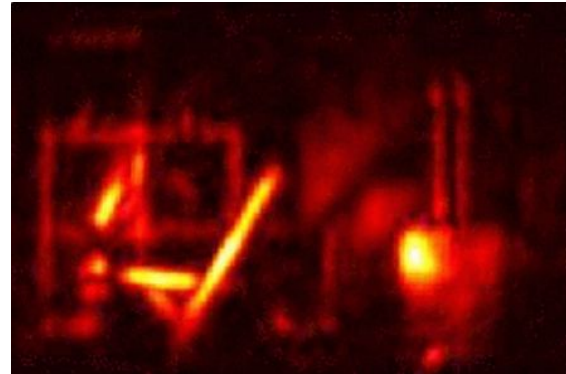


VIRTUALIGHT: Virtual optics for transient imaging

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# What is the project about?

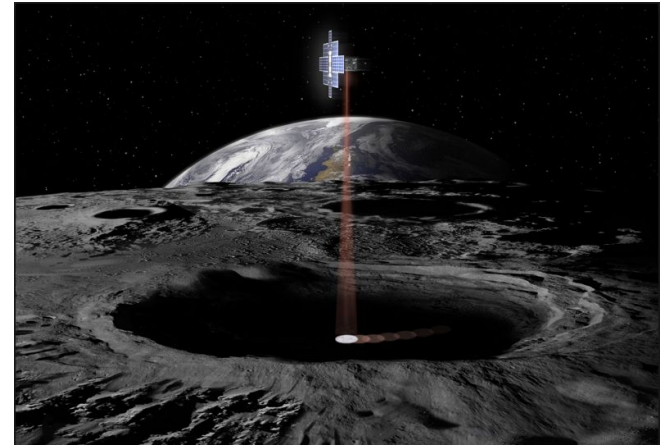
We aim to advance the state of the art in **non-line-of-sight imaging**, i.e., how can we make cameras see *scenes hidden around a corner*? Take a look at our most recent results; on the left, our office scene, hidden from view. The camera is placed outside, and never sees the scene. On the right, our reconstructed image.



# How is this possible?

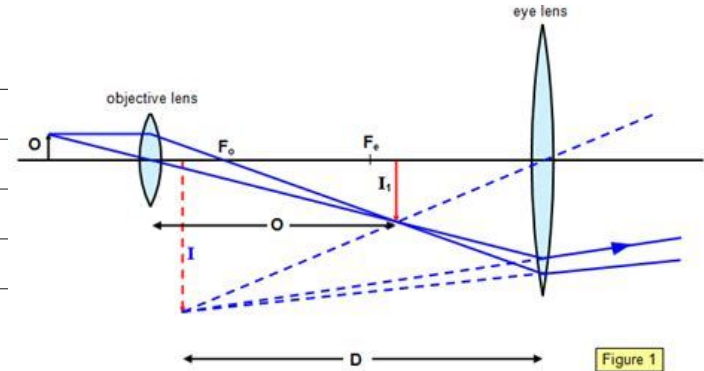
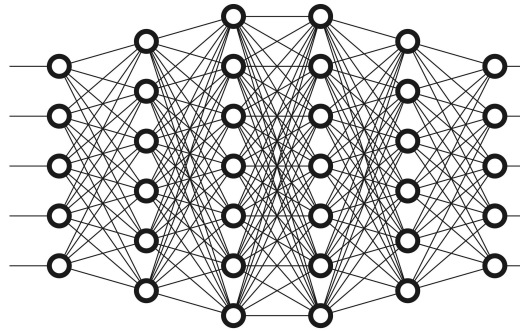
In our [recent Nature paper](#) (in collaboration with the University of Wisconsin) we derived a new formulation of light transport which we termed *phasor fields*. It allows us to model the non-line-of-sight problem as a simpler line-of-sight problem, using a computational optical system.

Possible applications of this technology range from autonomous driving to medical imaging or even exploring lunar caves from orbiting satellites.



# VIRTUALIGHT

This project will expand our phasor field framework using a novel combination of computer graphics, computational imaging, deep learning, and classic optics.



# Researchers

**Diego Gutiérrez**



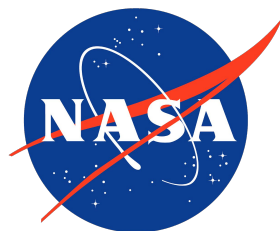
Project co-PI and PhD advisor  
<http://giga.cps.unizar.es/~diegog/>

**Adolfo Muñoz**



Project co-PI and PhD advisor  
<http://giga.cps.unizar.es/~amunoz/>

# Our research environment and collaborators



<https://graphics.unizar.es/offerfpi.html>



Universidad  
Zaragoza

# Some former PhD students (and where are they now)



Ana Serrano

Max-Planck-Institute for Informatics



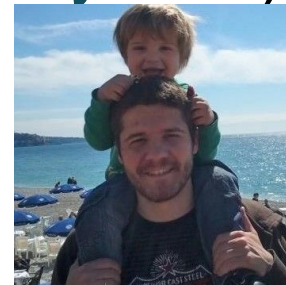
Jose I. Echevarria

Adobe Systems Inc.



Jorge Jimenez

Blizzard Activision



Jorge Lopez

Seddi Labs



Elena Garces

URJC



Fernando Navarro

Aereal Insights



Oscar Anson

Autodesk / Solid Angle



# What we offer

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- Possibility of internships in high-profile international companies
- Participation in the best international conferences
- Excellent doctoral thesis with international prospect and great job opportunities.

Interested? Write to [diegog@unizar.es](mailto:diegog@unizar.es) and [adolfo@unizar.es](mailto:adolfo@unizar.es)



# Requirements

- Degree on Engineering, Computer Science, Physics or Mathematics
- 60 Master level ECTS credits as of Oct 2020
- Good academic record
- Good spoken and written English
- Deadline **October 27th**

# APPLY NOW

<https://sede.micinn.gob.es/ayudaspredoctorales/>  
[diegog@unizar.es](mailto:diegog@unizar.es) | [adolfo@unizar.es](mailto:adolfo@unizar.es)