

# eht-imaging Roadmap

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## Contents

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>Some publications that use ehtim</b>	<b>2</b>
2.1	The Size, Shape, and Scattering of Sagittarius A* at 86 GHz: First VLBI with ALMA, Issaoun et al. 2019 . . . . .	2

Python modules for simulating and manipulating VLBI data and producing images with regularized maximum likelihood methods by [Andrew Chael](#) from CfA of Harvard.

## 1 Introduction

ehtim (eht-imaging) is a Imaging, analysis, and simulation software for radio interferometry, <https://github.com/achael/eht-imaging> [documentation](#)

## 2 Some publications that use ehtim

### 2.1 The Size, Shape, and Scattering of Sagittarius A\* at 86 GHz: First VLBI with ALMA, [Issaoun et al. 2019](#)

We employ the eht-imaging library, a regularized maximum likelihood imaging software package, to image our sources (Chael et al. 2016, 2018b).

Due to the elevated noise level for the VLBA in our observations and the scattering properties of Sagittarius A\*, standard imaging software packages like AIPS (Greisen 2003) or Difmap (Shepherd et al. 1995) do not offer the flexibility and necessary tools to obtain an unscattered image of the source.

The eht-imaging library is a Python based software package that is easily scriptable, flexible and modular.

It is able to make images with various data products (closure phase and amplitude, bispectra, visibilities), and it contains a suite of image “regularizers” such as maximum entropy and sparsity regularization. The library also possesses a routine for “stochastic optics”, a regularized implementation of scattering mitigation presented in Johnson (2016), making it a natural choice for our analysis. In this section we present our imaging methods for both calibrators (Section 4.1) and for Sgr A (Section 4.2).