Encyclopedia of Video Games: The Culture, Technology, and Art of Gaming
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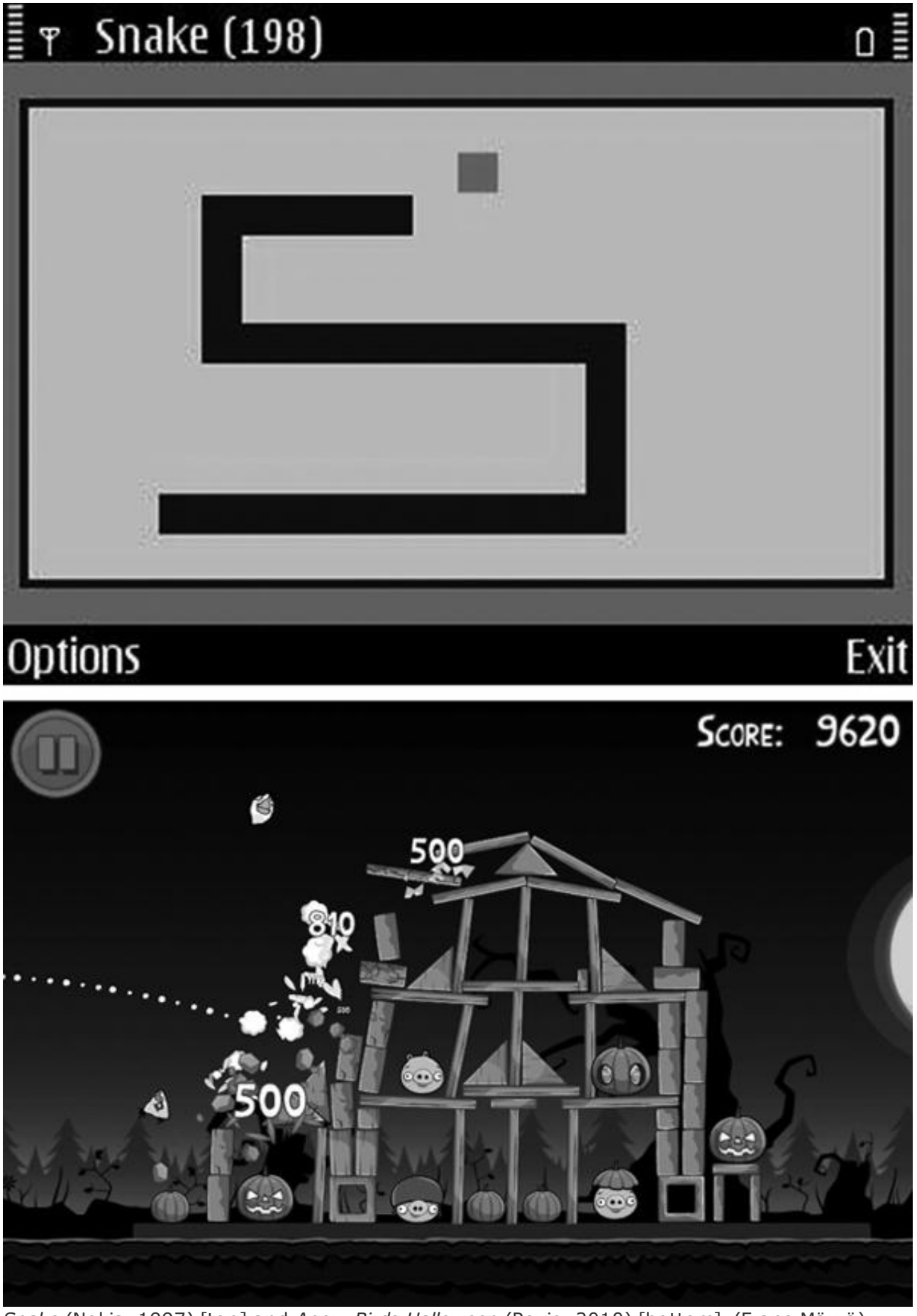
mobile games
Mobile games are games designed to be played on mobile phones or similar portable digital devices. Games designed for **handheld game consoles** are, however, generally not considered to be mobile games in this sense of the term. As media convergence and integration of technologies into small, multipurpose devices continues, games will move more freely from the screen of one device to another, and consequently it is likely that the term "mobile games" will grow even fuzzier in the future.
A mobile phone is effectively a small, network-enabled computer that users trust and carry around with them. Thus, the potential for original, on-line, and context-aware games implemented for mobile phones appears great, particularly considering that the number of mobile cellular subscriptions passed the six billion mark in 2012. Games have yet to reach that potential, however, and the most popular mobile game for over a decade was *Snake*, a simple **arcade**-style action-puzzle game, which has been included with Nokia handsets since 1997. As of 2012, the most popular mobile game of all time is *Angry Birds* (2009), which based its great success on innovative use of touchscreens. Technological restrictions, such as small screens and cramped keyboards, have kept mobile game design from reaching full maturity. Other challenges include the technological fragmentation of the marketplace, which limits business opportunities and the possibility of original or independent mobile games. Yet mobile **game design space** has nevertheless greatly expanded during the recent years, despite the lack of mobile broadband connectivity for many mobile phone users.



Snake (Nokia, 1997) [top] and *Angry Birds Halloween* (Rovio, 2010) [bottom]. (Frans Mäyrä)

Platform fragmentation is another issue that has slowed the evolution of mobile games: differences in software and hardware can require game developers to implement hundreds of release versions of a game to reach a critical mass of customers. The mobile operators' role as gatekeeper is another source of fragmentation: customers usually get new games through their operator's portal (the "carrier's deck"), and consequently individual arrangements with numerous operators need to be made to have a wide distribution for a

mobile game.

Several distinct mobile game ecosystems are currently in existence, each grown on top of a certain technology platform. The most popular systems include Java ME, Qualcomm's BREW, and dedicated smartphone operating systems, such as iPhone OS, Palm OS, Symbian OS, and Windows Mobile. Currently Java is the most open environment for a mobile game developer, whereas developing a native Symbian, iPhone, or BREW application involves going through a more strict screening and licensing procedure with the handset manufacturer, distributor, or operator. Online digital distribution is gradually opening up, and with a mobile web browser, it is possible to download and install Java game applications. Dedicated on-line "application stores" have also been released for different platforms, including Apple's App Store for iPhone, Nokia's N-Gage and OVI services, Blackberry App World, and Google's Android Market.

Many mobile games still look like scaled-down versions of established video games and game genres. Mobile **casual games** are a natural option for developers implementing gaming entertainment that is consumed in short breaks while commuting or otherwise filling in **time**. Many successful games are specifically designed to make best use of mobile phone **interface**, including using a simplified control scheme, and enjoyable and varied gameplay is possible using only one push button (Green, 2005). However, research and development done for mobile games goes beyond video games

formulas and aims at exploiting the unique opportunities provided by mobile devices. Such "truly mobile games" include location-based games or games that otherwise exploit context awareness and thus can be equally termed as mixed-reality, hybrid, or **pervasive games**. Games created for smartphones have also made innovative use of their integrated cameras, Bluetooth capabilities, and built-in sensors to facilitate **augmented reality** gaming. Always-on mobile data connections in contemporary mobile phones allow interesting multiplayer interactions while roaming the city streets. *BotFighters* (2000), by the Swedish company It's Alive!, was one of the earliest commercial location-based multiplayer games, relying on GSM cell locations and SMS messaging. The potentials of GPS tracking have been exploited by mixed-reality games like Blast Theory's *Can You See Me Now?* series (2001–2004) and Newtgames's *MogiMogi* (2004) in **Japan**. Nevertheless, the treasure-hunting style practice of "geocaching" remains the most popular type of "truly mobile" game today.

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Further Reading

Green, B. "One Button Games." *Gamasutra*, July 2, 2005, available at http://www.gamasutra.com/features/20050602/green_pfv.htm.

ITU, "Worldwide Mobile Cellular Subscribers to Reach 4 Billion Mark Late 2008." Press release, International Telecommunication Union (ITU), 2008, available at http://www.itu.int/newsroom/press_releases/2008/29.html.

Tammenkoski, M. "Dealing with a Fragmented Java Landscape for Mobile Game Development." *Gamasutra*, December 17, 2003, available at: http://www.gamasutra.com/features/20031217/tammenkoski_pfv.htm.