What Lies Beneath? The Forensics of Online Dating

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Background

If you are an overworked, 25-year-old professional, working through the clock, even dating websites can seem uninteresting and too time consuming. Thanks to the slide, scroll and swipe-based online dating smartphone apps. One can just scroll through pictures, and connect or pass profiles with a swipe on a smartphone. Value added features like geo-location based user filtering, college-based user matches, megaflirt and user-to-user messaging are available for a small premium subscription fees. This is exactly the phenomenon behind dating apps like Tinder, CoffeemeetsBagel, DateMySchool, Zoosk and many others.
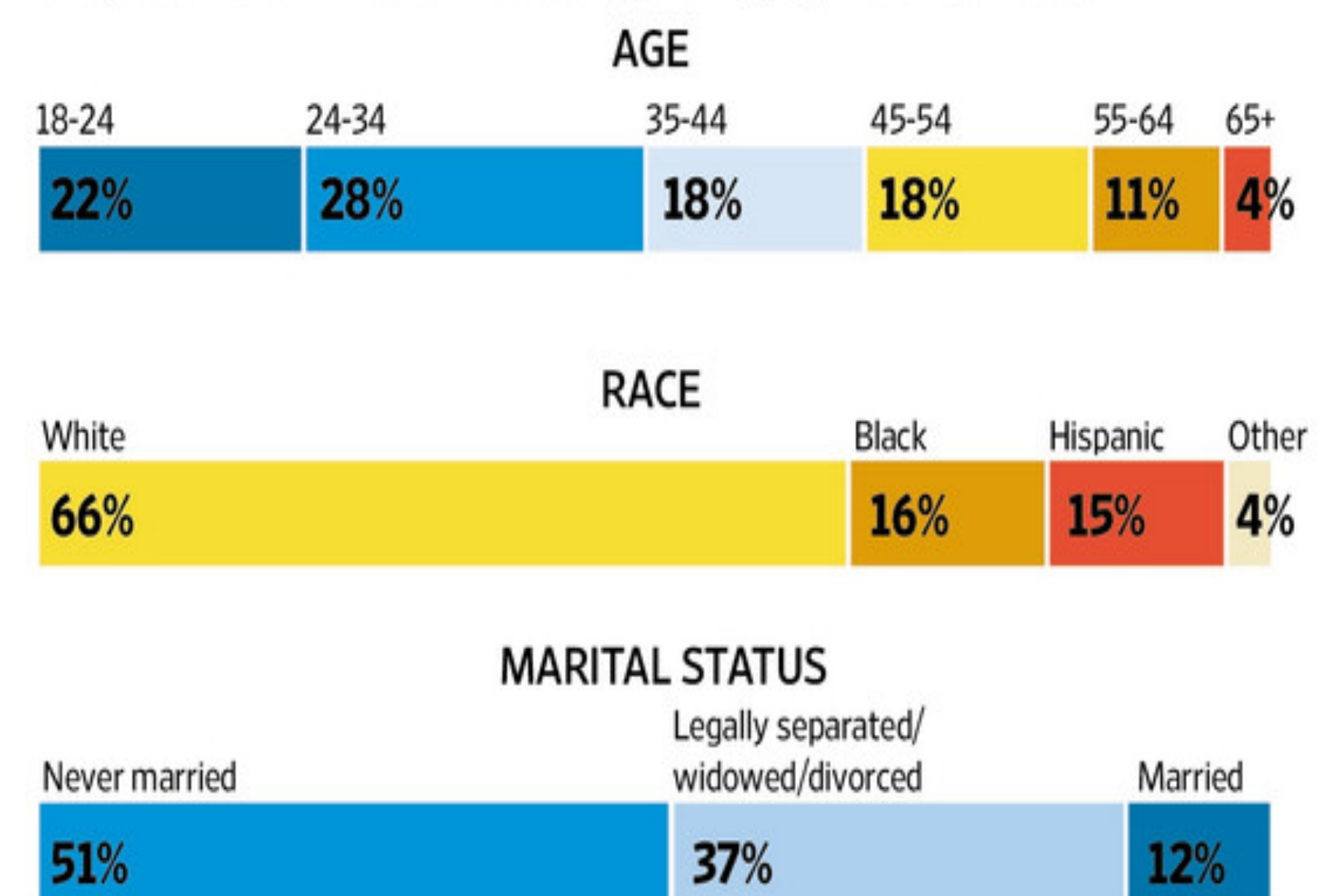
The matchmaking process on apps like these, use algorithms that highly depend on a matching-score generated based on user-details, preferences, geo-location, photographs, past relationships and so on. Most of the apps verify the user accounts using mobile phone numbers, e-mail addresses or social media sites like Facebook, Google+, etc. Some apps even track the geo-location constantly in-order to update matches. Such platforms that allow information storage and sharing, open doors to cybercriminals, who pry on the users.

The number of crimes involving dating apps has significantly increased over the past few years, given the smartphone boom of such apps. According to WSJ, "Online scams are as old as the Internet, but those that use romance as bait are on the rise as dating sites proliferate, authorities say. In 2012, the Federal Trade Commission created a separate category for them among the web crimes it tracks: "romance scam." Last year, the agency says, it received complaints of losses totaling $105 million, roughly even with the year before". This is one among the many such crimes based on online dating.

Therefore, it is important from a digital forensics point of view to understand the kind of data that is stored and shared by these apps. This research aims to discover the digital evidence from such apps in smartphones.

Dating Online
More than 2% of adults in the U.S. have participated in online dating in the past month. How online dating demographics break down:

AGE

18-24	24-34	35-44	45-54	55-64	65+
22%	28%	18%	18%	11%	4%

RACE

White	Black	Hispanic	Other
66%	16%	15%	4%

MARITAL STATUS

Never married	Legally separated/ widowed/divorced	Married
51%	37%	12%

Note: White and black statistics don't include Hispanics; Percentages may not add up to 100 due to rounding.
Source: GfK MRI   THE WALL STREET JOURNAL.

Apps Used

Implementation

- Platform used: iOS (iPhone 4 and 5)
- App Selection Criteria: Popularity, Geo-location and variety features.
- Interests:
    - Where the data from these apps is stored on a mobile device?
    - How can it be recovered?
    - How forensically-sound is the evidence collected?
- Tools used: Cellebrite and FTK+

References

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