What Do Computer and Information Research Scientists Do?

Computer and information research scientists don’t spend a much time designing applications or typing code. They spend many years studying discrete mathematics, computation theory, formal languages, algorithms and data structures so that they can find clever solutions to the most difficult problems facing computer science. Rather than a laptop or desktop computer, these researchers work with pen and paper most of the time, balancing equations and looking for more efficient solutions to existing problems.[\n]

[extend]One of the biggest problems known to computer science is question of [a][P versus NP](http://www.claymath.org/millenium-problems/p-vs-np-problem)[/a]. In this problem, P stands for polynomial time complexity and NP stands for nondeterministic polynomial time complexity. The question computer scientists want to answer is whether the two sets of problems are in fact the same set, two overlapping sets or two completely separate sets. If they were found to be the same set of problems, mathematics and computer science would be transformed, and many extremely difficult problems would become much easier to solve.[\n][/extend]

[link]http://www.claymath.org/millenium-problems/p-vs-np-problem[/link]