One look at Windows Phone 7, Microsoft’s latest upcoming mobile operating system, and you’ll immediately notice that it’s unlike any other Windows Mobile OS. Instead of trying to revamp their last version of Windows Mobile 6, Microsoft has taken a leap of faith, completely scrapping Windows Mobile 6. Windows Phone 7 is a new and unexpected fresh start, quite distinct from all the other mobile phone OSs.

Windows Phone 7 has a plethora of functionalities, enough to sate the geekiest of phone geeks. The Start screen is organized on the home screen in “live tiles,” which are dynamically updating boxes that provide quick access to content. For example, creating a tile of a friend shows previews of that friend’s latest posts or pictures. There are also “hubs” that provide easy access to the user’s contacts, email, pictures, and other information. Windows Phone 7 has also managed to keep some of the good things of the past. Windows Phone 7’s “Metro UI” borrows elements from the Zune: white text on dark backgrounds, oversized fonts, and the minimalistic interface.

Overall, the minimalism is elegant. Transitions are smooth, texts are crisp and readable, and most features are intuitive. The calendar, as plain or “Retro” as it may seem, provides great functionality with its simplicity, black background and high contrast text. The status bar even hides itself after a while, similar to how the Windows OS taskbars may operate.

Another strong feature is its tight integration with Microsoft Office. There is OneNote for taking quick notes, Word and Excel, for editing, creating, and viewing documents, and PowerPoint, for some limited viewing and editing. The integration with Xbox Live is a plus, allowing members to view achievements and leaderboards, message their friends, or play multiplayer games on the device through the Live service. Its keyboard is very well designed for messaging and composing emails, featuring the same kind of autocorrect and autocompletion functions found in iOS/Android.

No OS can be perfect and Windows Phone 7 does have its faults. The most heinous of which being its lack of copy/paste functions, a feature that earlier versions of Windows Mobile had offered. Other missing features include multitasking and a full functioning browsing experience. Currently, the mobile IE app will not support Flash, HTML5, or even Microsoft’s own Silverlight, which definitely puts it below Android’s and iPhone’s browsers.

However, the pros of Windows Phone 7 definitely outweigh the cons. The only major obstacle Windows Phone 7 seems to face right now is the amount of catching up it has to do. With iPhone 4/iOS4 and Android 2.2 bidding for more users, in addition to their currently huge user bases, it will be difficult for Windows Phone 7 to take off. With potential customers being constantly lost, Windows Phone 7 will have to do more than just function well to get these customers back.

Jason MacDonald (SCS ’13)
Can you give us a brief introduction about yourself?
I got my Bachelor’s degree and Master’s degree in EECS from MIT. Before coming to CMU, I was a professor of computer science at UC Berkeley until 1999. In 2002, I was elected to the United States National Academy of Sciences.

What are your current research areas related to?
They mostly revolve around understanding. Take Google for example. It is a great way to find stuff out. It is amazing how over time Google figures out what I want better and better. Often I do random searches to check how its understanding is coming along.

You deal with some aspects of ML?
I am interested in understanding the world. We assume laws are simple and precise like F=ma. I want to get computers to understand stuff just like human beings do. I have been looking closely at the laws of physics. I want to get a sense of how physicists came to understand stuff and how they thought about how the world works without any previous knowledge of it.

Do you have students working with you on this stuff?
Yes, I have some students working for me. I have been working on understanding the SLOANE encyclopedia of integer sequences with students which can be used to identify a sequence by just inputting the first few integers of any sequence. You can put in 1,2,3,5 and Sloane will output the Fibonacci. I want it to be able to infer what a sequence is without it having it formerly in its data set. I have some students working on cryptography as well.

What do you do in your free time apart from teaching and research?
Teaching is great and that’s how I learn myself. There’s nothing like having to get up in front of 100 students and teach. I like to go jogging most of the times.

What tips would you give students to expand their knowledge base and approach professors for research?
Undergraduates at CMU have a great advantage. They are taking classes from a lot of different professors who each know their subject very well. Students can accumulate all this knowledge from different classes and put it all together to come up with a great idea.
Launching a Distributed Denial of Service (DDoS) attack could be very harmful to any business. A DDoS attack is basically an attempt by which the botherder tries to deprive the services of a resource from the organization they would normally expect to have. A very common method of attack involves saturating the target machines with external requests so that it can’t either respond to any incoming traffic or responds so slowly that it is basically rendered useless. This leads to hampered network performance and this is what companies don’t need when they heavily rely on the speed and availability of networks.

To defend your computer or entire organization from being taken over by a botherder, several steps must be taken to ensure the security and privacy of one’s own data:

1. Have a powerful anti-virus and anti-spyware software installed
2. Companies should have a team dedicated to dealing rapidly with any infected computers
3. Be aware of the several methods used to propagate bots like social engineering techniques, phishing, etc.

Are bots capable of taking down an entire business? Bots are simple scripts written to run automated jobs over any internet: sifting through bytes of data, posting messages on various websites, etc. But cybercriminals often use bots illegally to steal vital information from corporate systems and then sell this valuable information to the highest bidder.

How do bots steal information without the knowledge of business owners and their employees? By ending up on any system through suspicious links in emails or pop-up advertisements. Once on the system, the bots are built to elude detection from anti-virus and anti-spyware scanners by morphing or just lying dormant and not affecting the system’s performance. But if we could easily detect such bots present on our system, then the cybercriminals would lose their most vital weapon: the user’s system itself.

That is a vital weapon as the cybercriminal then groups each individually infected machine together into a group called a Botnet. A Botnet is any collection of bots that run autonomously but mostly refers to a collection of compromised computers. The bot herder controls the entire Botnet from a remote location usually using an Internet Relay Chat (IRC) channel and employs a unique encryption scheme for stealth and protection against detection or intrusion into their bot network.

So how do Botnets bring an entire business to its knees? Botnets are capable of a variety of automated tasks as directed by the bot herder.

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If you would like to write for ACM Communications, subscribe, or get involved with ACM@CMU, feel free to e-mail us at acm-c@lists.andrew.cmu.edu.
Active-Matrix Organic Light Emitting Diode (AMOLED) screens are all the rage these days, and for good reasons too. Coupled with the benefits provided by the OLED (greater brightness, faster response time, wider viewing angles, lighter weight, higher durability, power efficiency, and lower cost in comparison to LCD) and the higher refresh rates and lower power consumption provided by the active matrix component, AMOLED is nothing short of small electronic devices’ fantasy screen. And fantasy it will remain.

High demand of these screens is creating a shortage that will last years.¹ As of now there are only two major producers of AMOLED screen, LG and Samsung. Both of which produce their own media devices (i.e. cellphones). So what happens when Samsung decides to release its new touch screen phone Galaxy S? The Samsung’s AMOLED export stop because they use the AMOLED screens themselves. The shortage problem is further complicated by the fact that Samsung recent came up with a Super AMOLED screen.

These Super AMOLED screens that every company is bidding for is supposedly much thinner, resulting in 20% higher brightness, 80% less sun reflection, and 20% reduced power consumption, resulting in higher sensitivity and lower reflection (due to lessening of space between the layers).

This favoritism has managed to kill two birds with one stone. First, the Galaxy S phone is being mass produced and distributed. Second, the Galaxy S phone now touts its self as having the rare Super-AMOLED screen that all companies and phone lovers want.

But the shortage hasn’t stopped HTC.

HTC Corporation, a global designer of smartphones, recently introduced Super LCD (SLCD) technology into a variety of HTC phones including the HTC Desire and Global Nexus One. The SLCD display offers an exceptional natural balanced colour, clear contrast, broad viewing angles and improved power efficiency.²

Instead of waiting around for the AMOLED screens HTC has decided to try out the SLCD with its apparently lower power consumption. What’s the community’s verdict on the better performance and better battery life? Unlikely to deliver. The only time a SLCD would trump its counterpart would be in direct sunlight, a contrast that is disappearing with each thinner AMOLED screens. For places like Florida, SLCD may work but for a place like Pittsburgh, AMOLED is recommended.

¹ [http://androidspin.com/2010/07/08/new-report-indicates-amoled-display-shortages-could-take-years/]