Joaquín **Hernández-Yévenes**

ASTRONOMER – DATA ANALYST – DATA SCIENTIST

Based in Talcahuano, Chile

BSc and MSc in Astronomy from Universidad de Concepción

✉ jheryev@gmail.com | 🌐 joacoh.github.io | 🐙 joacoh | in jhyevenes

Education

Universidad de Concepción   *Concepción, Chile*

MASTER DEGREE (MSc, ASTRONOMY)   *Mar, 2022 – Jan, 2024*

- 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 EHT, ngEHT, 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

3   MULTI-FREQUENCY FUNDAMENTAL PLANE OF SMBH ACCRETION IN THE EHTER SAMPLE   *2024*

   *Arratia V., Nagar N., Bandyopadhyay B. & **Hernández-Yévenes J.***   *in prep.*

2   WISE2MBH: A SIMPLE ALGORITHM FOR MORPHOLOGY, BULGE FRACTION AND BLACK HOLE MASS ESTIMATION USING   *Sep, 2023*
   WISE CATALOGS

   ***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., Doeleman 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: *2023*
   ACA FLUXES

   ***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   *2023*
   MEASUREMENTS

   *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   *2022*
   MEASUREMENTS

   *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*

Teaching

Extragalactic Astronomy (Assistantship)

PROFESSOR: DR. RICARDO DEMARCO

Universidad de Concepción,
Concepción, Chile

Semester II, 2023

Radioastronomy (Assistantship)

PROFESSOR: DR. NEIL NAGAR

Universidad de Concepción,
Concepción, Chile

Semester II, 2023

Talks, Posters and Outreach

Nov, 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

CO-FOUNDER

Instagram / YouTube

2020-2022

Workshops & Certificates

2024	**Advanced Learning Algorithms**, DeepLearning.AI & Standford University	*Certificate*
2024	**Supervised Machine Learning: Regression and Classification**, DeepLearning.AI & Standford University	*Certificate*
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

Soft Skills	Leadership, Communication, Problem Solving, Goal Orientation
Programming	Python, TEX, SQL, git, Bash
DA Software	SSMS, Excel
DA Python	NumPy, Pandas, Matplotlib, Seaborn, SciPy, Tensorflow, statsmodels, scikit-learn
Languages	Spanish (native), English (fluent)
Photography	Gimp, Inkscape
Video	Olive