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Part 2: 3D IR Imaging

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Problem:

Night-time imaging is ghostlike

Hard to obtain distinguishing features



Image courtesy of Wikipedia



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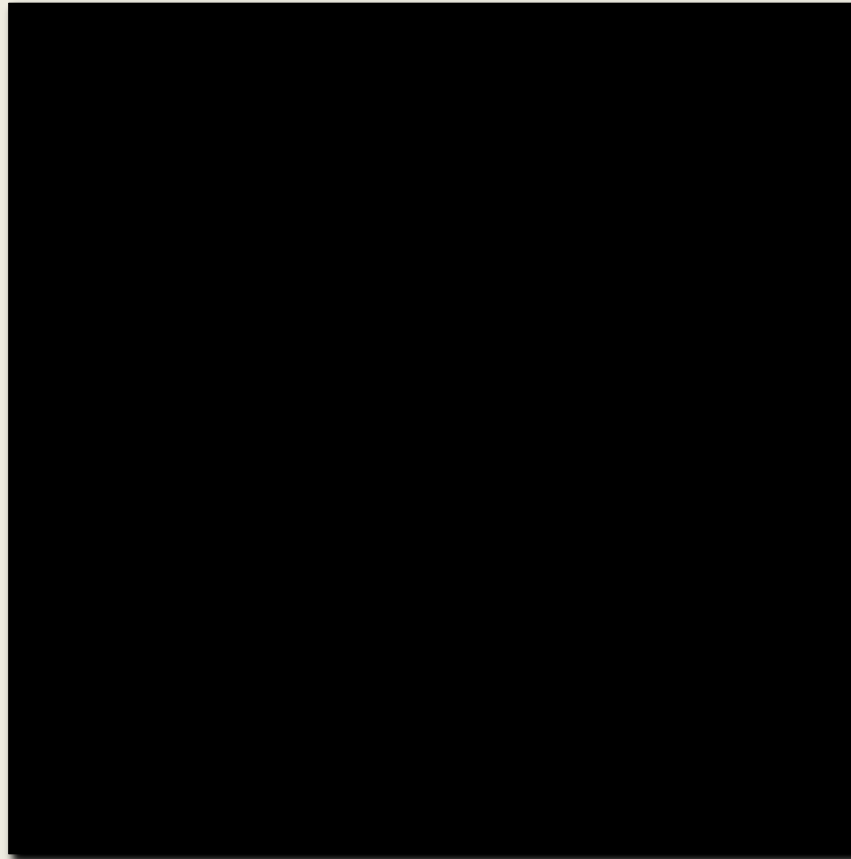


Alex Yuffa in daytime, visible light



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Alex Yuffa at night, visible light



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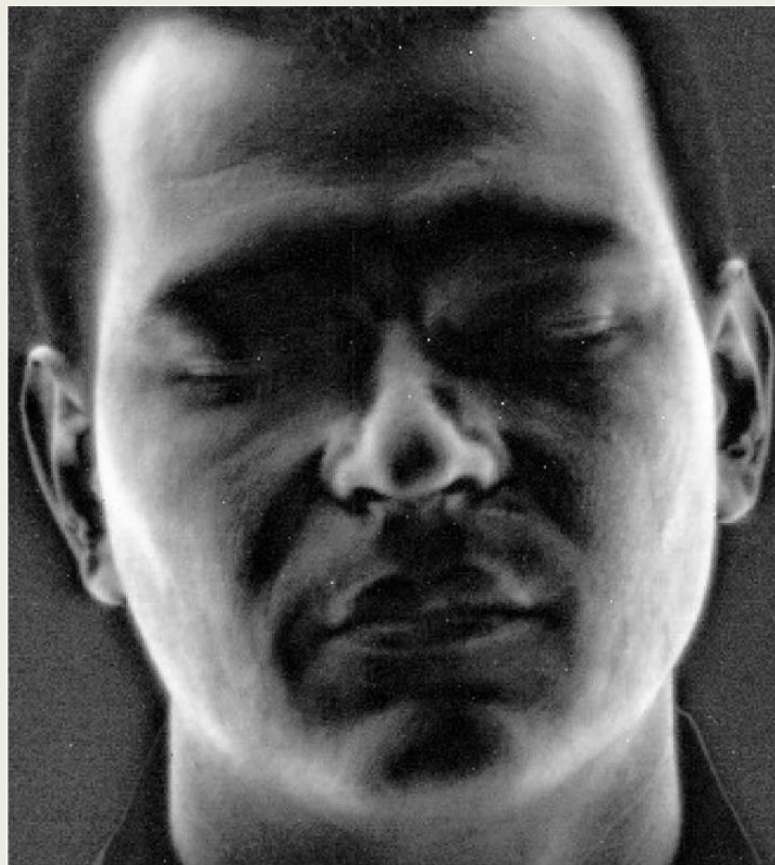
Alex Yuffa at night, infrared camera



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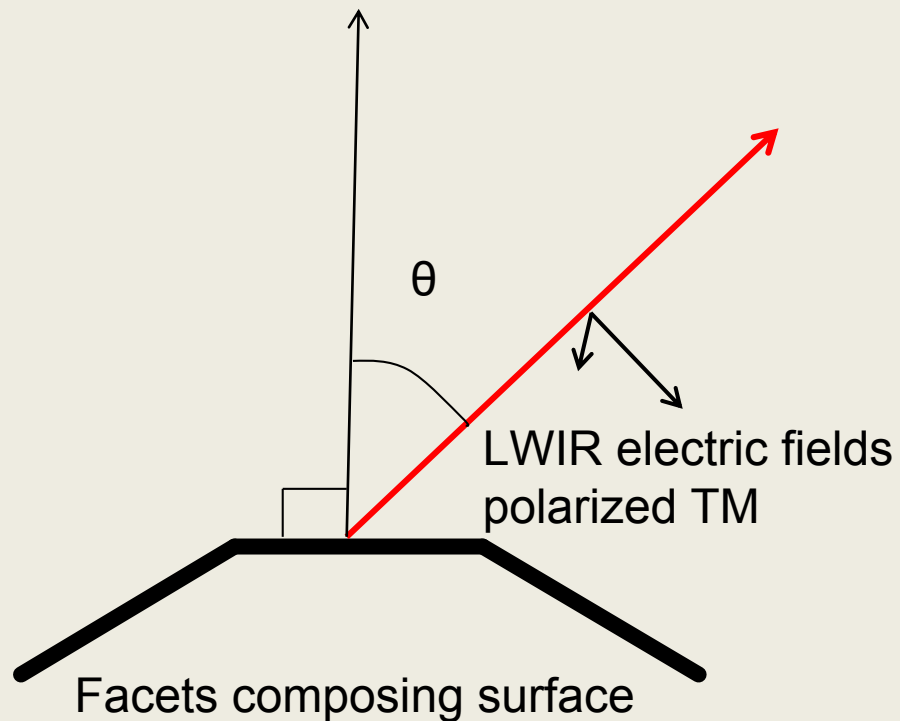
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Alex Yuffa at night, infrared camera
with polarimetric information



Thermo-polarimetric imaging using the geometric optics approximation



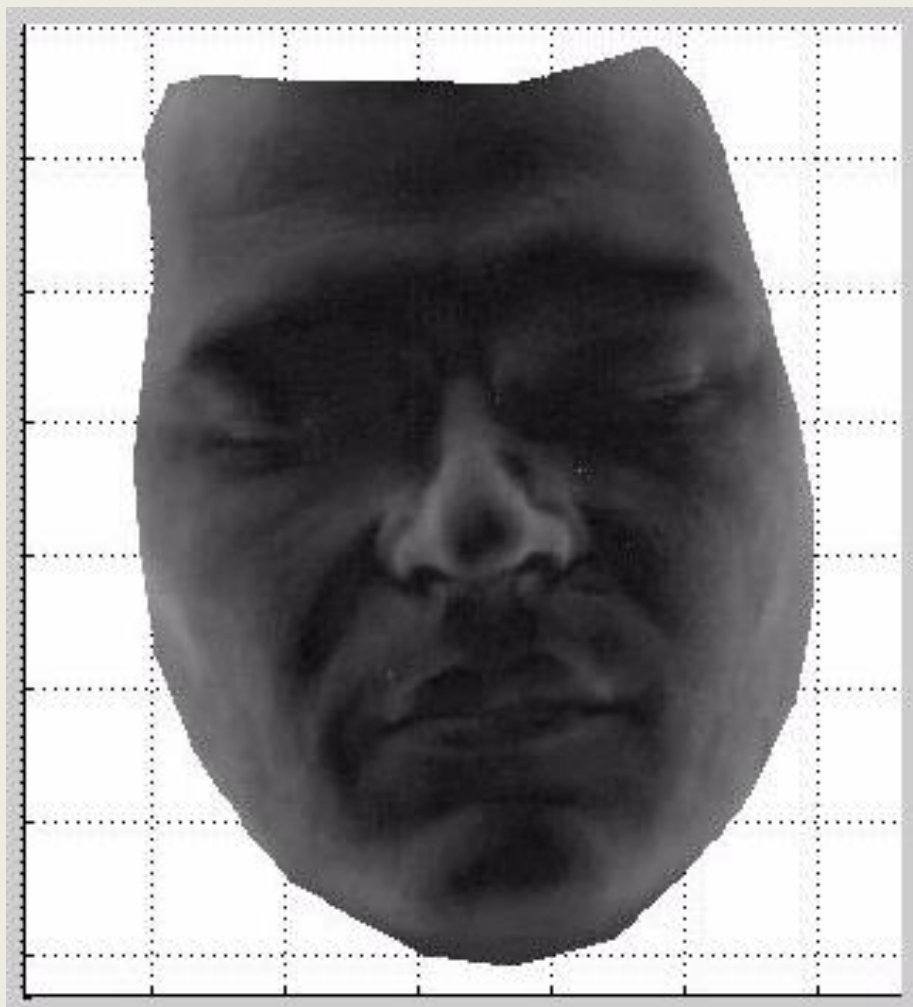
Yuffa et al., Appl. Opt. 53, 8514 2014



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Alex Yuffa at night, infrared camera
w/ polarimetric information and 3D processing



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3D IR Reconstructions



- Works best at night-time
- Works best on warm surfaces: People, Vehicles

Applications

Facial recognition

Image enhancement

Cameras, Rifle scopes, Avatars