

# TWC: Medium: Understanding and Illuminating Non-Public Data Flows: Evaluating Anti-Fingerprinting Privacy Enhancing Technologies

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<https://github.com/tadatitam/pet-inspector>



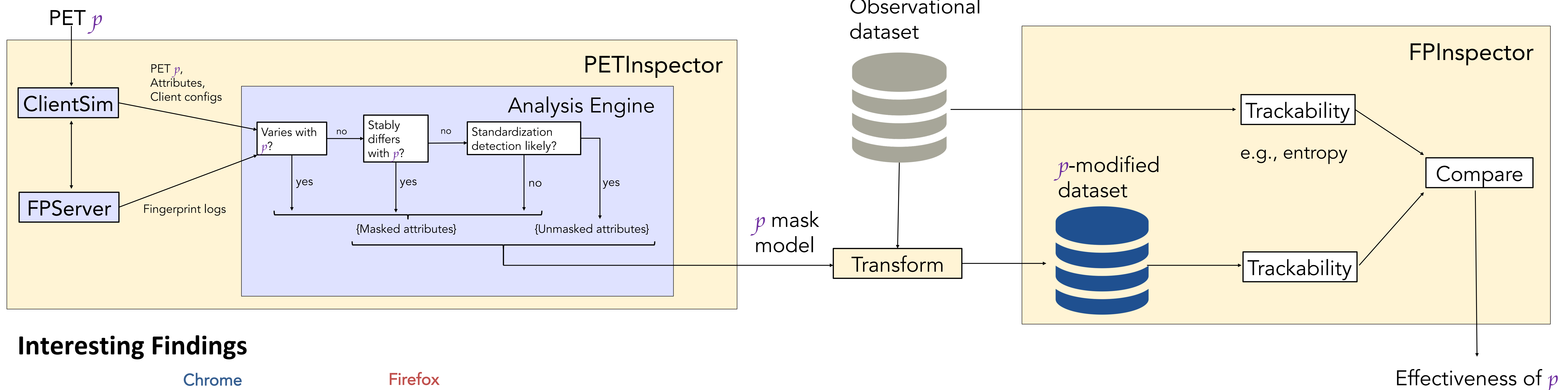
## Browser Fingerprinting

Collect unique information about the user's browsing platform, including

- Hardware : audio, graphic rendering, screen resolution, touch support
- Operating system: language, time zone, supported fonts
- The browser itself: its version, plugins installed, other HTTP headers

## Our Hybrid Solution

A new framework that combines experimental and observational methods



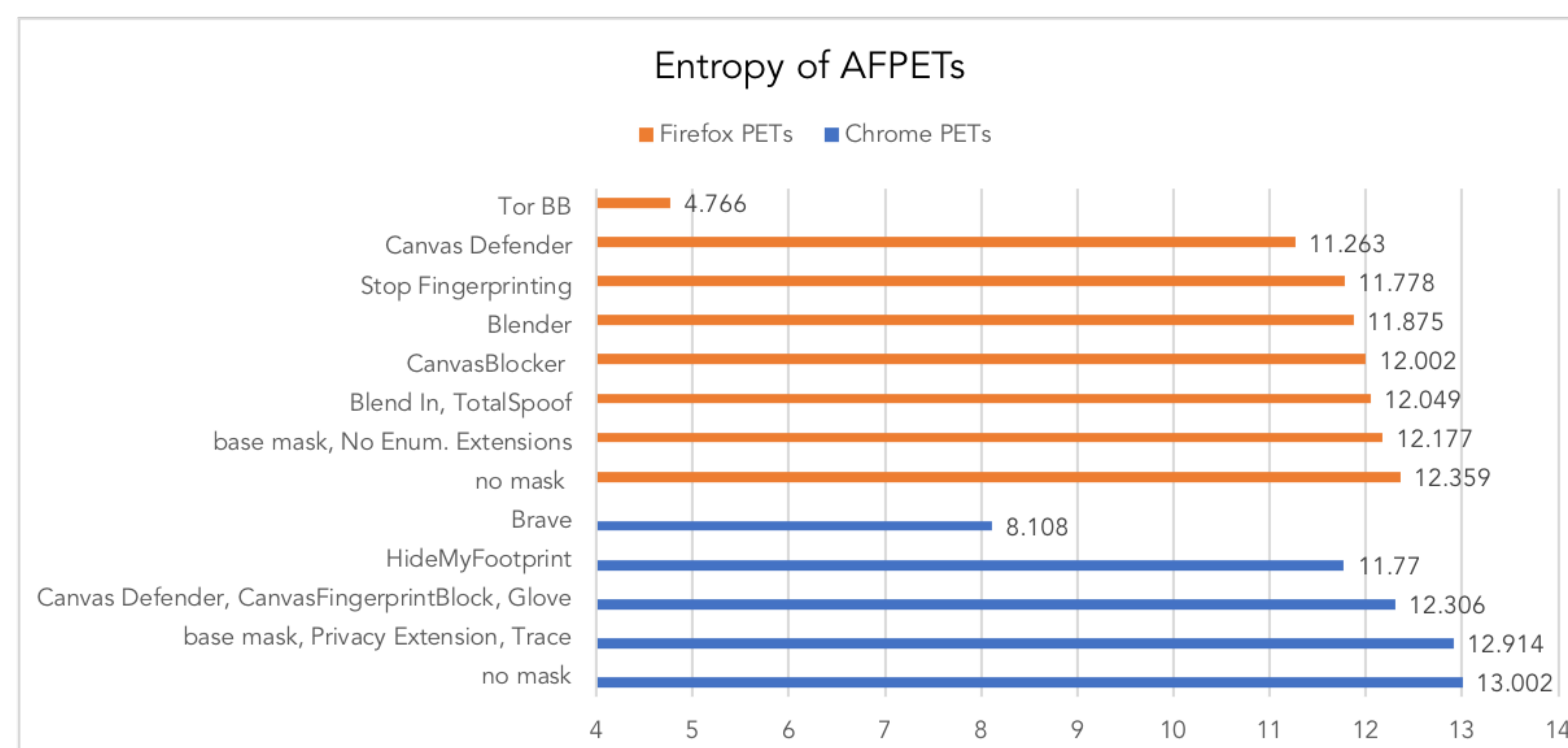
## Interesting Findings

	Chrome						Firefox								
	Brave	Canvas Defender	CanvasFingerprintBlock	Glove	HideMyFootprint	Privacy Extension	Trace	Blend In	Blender	Canvas Defender	CanvasBlocker	No Enum. Extensions	Stop Fingerprinting	Tor BB	TotalSpooF
buildID	.	.	.	.	.	.	.	⊕	⊕	×	×	×	×	⊕	+
canvas fingerprint	⊕	⊕	⊕	⊕	⊕	⊕ <sup>x/+</sup>	⊕ <sup>x</sup>	×	×	⊕	⊕	×	×	⊕	×
cookies enabled	.	.	.	.	.	⊕	.	.	.	.	.	.	.	.	.
cpu class	.	.	.	.	.	.	.	⊕	⊕	×	×	×	+	.	+
h.Accept	.	.	.	.	.	⊕	.	.	.	.	.	.	.	⊕	.
h.Accept-Encoding	.	.	.	.	.	.	.	.	.	.	.	.	.	⊕	.
h.Accept-Language	+	×	×	×	×	×	×	×	⊕	×	×	×	×	⊕	×
h.Pragma	.	.	.	.	.	+	.	.	.	.	.	.	.	.	.
h.User-Agent	⊕	×	×	×	×	⊕ <sup>x/+</sup>	⊕ <sup>x</sup>	⊕	⊕	×	×	×	×	⊕	⊕
javascript fonts	×	×	×	×	×	×	×	×	×	×	×	×	⊕ <sup>?</sup>	⊕	×
language	+	×	×	×	×	×	×	×	⊕	×	×	×	×	⊕	×
local storage	.	.	.	.	.	⊕	.	.	.	.	.	.	.	.	.
platform	×	×	×	×	×	×	×	⊕	⊕	×	×	×	×	⊕ <sup>x</sup>	+
plugins	⊕	×	×	×	×	×	×	.	.	.	.	⊕ <sup>+</sup>	⊕ <sup>+</sup>	⊕	.
screen.AvailHeight	×	×	×	×	×	×	×	×	×	×	×	×	×	⊕	×
screen.AvailLeft	×	×	×	×	×	×	×	×	×	×	×	×	×	⊕	×
screen.AvailTop	×	×	×	×	×	×	×	×	×	×	×	×	×	⊕	×
screen.AvailWidth	×	×	×	×	×	×	×	×	×	×	×	×	×	⊕	×
screen.Depth	.	.	.	.	.	.	.	×	×	×	×	×	×	⊕	×
screen.Height	×	×	×	×	×	×	×	×	×	×	×	×	×	⊕	×
screen.Left	.	.	.	.	.	.	.	.	.	.	.	.	.	⊕	.
screen.Pixel Ratio	×	×	×	×	×	×	×	×	×	×	×	×	×	⊕	×
screen.Top	.	.	.	.	.	.	.	.	.	.	.	.	.	⊕	.
screen.Width	×	×	×	×	×	×	×	×	×	×	×	×	×	⊕	×
session storage	.	.	.	.	.	⊕	.	.	.	.	.	.	.	.	.
timezone	×	×	×	×	×	×	×	×	×	×	×	×	×	⊕	×
touch.event	.	.	.	.	.	.	.	×	×	×	×	×	×	⊕	×
touch.max points	×	×	×	×	×	×	×	.	.	.	.	.	.	.	.
touch.start	.	.	.	.	.	.	.	×	×	×	×	×	×	+	×
webGL.Data Hash	⊕	+	+	+	+	×	×	×	×	+	+	×	×	⊕	×
webGL.Renderer	⊕	+	+	+	+	×	×	×	×	+	×	×	×	⊕	×
webGL.Vendor	⊕	+	+	+	+	×	×	×	×	+	×	×	×	⊕	×

## Undocumented behaviors and inconsistencies in some AFPETs

⊕ indicates AFPET's documentation purports that the attribute is masked. + indicates observed masking, × indicates no masking found even when it is likely to detect it, and · indicates inconclusive results. For the results that we manually double checked, we include the outcome of that check as a superscript. Here, × denotes that the PET really does not mask the attribute, + that it does, ×/+ that it is not masked by default but can be with configuration, and ? that the manual analysis was inconclusive.

## Large difference in entropy



## Broader Impacts

Reported issues:



Trained a grad student and an undergrad (now a Ph.D. student)

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