

Jean Choppin de Janvry

French citizenship, F1 USA VISA

jeanchdjdev.github.io

github.com/JeanCHDJdev

orcid.org/0009-0008-8066-446X

Berkeley, CA, USA

+33 7 69 17 19 64

jean.choppindejanvrydev@gmail.com

linkedin.com/jean-choppin-de-janvry

EDUCATION

University of California, Berkeley

PhD, Physics

Aug 2026 – Present

Berkeley, CA, USA

CentraleSupélec - Université Paris-Saclay

MSc, Physics

Sept. 2022 – June 2026

Gif-sur-Yvette, France

Janson de Sailly - Preparatory classes

Physics preparatory classes for national exams

Sept. 2020 – July 2022

Paris, France

RESEARCH EXPERIENCE

CEA IRFU Paris-Saclay - Université Paris-Saclay

Work-study apprenticeship (Part-time)

Sept. 2025 – Aug. 2026

Gif-sur-Yvette, France

- **Advisor: Pr. C. Yèche**
- Part-time apprentice ship at the Institute of Research on the Fundamental laws of the Universe (IRFU) at the French Atomic Energy Commission (CEA)
- Lyman Break Galaxy (LBGs) redshift measurements and identification through contrastive learning, DESI-II planning on extreme emission line galaxies and LBGs

Lawrence Berkeley National Laboratory - UC Berkeley

Visiting Student Researcher

March 2025 – July 2025

Berkeley, CA, USA

- **Advisors: Pr. S. Gontcho A Gontcho, Pr. U. Seljak**
- Clustering redshifts measurements of HSC Y3 shape catalog and cosmic shear constraints inference. We constrain S_8 with HSC cosmic shear to $S_8 = 0.805 \pm 0.018$ on this dataset, improving errors bars by a 1.8 factor compared to the original HSC Y3 analysis. The new measurement hints at the S_8 tension being primarily systematics driven and lead to two first author papers.

NASA Jet Propulsion Laboratory - Caltech

Visiting Student Researcher

Sept. 2024 – March 2025

Pasadena, CA, USA

- **Advisors: Pr. O. Doré, Dr. Y-T. Cheng, Dr. T-C. Chang**
- Dark Sector intern, member of the SPHEREx mission and the Origins of the Universe group
- Photometric redshift inference through hierarchical dictionary learning, self-organizing maps, UMAPs, sparse reconstruction
- Significant software contributions to the general cosmology pipeline, simulator and redshift pipeline: module development and testing, speed-ups, high-performance computing, diagnostics and analysis module work
- Deep field pre-selection analysis and spectral confusion comparisons

SPMS Laboratory - CentraleSupélec

Undergraduate Researcher - part-time

Nov. 2022 – June 2024

Gif-sur-Yvette, France

- **Advisor: Pr. B. Dkhil**
- Member of the the Structures, Properties and Modelling of Solids (SPMS) laboratory and the TSAR (Topological Solitons in Anti-Ferroics) consortium.
- Developed simulations of BaTiO_3 and BiFeO_3 at the mesoscopic scale to uncover topological singularities in the polarization order parameter, such as skyrmions, using the MOOSE FEM framework and the ferret package.

RESEARCH PAPERS

- J. Choppin de Janvry**, S. Gontcho A Gontcho, B. Dai, U. Seljak, T. Zhang, *Cosmic Shear constraints from HSC Year 3 with clustering calibration of the tomographic redshift distributions from DESI*
[arXiv:2511.18134](#) Submitted Nov 2025, Accepted: TBD
- J. Choppin de Janvry**, S. Gontcho A Gontcho, U. Seljak et al, *Full calibration of the tomographic redshift distribution from the HSC-SSP PDR3 shape catalog with DESI*
[arXiv:2511.18133](#) Submitted Nov 2025, Accepted: TBD
- James J. Bock, ..., **Jean Choppin de Janvry**, et al, *The SPHEREx Satellite Mission*
[arXiv:2511.02985](#) Submitted Nov 2025. Accepted: TBD
- Z. Huai, **Jean Choppin de Janvry**, et al, *Simulating Spectral Confusion in SPHEREx Photometry and Redshifts*,
[arXiv:2510.01410](#) Submitted Oct. 2025, Accepted: TBD
- B. Crill, ..., **J. Choppin de Janvry**, et al, *The SPHEREx Sky Simulator: Science Data Modeling for the First All-Sky Near-Infrared Spectral Survey*,
[arXiv:2505.24856](#), [ApJ](#) Submitted May 2025, Accepted: Oct. 2025
- S. Bryan, ..., **J. Choppin de Janvry**, et al, *Data-driven photometric redshift estimation using Dictionary Learning for SPHEREx*
In prep

TALKS AND CONFERENCES

- IFAE (Barcelona, Spain) (video-conference, invited) - BCN Journal Club Jan 2026
- Caltech (Pasadena, USA) (video-conference, invited) - Caltech Cosmology Journal Club Jan 2026
- HSC Weak Lensing Working group call (video-conference, invited) Dec 2025
- CEA Paris-Saclay (Saclay, France) - Group Meeting November 2025
- Kavli IPMU (Tokyo, Japan, invited) - [APEC Seminar](#) August 2025
- Lawrence Berkeley National Laboratory (Berkeley, USA) - DESI Collaboration Meeting Spotlight Talk July 2025
- Lawrence Berkeley National Laboratory (Berkeley, USA) - DESI Lunch Seminar June 2025
- NASA Jet Propulsion Laboratory (Pasadena, USA) - [Astrophysics Luncheon Seminar](#) March 2025
- Caltech (Pasadena, USA) - [ObsCos Seminar](#) February 2025

AWARDS AND PRIZES

- Hackathon DefInSpace 2025 Winner** - [link](#) November 2025
- Winners of the technological challenge with teammates from CentraleSupélec. Hackathon organized by French Space Command. Theme: Real-time video in space for Low-Earth Orbit monitoring. Prize: trip with French army to the French Guyana space base in Kourou.
- Space Scholarship - Fondation Ailes de France** - [\[1\]](#) June 2024
- Laureate of the Space Scholarship, organized by *Fondation Ailes de France* with the support of CNES (National Center for Space Studies) and EUTELSAT Group.
- Hackathon Safran Space x FabLab ENS-PS 2024 Winner** - [\[1\]](#) March 2024
- Winners of the technological challenge with teammates from CentraleSupélec. Theme: removal of space debris / Kessler syndrome mitigation. Prize: 2000 euros.
- Space and Industry Prize 2023** - [\[1\]](#) Dec 2023
- Prize awarded by **MBDA** for the supersonic rocket project PheniCS. Prize: 2000 euros.

TECHNICAL SKILLS

- Programming languages: Python (incl. `numpy`, `tensorflow`, `keras`, `pandas`, `pyarrow`, `matplotlib`, `scipy`, `scikit-learn`, `pymc`, `fitsio`, `tkinter`...), C# (Unity), HLSL, HTML, CSS, TypeScript, JavaScript, SQL
- Astronomy and cosmology software: `astropy`, `CosmoSIS`, `getDist`, `ChainConsumer`, `skymapper`, `pycorr`, `CCL`, `healpy`, `mocpy`
- Bayesian statistics, data science and data reduction, visualisation and prediction techniques: SOM, UMAPs, PCA, dictionary learning, sparse reconstruction, auto-encoders, contrastive learning
- Other programming skills: HPC (slurm), git, github, multiprocessing, shell, conda, Jupyter, React, Tailwind CSS, LaTeX
- Physics, meshing and CAD: SOLIDWORKS, COMSOL Multiphysics, MOOSE FEM (ferret package)

- Engineering: Machine shop trained, welding, metal casting, quick prototyping and 3D printing (Prusa, Bamboolab)
- Other software: Unity (Game development), Siril (astronomy), Paraview (data visualization), Office Suite

OBSERVATIONAL EXPERIENCE

2×1/2 night - Remote DESI observation - shadow shift	Apr. 2025
1/2 night - Mount Wilson observation with JPL astronomy club	Oct. 2024
5×1 night - Haute Provence Observatory (OHP) (T80, T120, IRIS)	Aug. 2024

LANGUAGES

Languages spoken: French (Mother tongue), English (C2, TOEFL iBT 113/120), Portuguese (B2), Spanish (B1), Japanese (A1)

EXTRACURRICULAR ACTIVITIES

Private homeschool teacher <i>Teacher</i>	Dec. 2022 – Present <i>Paris, France</i>
• Courses to high-school and undergraduate students in Physics, Chemistry, Mechanical Engineering and Mathematics	
Aerospace Society of CentraleSupélec - CACS <i>Rocket engine project founder, Website dev, rocket projects KTP, Sirius and PheniCS</i>	Dec. 2022 – July 2024 <i>Gif-sur-Yvette, France</i>
• Developped and released from scratch CACS's website - [1, 2] • Participated in multiple experimental rocketry projects described in the Projects section.	
Astronomy Club - CosmiCS <i>Vice-president, AstronomiCS coordinator</i>	Sept. 2022 – July 2024 <i>Gif-sur-Yvette, France</i>
• Co-organized conferences for students from astronauts and astrophysicists, including Dr. C. Haigneré, Dr. M. Viso, Pr. H. Dole, Dr. D. Pomarède and Dr. A.S. Brun. • Directed and wrote articles for AstronomiCS, the school's monthly astronomical newsletter. • Multiple observations and photography with various telescopes: image processing and astrophotography experience	

NOTABLE PROJECTS

Overthought Games - [1] <i>Co-founder</i>	Dec. 2022 - Present <i>Paris, France</i>
• Independent game studio working on a metroidvania 2D pixel-art game aimed to be commercially released. https://citydoku.fr/	
Rocket deployed glider - KTP <i>Project member</i>	Sept. 2025 - July 2026
• Experimental rocket aiming to deploy a controlled glider through a longitudinal slingshot at the rocket's apogee point. Work focused on slingshot design, prototyping and rocket manufacturing.	
citydoku - [1, 2] <i>Main developper</i>	May 2026 <i>Paris, France</i>
• Sudoku game about French cities. Collects data about French cities through data.gouv.fr. Populate the grid to win scores based on population, altitude, name, etc constraints.	
Two-stage rocket - Sirius - [1] <i>Mechanical team member and advisor</i>	Oct. 2023 - July 2024
• Two-stage, 3.3m ambitious rocket project with pneumatic separation. Worked on the parachute deployment and casing, separation architecture, avionics integration and planning. • Sirius - β flew a nominal flight in July 2024. Pneumatic separation of stages worked as intended and experiences returned valuable flight data.	
Hybrid Rocket Engine project - HyMir - [1] <i>Co-founder</i>	Oct. 2023 - July 2024
• HyMir is a student-led hybrid rocket engine developped with the support of EM2C laboratory.	
CACS Space division website - [1, 2] <i>Dev</i>	Dec. 2023 - July 2024
• Developped and deployed from scratch a website for CACS's space division, using React, HTML/CSS, TypeScript, SQL, django, nginx	
Homemade metal foundry <i>Co-builder and maintainer</i>	March 2024

- Homemade foundry built and used to smelt and cast aluminum in clay or plaster molds. Student-led and funded project. Made ingots, metal figurines and replicas in aluminum out of scrap metal.

Supersonic rocket - PheniCS - [1]

Jan. 2023 - July 2023

Mechanical and software team member

- PheniCS is a record-breaking, one-year student-led supersonic rocket project that broke Mach 1 in July 2023, funded by ArianeGroup. Soaring through the skies in July 2023, it is the first successful supersonic rocket at C'Space national competition in over 10 years.
- Member of the software and mechanical teams. Developed parachute deployment and integration, nosecone mechanical integration and software for the telemetry station.
- PheniCS was awarded Space and Industry MBDA Prize in 2023. Co-presented during award ceremony.

REFERENCES

Pr. Uros Seljak

Professor, University of California at Berkeley, Berkeley Center for Cosmological Physics

useljak@berkeley.edu

useljak@lbl.gov

Pr. Satya Gontcho A Gontcho

Tenure track professor, University of Virginia

satya@virginia.edu

Pr. Olivier Doré

Senior Research Scientist, Jet Propulsion Laboratory, California Institute of Technology

olivier.p.dore@jpl.nasa.gov

odore@caltech.edu

Dr. Yun-Ting Cheng

Research Scientist, California Institute of Technology

ycheng3@caltech.edu

Pr. Christophe Yèche

Professor, IRFU, CEA-Paris Saclay

christophe.yeche@cea.fr

HOBBIES & INTERESTS

Astrophotography and astronomy, Game development, Rocketry, Prototyping, Taekwondo, Table tennis
Travel (expatriation in Australia, Belgium, Brazil, US and trips across East Asia (Japan, Korea), LatAm (Chile, Argentina) and Europe)

+33 7 69 17 19 64 | jean.choppindejanvrydev@gmail.com | [linkedin/jean-choppin-de-janvry/](https://linkedin.com/in/jean-choppin-de-janvry/)