

We teach the venerable Chinese martial art of Tai Chi Chuan to people with special needs. The students get better health, an inclusive social group and life goals in the form of performance-based collegiate bachelor's and master's degrees. The curriculum is similar to what a neurotypical Chinese student concentrating in Chen family style Tai Chi Chuan would study at a sports university - without essays, exams and energy drinks, of course. Most of our students are in what is termed here in the United States the autism spectrum. However, our database currently contains 214 genes implicated in 97 named syndromes in that category, so we do not find the term 'autism' very meaningful. We rather boldly declared that if someone could walk and wanted to learn, we would find a way to teach them. This has required willingness to engage with students with Down Syndrome, cerebral palsy, arthrogyrosis, ataxia and dozens of other conditions. As of today, our database also contains information about 37 other disability categories including 537 other named syndromes and 1126 other genes. Even if we do not expand the categories we, alas, expect more genes of interest to be identified.

In class, we ask students to use

1. biosensors to measure blood pressure, heart rate and temperature. Given a high risk of diabetes, we are interested in non-invasive blood glucose monitoring. Initially, we were primarily interested in getting warning of seizures. At one time, we thought one smart watch would suffice for these measurements.
2. pressure sensors in floor mats and seat cushions to measure balance and stillness during sitting meditation and standing meditation
3. a hat or cap with an accelerometer to track head sway. Sadly, we have not found smartglasses to be useful for this - or anything else.



4. We are currently experimenting with shoe inserts and sports sleeves (see above left on the right arm) as garments to embed temperature sensors in order to track pain.

5. smart garments in the form of a pi sha with location sensors measuring x y z coordinates. The blue outer garment with yellow trim shown above right is a pi sha. The students follow videos of a grandmaster (typically the illustrious Chen Zhenglei) and are graded on the performance of each movement. This provides parents and physicians with a daily digital stream of scores so that changes in diet, medications, sleep and logistics can be quantitatively assessed. We combine the scores across sets to produce a velocity of learning - somewhat similar to a stock index. If the scores go up, the change was probably good. We provide parents with free software code-named HERON that acts as an electronic diary. HERON is fairly compact: it is currently 55 Windows forms, 20,000 lines of code and the executable (.exe) is about two megabytes. HERON communicates with another application code-named SAITO which has nearly 500 Windows forms, nearly 200,000 lines of code and whose executable is nearly 16 megabytes. SAITO handles all of the school, teacher and student data processing, but SAITO currently lacks support for epigenetic influences.

By sheer coincidence we have two students with mutations in the ADNP gene on chromosome 20. In many cases variations in this gene give rise to Helmsmoortel-van der Aa syndrome, which is within the autism spectrum. It chanced that we could measure significantly different velocities of learning - upon further investigation by the original discoverers and others it has become clear that often one must speak not of the gene but rather of the specific mutation. As is known, for some genes like HTT (causes Huntington's disease) the quantity of polynucleotide repeats is critical. We currently track 41 such genes. In other cases different variations of the gene cross category boundaries. For example, some polymorphisms of the CD40 gene are implicated in Alzheimer's and cause effects when the subject is 50 years or older, while other polymorphisms cause an overactive thyroid that underlies Graves disease which manifests immediately (at birth, if not before) or in the early 20s. We currently track 138 genes that are in more than one syndrome.

After some discussions with former members of the famed Beijing Wushu Team we are in the process of having students examined by doctors of Traditional Chinese Medicine with an eye toward assignment of individual homework. This has taken the form so far of extra repeats of selected sequences from the various tai chi tools, qigong and Tai Chi Chuan sets we teach.

Of considerable interest to us is to provide parents and physicians an anonymous search capability so that one might ask, for example. "what dosage of Prozac do other students world-wide with Fragile X syndrome take AND when is the drug taken relative to meals and other drugs?" Velocity of learning allows some fairly sophisticated statistical treatments to be used. As one can easily imagine, our data violates almost all of the assumptions underlying traditional rho (product-moment) statistics - there are non-linear effects, manipulated variables and joint distributions that are not normal.

Our website, [www.silverwolfwushu.com](http://www.silverwolfwushu.com), already sprawls across thousands of webpages. The sprawl is going to worsen as we are adding support for online teaching in 20 languages.

From a financial perspective we estimate that in California alone there nearly one million people in the spectra that interest us. Our estimates are over nine million people in the United States, over fifty million in China and over 300 million people on Planet Earth. In the United States (at least) we would strongly prefer not to charge families. This means we bill social services agencies - they vary considerably by state. In California we find the unique arrangement of regional centers. We would expect to charge \$200 per month for tuition for 120 hours of teaching - we strongly recommend two hours per day every day. We also recommend \$50 per month in a fund managed by parents for clothing, weapons and accessories. Three classes of 16 students each means \$9600 per month in revenue. Yes, we know we could charge twice that. We are largely indifferent where we physically teach, so we are looking for financial help renting or leasing about 3000 square feet. Health and education code requirements vary a fair amount, but we would expect to need three lavatories, one shower and some cameras with tracks.

