

# Samuel M. Factor

## POSTDOCTORAL RESEARCH FELLOW

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🌐 [smfactor.github.io](https://smfactor.github.io)

### Objective

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Seeking a challenging role in the aerospace industry applying novel analysis techniques to complex datasets. Looking to balance lab skills with a broad expertise in interferometric analysis, space-based observational techniques, and statistical data analysis acquired through a Ph.D. in Astronomy.

### Experience

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**Postdoctoral Research Fellow**, The University of Texas at Austin **2023 – Present**

- Assessing the strengths, weaknesses, and best practice observing strategies for JWST high resolution kernel-phase imaging to maximize the yield of valuable telescope time.
- PI of a Cycle 1 *JWST* archival program which is funding this work (**\$145,090**)

**Graduate Student Researcher**, The University of Texas at Austin **2015 – 2023**

- Studied the formation of companions to low mass stars using Hubble Space Telescope (HST) imaging. Applied a novel interferometric postprocessing technique to survey binary demographics at previously inaccessible separations *below the diffraction limit*. Found evidence that dynamical evolution significantly sculpts young low-mass binary systems.
- Developed python-based analysis pipelines run on the Texas Advanced Computing Center (TACC).
- PI of two *HST* archival programs which funded this work (**\$255,515**)

**Undergraduate & Graduate Student Researcher**, Wesleyan University **2012 – 2015**

- Modeled the structure of a protoplanetary disk using interferometric observations of molecular gas.
- Built & tested the scattering properties of electronic oscillator circuits modeling optical systems.

### Education

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**Ph.D. in Astronomy** The University of Texas at Austin, Austin, TX **2023**

Concentration in Communicating Science

Dissertation Title: *Kernel-Phase Interferometry for Detection of Close in Companions: Demographics of Binary Brown Dwarfs from Birth to Maturity*

**M.A. in Astronomy** Wesleyan University, Middletown, CT **2015**

Thesis Title: *ALMA Observations of Molecular Gas Emission from a Protoplanetary Disk in the Orion Nebula*

**B.A. in Physics and Computer Science** Wesleyan University, Middletown, CT **2014**

ΦBK Honor Society, GPA: 3.93

### Skills

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- Space based imaging (*HST*, *JWST*), data reduction and analysis, high contrast imaging
- Programing languages and tools: Python, bash, git, HPC (slurm), (familiar with: C, Java, SQL)
- Statistical tools: Bayesian inference (MCMC, nested sampling), hierarchical Bayesian modeling
- Data visualization (in Python)
- Interferometry (radio & near-infrared), Fourier optics, super-resolution imaging
- Laboratory optics, electronics, basic CAD & machine shop experience

## Communication

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Efficient and effective verbal and written communication skills to a wide range of audiences:

- Technical/scientific: presented at domestic and international [conferences](#), [multiple publications](#) in peer-reviewed Astronomy & Physics journals (see below)
- Non-technical: speaker at [outreach events](#), staff writer for [astrobites.org](#), TA for multiple courses

Proven track record of writing successful proposals securing significant funding (\$400,605): lead author and PI of 3 highly competitive space telescope programs (*HST* & *JWST*) as a graduate student.

## Professional Development

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- Selected Graduate and Undergraduate Coursework:  
Astronomical Instrumentation, Observational Astronomy, Radio Astronomy, Bayesian Statistical Methods, Computational Physics, Software Engineering
- Institute for Scientist & Engineer Educators (ISEE) Professional Development Program (2018)  
Intensive teaching workshop focusing on inquiry, assessment, and equity & inclusion.

## Leadership

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- Organizing committee of [Astronomy on Tap: Austin, TX](#) (2016 – present)  
Monthly public talks in a bar drawing consistent crowds of ~250 people.
- Teaching Assistant for seven courses at UT Austin and Wesleyan University
- Organized and lead four instructional trips to McDonald Observatory for graduate and undergraduate students
- Webmaster for [astrobites.org](#) (2018, 2019)
- Computer Officer, Astronomy Graduate Student Executive Committee, UT Austin, (2017-2021)
- Masters rowing coach at [Austin Rowing Club](#), 4 year collegiate varsity athlete (Wesleyan University)
- National Outdoor Leadership School (NOLS) alumni

## Honors and Awards

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- *HST* (Cycles 24 & 29) and *JWST* (Cycle 1) archival program grants totaling: \$400,605
- University Graduate Continuing Fellowship, UT Austin (\$40,804)
- Board of Visitors Graduate Student Second Year Research Defense Award, UT Austin
- Frank N. Edmonds, Jr. Memorial Fellowship in Astronomy, UT Austin'
- ΦBK, Wesleyan University
- Barry M. Goldwater Scholarship, Honorable Mention

## Selected Publications (+10 non first author publications, complete list can be found [here](#))

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- *NICMOS Kernel-Phase Interferometry II: Demographics of Nearby Brown Dwarfs* (Samuel M. Factor & Adam L. Kraus, 2023, *The Astronomical Journal*, 165, 130)
- *NICMOS Kernel-Phase Interferometry I: Catalogue of Brown Dwarfs Observed in F110W and F170M* (Samuel M. Factor & Adam L. Kraus, 2022, *The Astronomical Journal*, 164, 244)
- *ALMA Observations of Asymmetric Molecular Gas Emission from a Protoplanetary Disk in the Orion Nebula* (Samuel M. Factor, A. M. Hughes, K. Flaherty, et al., 2017, *The Astronomical Journal*, 153, 233)