Joaquín **Hernández-Yévenes**

ASTRONOMER

Based in Talcahuano, Chile
BSc and MSc in Astronomy from Universidad de Concepción

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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 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., 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: 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*

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

FOUNDER, CONTENT CREATOR AND COMMUNITY MANAGER

Instagram / YouTube

2020-2022

Workshops & Certificates

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

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)