

# Joaquín Hernández-Yévenes

ASTRONOMER

Based in Talcahuano, Chile

Alumnus of Universidad de Concepción, pursuing MSc

✉ jheryev@gmail.com | 🌐 joacoh.github.io | 🐱 joacoh

## Education

### Universidad de Concepción

Concepción, Chile

MASTER DEGREE (MSC, ASTRONOMY)

Mar, 2022 – Jan, 2024 (expected)

- Thesis title: **WISE2MBH: A simple algorithm for morphology, bulge fraction and black hole mass estimation using WISE catalogs**
- Advisor: DR. NEIL NAGAR

### Universidad de Concepción

Concepción, Chile

BACHELOR DEGREE (BSC, 2021) AND PROFESSIONAL TITLE (2023) IN ASTRONOMY

Mar, 2018 – Aug, 2023

## Research Internships

### WISE2MBH algorithm and ngEHT prospects

BHI at Harvard, Massachusetts, USA

WORKGROUP: DOMINIC PESCE, ANGELO RICARTE, YURI KOVALEV AND OTHERS

Mar – Apr, 2023

- Late stage development of the WISE2MBH algorithm that estimate supermassive black hole masses from WISE data.
- Explore uses for ngEHT, MOJAVE and ALMA to present proposals based on the algorithm estimates and population predictions.
- Discussion about WISE2MBH parent and final sample, and possible interest of the community.
- Discussion over super massive black hole binary candidates and strategies to detect them.

## Publications

- 2 WISE2MBH: A SIMPLE ALGORITHM FOR MORPHOLOGY, BULGE FRACTION AND BLACK HOLE MASS ESTIMATION USING WISE CATALOGS

Sep, 2023

**Hernández-Yévenes J.**, Nagar N., Arratia V. & Jarrett T.H.

Submitted to MNRAS

- 1 EVENT HORIZON AND ENVIRONS (ETHER): A CURATED DATABASE FOR EHT AND NGEHT TARGETS AND SCIENCE

Jan, 2023

Ramakrishnan V., Nagar N., Arratia V., **Hernández-Yévenes J.**, Pesce D.W., Nair D.G., Bandyopadhyay B., Medina-Porcile C., Krichbaum T.P., Doleman S., Ricarte A., Fish V.L., Blackburn L., Falcke H., Bower G. & Natarajan P.

Galaxies

## Successful PI and Co-PI observing proposals

- 6 TOWARDS RESOLVING ORBITING BINARY SMBH, PLUS SHADOWS, JETS, AND ACCRETION FLOWS OF SINGLE SMBH: ACA FLUXES

2023

PI, 72.6 hours (7M), Priority C

ALMA Cycle 10

- 5 IMAGING M84 AND SOMBRERO AT < 50 GRAVITATIONAL RADII: JETS AND ACCRETION INFLOW

2023

Co-PI (PI: **Dhanya Nair**), 12 hours (12M), Priority B

ALMA Cycle 10

- 4 A SAMPLE OF SMBH SHADOWS, RINGS, ACCRETION FLOWS AND JET BASES: EXPLORATORY EHT+ALMA FLUX MEASUREMENTS

2023

Co-PI (PI: **Neil Nagar**), 45 hours (12M), Priority B

ALMA Cycle 10

- 3 A SAMPLE OF BLACK HOLES AT < 100 RG SCALES: ACCRETION FLOWS, JETS, AND SHADOWS

2022

Co-PI (PI: **Dhanya Nair**), 22 hours (7mm), Priority A

VLBA 2023A

- 2 A SAMPLE OF SMBH SHADOWS, RINGS, ACCRETION FLOWS AND JET BASES: EXPLORATORY EHT+ALMA FLUX MEASUREMENTS

2022

Co-PI (PI: **Neil Nagar**), 36 hours (12M), Priority B

ALMA Cycle 9

- 1 NGC4261: THE 2ND JET AT < 50 GRAVITATIONAL RADII (AND THE 3RD BLACK HOLE SHADOW?)

2022

Co-PI (PI: **Neil Nagar**), 6 hours (12M), Priority B

ALMA Cycle 9

## Assistanships

---

### Extragalactic Astronomy

PROFESSOR: DR. RICARDO DEMARCO

Universidad de Concepción,  
Concepción, Chile

Semester II, 2023

### Radioastronomy

PROFESSOR: DR. NEIL NAGAR

Universidad de Concepción,  
Concepción, Chile

Semester II, 2023

## Talks, Posters and Outreach

---

Dec, 2023

**Using WISE cataloged data for morphology, bulge fraction and black hole mass estimation**, Conference poster

XVII RRLA-LARIM, Montevideo,  
Uruguay

Nov, 2022

**La nueva generación del Telescopio Horizonte de Eventos (ngEHT) y Chile**, Outreach talk

Universidad de Concepción,  
Concepción, Chile

## Leadership & Community Service

---

### WISE2MBH algorithm (package and repository)

DEVELOPER AND MAINTAINER

[GitHub](#)

2023-today

### SciCat: Support group created by and for students

FOUNDER, CONTENT CREATOR AND COMMUNITY MANAGER

[Instagram](#) / [YouTube](#)

2020-2022

## Workshops & Certificates

---

2023

**Certification in Machine Learning with Python**, freeCodeCamp

[Certificate](#)

2022

**Certification in Data Analysis with Python**, freeCodeCamp

[Certificate](#)

2022

**Certification in Scientific Computing with Python**, freeCodeCamp

[Certificate](#)

2022

**Certification in Cloud Computing**, Google & Esc. de Org. Industrial

2021

**School of Physics of the Master in Physical Sciences**, Universidad del Bío-Bío

2019

**Advanced (C1) English Course**, SNBP & BiblioRedes

## Skills

---

### Programming

Python, TeX, git, Bash

### Data analysis

NumPy, Pandas, Matplotlib, Seaborn, SciPy, scikit-learn, Tensorflow

### Photography

Gimp, Inkscape

### Video

Olive

## Other

---

### Citizenship

Chilean

### Birth year

1999 (24 years old)

### Languages

Spanish (native), English (fluent)