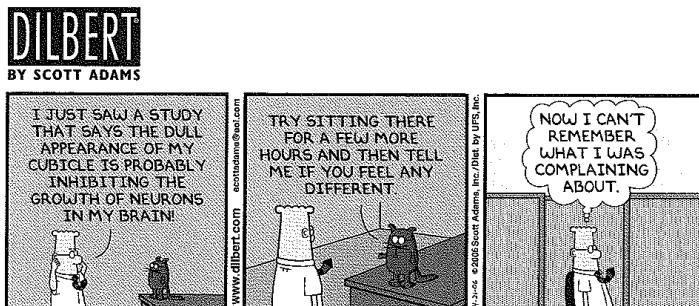
- Brain Rules
- A Whole New Mind
- Mind Hacks
- Your Brain: The Missing Manual
- Lifehacker
- Nudge

Books

- Predictably Irrational
- Sway
- The Black Swan
- Getting Things Done
- Pragmatic Thinking and Learning
- Drive

Websites

- <http://www.brainrules.net/>
- <http://lifehacker.com/>
- <http://www.43folders.com/izero>
- <http://www.mindhacks.com/>



Questions???

Thanks!

Please complete your surveys.