// VR JOURNALISM TIPSHEET
A collection of tips, links and resources to help you better navigate through the emerging world of virtual reality and journalism.

// VR APPS
Here are a few apps to convert your smartphone into a Head-mounted Display (HMD).

LIFE VR
NYT
Within
The Guardian VR

JOVRNALISM
YouTube
ARTE360
RYOT

NOTE: There are numerous apps that could be listed. We also recommend you check out Jaunt VR, Emblematic Group, Empathetic Media, Felix & Paul and others. (Beyond apps: There is also development in open-Web, browser based VR.)

// HEAD-MOUNTED DISPLAYS (HMD)
There is more than one way to consume VR experiences, which range from high-end devices to cardboard. Here are a few you should know.

Oculus Rift S
$399.00

Oculus Quest
$399-$499

Oculus Go
$199-$249

HTC Vive
$499

PlayStation VR
$349

Google Cardboard
Free-$39.99

Microsoft Hololens (MR)
$3,000

Others
// CREATING 360 VIDEOS
Here’s a range of different gear you can get to produce 360, immersive videos. They range in price and quality. Also, factor in the host of a high-end computer to help render and process these files. (∗ means they self stitch)

<table>
<thead>
<tr>
<th>Camera/Model</th>
<th>Price Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insta360 Nano / Air</td>
<td>$130-$200</td>
</tr>
<tr>
<td>Insta360 ONE X</td>
<td>$399</td>
</tr>
<tr>
<td>Samsung Gear 360 (2017)</td>
<td>$230</td>
</tr>
<tr>
<td>Ricoh Theta Z1</td>
<td>$999</td>
</tr>
<tr>
<td>GoPro Fusion</td>
<td>$299</td>
</tr>
<tr>
<td>Insta360 Pro</td>
<td>$3,500</td>
</tr>
<tr>
<td>Nokia Ozo</td>
<td>$45,000-$60,000</td>
</tr>
<tr>
<td>Z Cam S1</td>
<td>$2,500</td>
</tr>
<tr>
<td>GoPro Omni</td>
<td>$1,500-$5,000</td>
</tr>
</tbody>
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NOTE: While many come with their own stitching software or app, I recommend you get the SGO Mistika VR software. After stitching, it is just like any other video and can be enhanced with Adobe After Effects and edited through Adobe Premiere, AVID, etc. to output an MP4. These videos can be published to Facebook and YouTube (after injecting some VR meta data) or other startup video platforms.

// CREATING INTERACTIVE VR
While 360-degree videos are immersive and a great way to start, many do not consider them “true” VR, which means you can’t interact or move around within them. “True” VR is often produced by 3D/CGI graphics input into a gaming engine. Here’s some applications you know show.

<table>
<thead>
<tr>
<th>Software</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autodesk Maya</td>
<td>3D modeling</td>
</tr>
<tr>
<td>CINEMA 4D</td>
<td>3D modeling</td>
</tr>
<tr>
<td>Unity</td>
<td>Game engine</td>
</tr>
<tr>
<td>Unreal Engine</td>
<td>Game engine</td>
</tr>
</tbody>
</table>

NOTE: More and more applications are being developed to simplify the creation of these fully VR experiences.
// RESOURCES AND LINKS
With more and more journalists testing and exploring this emerging platform, there is a growing list of places to turn to for advice. Here is just a small collection.

360 experiences on YouTube phone app (Note: Make sure you search within the app)
“Clouds Over Sidra” is the Syrian refugee piece perhaps most known. Made by Within, formerly VRSE.
“Michelle Obama 360 The Verge” used graphics and new techniques to do immersive edits The Verge
“Inside North Korea ABC News #360Video” to get a glimpse inside the country, produced by ABC News.
“After Solitary 360™ to experience FRONTLINE/Emblematic’s photogrammetry/videogrammetry piece.
“The Deported JOVRNALISM” to see the award-winning JOVRNALISM series about deportation
“Buzz Aldrin: Cycling Pathways To Mars” created by 8i and distributed by TIME Inc
“360° meet the largest dinosaur BBC One” to walk alongside a dinosaur, produced by BBC

Journalism360: Google News Lab + Knight Foundation + ONA
A collaboration for the development and advancement of immersive journalism. It will offer training, grants and more. Details here: https://medium.com/journalism360/introducing-journalism-360-d58b9e72e2e2#lu2zymykn0

VR Journalism Google Group and Slack
If you are a journalist who is actively producing VR experiences, apply to join this curated group: http://www.vrjournalism.io/2015/07/22/google-group-vr-journalism/

Facebook Groups
360 Video Professionals: https://www.facebook.com/groups/360.video.professionals/
Women in VR: https://www.facebook.com/groups/womeninvr/
Facebook 360: https://www.facebook.com/groups/facebook360community/

360 video tips
How NOT to shoot in 360 by YouTube Creator Academy: https://youtu.be/RWYKrePZwkM
Directing in 360º by YouTube Creator Academy: https://www.youtube.com/watch?v=fcDX8jRnz8c

The UX of VR:
Mike Alger’s talk on VR Interface Design: https://vimeo.com/141330081
A huge collection of articles, videos, slides and more http://www.uxofvr.com/

VR Industry News
Voices of VR (Podcast): Interviews with the most influential people in VR http://voicesofvr.com/
Upload VR: http://uploadvr.com/
Road to VR: http://www.roadtovr.com/
VRScout: http://vrscout.com/
Immersive Shooter: http://www.immersiveshooter.com/

360 Photo tools
Storysphere: Make interactive, audio tour for free https://storyspheres.com
Google Poly Tour Creator: Make interactive tour for free https://poly.google.com/creator/tours/
ThingLink: Interactive 360 photo/video interactive tour https://demo.thinglink.com/vr-editor

BBC News Labs (storyboard template)
360VR Media (storyboard template - below)