

Orion Academy Lecture Series  
Lafayette, California

# What Happens After College?

## Kids with Neurocognitive Disability Working in Engineering and Computing

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# Overview

- Geeks and the Silicon Valley
  - Benefits and Disadvantages of Neurocognitive Disability
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# Benefits and Disadvantages of Neurocognitive Disability



**What I See in My Son Paul - Age 16**

<b>Benefits</b>		<b>Disadvantages</b>	
Completely unaware of peer pressure		Perseverant, stubborn, hard to influence	
Amazing ability to concentrate - loves complexity		Gets stuck emotionally - sometimes needs help to move on	
Generous, loving, and much given to small acts of meaningful kindness		Can't organize things without help - homework or papers or his room	
Believes in long-term commitment, dedicated and loyal		Finds change difficult, finds fast social interactions confusing	
Fastidious		Slow to mature	
Doesn't lie well		Very literal, does not read body language	
Good sense of direction, sequencing, paths		Holds grudges with a very long memory	
Loves ritual		Does not take tests well	
Good at card and board games because he remembers all of the rule, details of play		Follows all of the rules and expects everyone else to do so	

# I work in Geek Central -



Sun Microsystems - Menlo Park Campus - in the Silicon Valley

- 1982 - 1984, Atari Sunnyvale Research Lab
- 1984 - now, Sun Microsystems
- What does Geek Central mean?
- Why do I think there is a place for our kids in the Silicon Valley?

# The Geek Syndrome

## - A Popular Concept

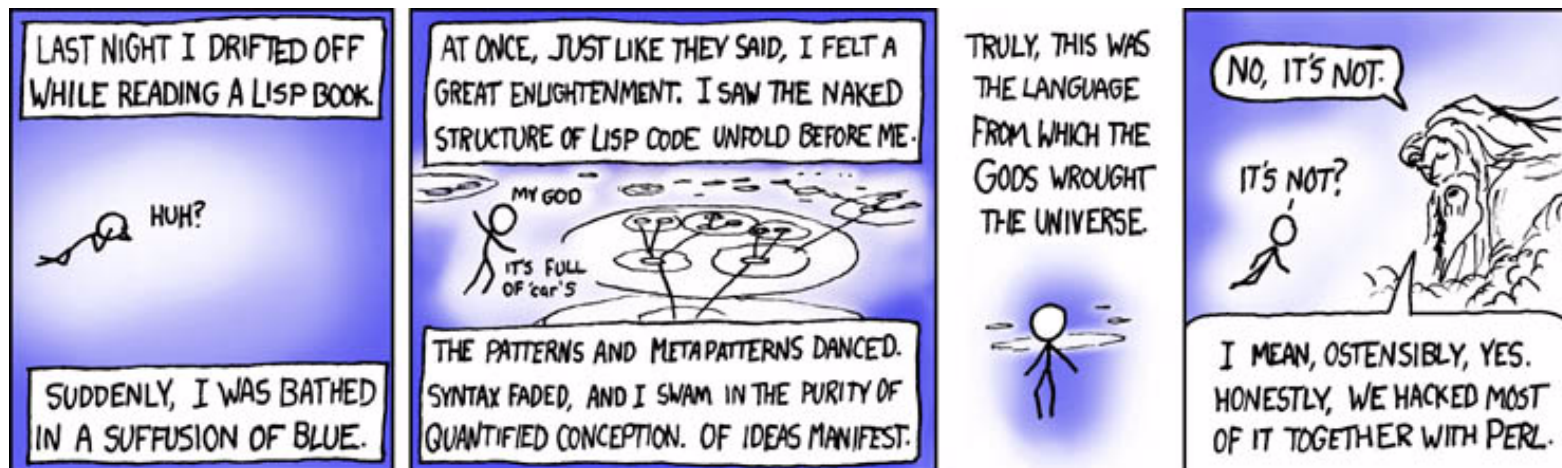
Geek (from Wikipedia):

“The word geek is a slang term, noting individuals as ‘a peculiar or otherwise odd person, especially one who is perceived to be overly obsessed with one or more things including those of intellectuality, electronics, etc.’”

See p.21 for more.

**“Most of you are familiar with the virtues of a programmer. There are three, of course: laziness, impatience, and hubris.”**

- Larry Wall (with Randal L. Schwartz and Tom Christiansen) writing in the second edition of *Programming Perl*



xkcd.com by Randall Munroe

See p. 22 for more.

# Engineers are Socially Abnormal (Statistically Speaking, Of Course!)

## **66% Intuitive Thinkers**

- Their personalities are assessed as rational and pragmatic, they are self-contained problem-solvers
- Compared to just **14%** in the Intuitive Thinker personality group in the general population

See p. 23 for more.

# Geek Offices

Neatness counts in your work, but not always in your office, dress, or hair color...



Less Typical↑  
(more lived in)→



More Typical  
(less used) ↓





# Geek Wear 1

from *www.thinkgeek.com* and *store.xkcd.com*



You read my t-shirt.  
That's enough social  
interaction for one day.

<GEEK>



My normal approach  
is useless here.

$$\begin{aligned}\sqrt{\heartsuit} &= ? & \cos \heartsuit &= ? \\ \frac{d}{dt} \heartsuit &= ? & \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \heartsuit &= ? \\ \mathcal{L}\{\heartsuit_t\} &= \int_0^\infty e^{-st} \heartsuit_t dt = ? \\ \text{MY NORMAL APPROACH IS USELESS HERE}\end{aligned}$$

# Geek Wear 2

- “Never dress better than your boss”  
(a common saying)
- “Be aware of the effect your personal appearance has on others and, in turn, on you”  
(from Skakoon and King, *The Unwritten Laws of Engineering*, 2001)
- For Engineering staff, the Silicon Valley accepts a broader range of dress than does most of Corporate America.\*  
However, there are consequences for being too wild.

\* For specific dress suggestions, see p.25

The concept of Idiosyncrasy Credit  
is part of Silicon Valley culture -

**“You can be as Strange  
as you are Good.”**

(a common saying)

# Summary

For Engineering staff, the Silicon Valley accepts a broader range of

- Behavior
- Dress
- Office neatness
- Personality and style

than is typical of Corporate America.\*

That is, Silicon Valley can be a comfortable place for Geeks.

\* To learn what is typical, read Skakoon and King - *The Unwritten Laws of Engineering*, 2001

# Finding a Job in the Silicon Valley - What Counts?

- Recommendations Count
- Your academic degree, where you graduated Counts
- Experience Counts
- Learning fast, solving problems fast Counts

For specifics, see p.26

# A Way to Get Experience Before You Get a Job: Open Source

- Start with *sourceforge.net* No pay but many opportunities to show your stuff on small software projects.
- Fix bugs, make tools, optimize, document, create a good reputation in the worldwide technical community.
- Join the global electronic conversation of Engineering and the computing industry.

“On the Internet,  
nobody knows  
you’re a dog.”



“On the Internet, nobody knows you’re a dog.”

Peter Steiner  
July 5, 1993 cartoon  
from *The New Yorker*  
(Vol.69 (LXIX) no. 20)

See p. 27 for more.

# 3 More Ways to Get Experience Before You Get a Job

- **Internships -**

Often three to six months' duration. Can serve as one long job interview. Most Silicon Valley internships are paid. Internships usually happen in college, during summer break, or shortly after graduation.

- **Volunteer projects -**

Often office clerical work or low-level programming work (such as creating a web page, database, or set of web tools for a non-profit organization). Learn, create a body of work, earn a good reputation and recommendations. You can volunteer lifelong: during or after college.

- **College jobs -**

Start small in a safe environment while still in school. Even office clerical jobs can give excellent experience and contacts.

Check with your college's Disability Resource Center (DRC).

# College -> Interview -> Job

- Almost all jobs require one or many interviews before hire but the unusually talented can be a special case.
- HR (Human Resources) will try to filter in a preliminary interview - to save the manager time. HR is often *very* conservative.
- For those who will probably make a poor impression during an interview, some alternatives:
  - Option #1 - **Be introduced**  
Have someone else speak for you - establishing expectations and context.
  - Option #2 - Let your portfolio speak for you
  - Option #3 - Grow a big job from small projects



# Networking - Real and Virtual

- Virtual interaction in Second Life (Web-based World)-  
Meet at “Naughty Auties” and “Brigadoon”
- Join a Asperger’s Teen/ Young Adult Support Groups  
(there is one in San Francisco - others?)
- Join a LinkedIn Web-based Social Networking Group -  
“Linked to Asperger’s” and “Aspiritech”
- Working from home may not work well - not enough social  
context for you, your manager, or co-workers.

See p. 28 for more

# Technology is Fun!

“I, for one, am and will always be a practicing technologist. When denied my minimum daily adult dose of technology, I get grouchy. I believe that technology is fun, especially when computers are involved, a sort of grand game or puzzle with ever so neat parts to fit together... If the technology you do isn't fun for you, you may wish to seek other employment. Without the fun, none of us would go on.”

- Ivan Sutherland, *Technology and Courage*, 1996

Over 55 patents.

Computer History Museum Fellow, 2005

AM Turing Award, Association for Computing Machinery, 1988

IEEE John Von Neumann Medal, 1997

# Summary

- What counts in finding a job?  
Recommendations, Academics, Experience, Being Fast.
- Get experience before you get a job.
- Get introduced.
- Network.
- Have fun!

*Speaking Notes  
&  
Additional Material*

# The Geek Syndrome - A Popular Concept

- December 2001, *Wired* magazine published an article by Steve Silberman called "The Geek Syndrome"

"It's a familiar joke in the industry that many of the hardcore programmers in IT strongholds like Intel, Adobe, and Silicon Graphics - coming to work early, leaving late, sucking down Big Gulps in their cubicles while they code for hours - are residing somewhere in Asperger's domain. Kathryn Stewart, director of the **Orion** Academy, a high school for high-functioning kids in Moraga, California, calls Asperger's syndrome 'the engineers' disorder.'"

- April 2002, *Time* published its own "The Geek Syndrome" by J. Madeleine Nash:  
"There is no question that many successful people - not just scientists and engineers but writers and lawyers as well - possess a suite of traits that seem to be, for lack of a better word, Aspergery. The ability to focus intensely and screen out other distractions, for example, is a geeky trait that can be extremely useful to computer programmers."

- Geek

(from Wikipedia):

"The word geek is a slang term, noting individuals as 'a peculiar or otherwise odd person, especially one who is perceived to be overly obsessed with one or more things including those of intellectuality, electronics, etc.'"

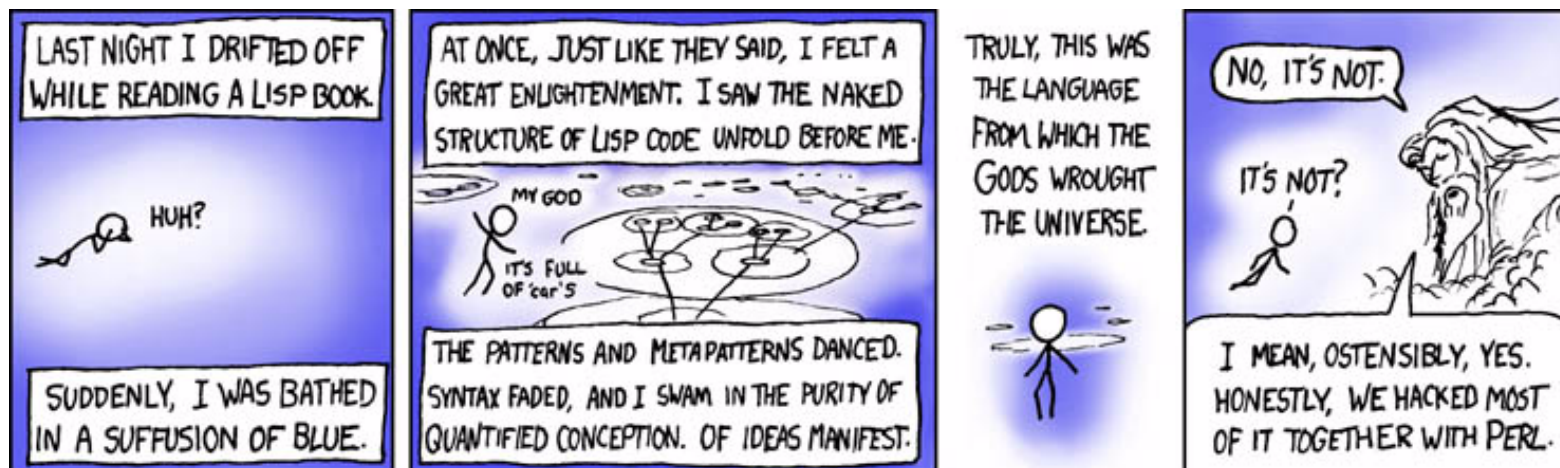
# “Most of you are familiar with the virtues of a programmer. There are three, of course: laziness, impatience, and hubris.”

- Larry Wall (with Randal L. Schwartz and Tom Christiansen)  
writing in the second edition of *Programming Perl*

“1. **Laziness** - The quality that makes you go to great effort to reduce overall energy expenditure. It makes you write labor-saving programs that other people will find useful, and document what you wrote so you don't have to answer so many questions about it...

2. **Impatience** - The anger you feel when the computer is being lazy. This makes you write programs that don't just react to your needs, but actually anticipate them. Or at least pretend to...

3. **Hubris** - Excessive pride, the sort of thing Zeus zaps you for. Also the quality that makes you write (and maintain) programs that other people won't want to say bad things about...”



xkcd.com by Randall Munroe

# Engineers are Socially Abnormal (Statistically Speaking, Of Course!)

Millions of people take personality assessments each year. Two popular types of personality assessments or inventories are the Myers-Briggs personality assessment (called the MBTI - Myers-Briggs Type Indicator) and the Keirsey temperament sorter. These tests are based on Carl Jung's type theory of four cognitive functions (thinking, feeling, sensing, and intuition), each with an orientation of extroverted or introverted.

In an unpublished 2002 survey of 143 experienced and senior staff working in development and research Engineering and Computing, mostly individual contributors but including some managers and executives, there were:

## **66% Intuitive Thinkers (NT group)**

- compared to **14%** in the NT group in the general population -

Keirsey.com calls the NT group "Rationals":

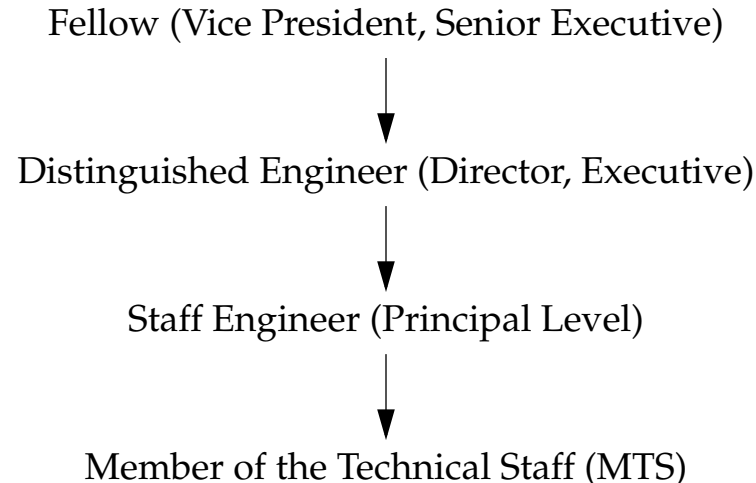
"Rationals are the problem solving temperament, particularly if the problem has to do with the many complex systems that make up the world around us. Rationals might tackle problems in organic systems such as plants and animals, or in mechanical systems such as railroads and computers, or in social systems such as families and companies and governments. But whatever systems fire their curiosity, Rationals will analyze them to understand how they work, so they can figure out how to make them work better."

# Engineering's Social Structure: A Meritocracy

“Programming managers have long recognized wide productivity variations between good programmers and poor ones. But the actual measured magnitudes have astounded all of us. In one of their studies, Sackman, Erikson, and Grant were measuring performances of a group of experienced programmers. Within just this group the ratios between the best and worst performances averaged about 10:1 on productivity measurements and an amazing 5:1 on program speed and space measurements! “

- Frederick P. Brooks, Jr. *The Mythical Man-Month*, 1975

## Sample Engineering Management Structure





# Personal Appearance

“Be aware of the effect your personal appearance has on others and, in turn, on you

Permissiveness and dress codes aside, your appearance probably has a far greater influence on how you are viewed by those around you than you could ever imagine. Bear this in mind when you define and present your workplace image. Three rules of thumb will serve you well in this regard.

1. Look at how those in the positions to which you aspire are dressed and groomed, then follow their lead.
2. Dress appropriately for the occasion, whatever it is, including everyday work. When in doubt, slightly overdressing is prudent...
3. Conservative styles and colors in clothing as well as conservative grooming will never be wrong, at least in most engineering circles....

Of course, we all know some very good engineers who are oblivious to such details. You can be sure that their apathy in this regard has been noted by those around them, if not explicitly, certainly subconsciously.”

(from Skakoon and King, *The Unwritten Laws of Engineering*, 2001)

# Finding a Job in the Silicon Valley - What Counts?

## - Your academic degree, where you graduated Counts

- Did the interviewer go to the same school as you?

## - Recommendations Count

It's not who you know, it's who knows you (and trusts you)

- Who will recommend you?
- Who will introduce you, stand behind you, give you their good word?

## - Experience Counts

Preferred accomplishment areas include -

- Demonstrated technical excellence
- Demonstrated leadership
- Demonstrated creative ability
- Good recommendations from people with established reputations
- Passion - enthusiasm for technology
- Papers, patents, presentations, publications (objective evidence)
- Work history
- Experience and reputation in the wider technical community, including: open source, industry standards development, architectural review, mentoring. (Being a good professional citizen)
- Ability to communicate (written and verbal, blogging counts!)
- For new graduates - Academic history, recommendations by professors
- *Accomplishment is not expected in all areas but the more the better!*

## - Learning Fast, Solving Problems Fast Counts

- Technical interviews - how fast can you solve a problem?
- How quickly can you become an expert?

# Why Work on Open Source?

“Major motives used to explain why users would voluntarily work on these basic [open source software project] tasks include:

- (1) a user’s direct need for the software and software improvements worked upon;
- (2) enjoyment of the work itself; and
- (3) **the enhanced reputation that may flow from making high-quality contributions to an open source project.”**

- Karim R. Lakhani, Eric von Hippel, 2003

“The ‘utility function’ Linux hackers are maximizing is not classically economic, but is the intangible of their own ego satisfaction and **reputation among other hackers.**”

- Eric Raymond, 2001

# Networking - Real and Virtual

“The more people you know, the more people you meet, the more people you talk to, the more people you enlist as part of your own personal job-hunting network, the better your job-finding success is likely to be. Therefore, you must try to grow your contacts wherever you go. This, of course, is called ‘networking.’ I call it ‘building your grapevine’.”

- Richard Nelson Bolles, *What Color is Your Parachute?*, 2009

- Virtual interaction in Second Life -  
Meet at “Naughty Auties” and “Brigadoon”
- Join a Asperger’s Teen/ Young Adult Support Groups  
(there is one in San Francisco - others?)
- Join a LinkedIn Group -  
“Linked to Asperger’s” and “Aspiritech”

“The internet augments real-world social life rather than providing an alternative to it. Instead of becoming a separate cyberspace, our electronic networking are becoming deeply embedded in real life.”

- Clay Shirky, *Here Comes Everybody*, 2008

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