advanced telepresence technologies to reduce passenger transportation

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8 hours = 4 months

~4000 kWh roundtrip from west coast to DC

total US air travel => 72 GW (about 2 quads/year)
7 quad/yr, 245 GW

8 quad/yr, 275 GW
why?
what does technology have to say?
**eye-related developments**
camera sensors
high resolution screens
projector technologies
3D displays
HMDs, VR, AR

**ear-related developments**
microphones
speakers
noise cancellation
3D audio

**touch-related developments**
haptic feedback
physics engines
trends

massive computational power for cheap

high bandwidth internet everywhere

game and movie rendering, physics engines

consumer adoption of virtual interaction
passenger transportation trichotomy

we transport ourselves with the objective of:

communication
to convey or consume info

labor
to physically affect environment

experience
predominantly to “experience”
passenger transportation trichotomy

we transport ourselves with the objective of:

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8 quads/yr

5 quads/yr

5 quads/yr
someday, we will only travel when we want to.

(and transportation energy will plummet)
but we must travel today
to communicate, because solutions lack:

<table>
<thead>
<tr>
<th>Simultaneity</th>
<th>Posture</th>
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</thead>
<tbody>
<tr>
<td>Eye contact, gaze</td>
<td>Hand expressions</td>
</tr>
<tr>
<td>3D sight</td>
<td>Body language</td>
</tr>
<tr>
<td>Depth of field</td>
<td>Interpersonal distance</td>
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<tr>
<td>Changing focus</td>
<td>Microexpressions</td>
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<tr>
<td>Resolution</td>
<td>Eye roll, etc</td>
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<tr>
<td>3D hearing</td>
<td>Side glances</td>
</tr>
<tr>
<td>Sound clarity</td>
<td>Imersion (v. skype window)</td>
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<tr>
<td>Timbre of voice</td>
<td>Commitment (showing up)</td>
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<tr>
<td>Flattering light, angles, etc</td>
<td></td>
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</tbody>
</table>
the "uncanny valley"
digital avatar "turing test"
advanced telepresence

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