Recent changes in the way we use computers require that computer designers consider additional factors beyond performance and energy efficiency. Two of the key ones are security and programmability. With the sunset of Moore’s law such considerations are likely to become more prominent. In this talk, I will describe two examples of such design considerations. I will start with InvisiSpec, a novel strategy to defend against hardware speculation attacks in multiprocessors. The idea is to extend the processor and cache hardware to make speculative loads invisible in the cache hierarchy. There are other possible designs that provide different tradeoffs between coverage and hardware complexity. Clearly, we are at a point when processors and cache hierarchies need to be redesigned for security considerations. The second example is related to programmability. With the advent of Non-Volatile Memory (NVM), it is unclear how programmers need to change or annotate their codes to take advantage of the new technology. A variety of persistency models add to the confusion. Our approach is to minimize programmer involvement. In the remainder of the talk, I will outline AutoPersist, a new approach to program for NVM that minimizes programmer effort.