

# Socrates

Bench biomedical senior

## PROFILE SUMMARY

Strong undergraduate research profile from UW-Madison with three years of continuous bench research in Dr. Karyn Frick's lab studying hippocampal memory consolidation and estrogen receptor signaling in spatial memory. GPA of 3.82 is solid for top-tier programs. Technique portfolio (calcium imaging, two-photon microscopy, optogenetics, fiber photometry, behavioral assays) aligns exceptionally well with modern systems neuroscience programs. Co-authored manuscript under review and two conference posters demonstrate productivity. Personal motivation from family experience with Alzheimer's is a compelling narrative thread connecting bench research to clinical relevance. US citizenship opens all major federal fellowships.

## STRENGTHS

- Three years of sustained research in a single lab — demonstrates commitment and depth rare among applicants
- Direct technique match with top systems neuroscience labs: two-photon calcium imaging, optogenetics, and fiber photometry are the gold-standard methods at programs like Stanford, UCSF, Harvard PiN, and Columbia
- Mentorship from Dr. Karyn Frick — a recognized PI in memory and sex differences research — provides a strong, field-relevant recommendation letter
- Coherent subfield narrative connecting hippocampal circuits, memory consolidation, neuromodulation, and sex differences to a long-term clinical motivation (Alzheimer's)
- GPA of 3.82 is competitive at all tiers, including top-10 programs
- US citizenship enables full eligibility for NSF GRFP, NIH F31, and HHMI Gilliam

## AREAS TO ADDRESS

- Manuscript is co-author and still under review — a first-author preprint or published paper would substantially strengthen reach-tier applications. Consider asking Dr. Frick about authorship trajectory on any ongoing work
- Two conference posters is adequate but a national meeting (SfN) presentation would be more competitive at the reach tier
- Statement of purpose should explicitly connect the Frick lab training (estrogen, hippocampus, spatial memory) to specific lines of inquiry in target labs — avoid generic 'I love neuroscience' framing
- Consider whether to apply NSF GRFP this cycle (October 2026 deadline) — strong applicants in your profile typically apply during senior year and again in Year 1 of grad school

## PROGRAM RANKINGS

## REACH PROGRAMS

Program	University	Deadline	Stipend	Research fit	Why this tier
Program in Neuroscience (PiN)	Harvard University	University - December 1 (ET)	\$43,800	PiN hosts multiple PIs working at the exact intersection of your interests: Bernardo Sabatini (calcium imaging of learning circuits), Venkatesh Murthy (sensory learning, calcium imaging), Bence Ölveczky (motor learning, basal ganglia). Your two-photon and optogenetics training is directly transferable.	Reach: Harvard PiN admits 20-25 students per year from over 700 applications (~3% admit rate). Your 3.82 GPA and Frick lab background are competitive, but reach-tier programs at this level require near-flawless application materials. The under-review manuscript helps but a first-author publication would strengthen this further.
Neurosciences PhD Program	Stanford University	University - December 2 (PT)	\$56,348	Stanford's Neurosciences program is the top destination for two-photon calcium imaging research. Lisa Giacomo (spatial navigation, grid cells, hippocampus) is a near-perfect PI match for your hippocampal memory background. Mark Schnitzer pioneered calcium imaging technology. Surya Ganguli offers computational complement.	Reach: Stanford Neurosciences admits 20-25/year and is among the most selective neuroscience programs in the country. Your profile is competitive, but the one-program-only Stanford rule means you must commit. The Giacomo lab fit is exceptionally strong – make this the centerpiece of your statement.
Neuroscience Graduate Program	University of California San Francisco	University of San Francisco - November 16, 11:59 pm PST	\$43,800	Loren Frank's lab at UCSF studies memory consolidation, hippocampus, sharp-wave ripples, and spatial learning using calcium imaging and electrophysiology in behaving rodents – a direct extension of your Frick lab training. Andrea Hasenstaub adds calcium imaging of cortical circuits.	Reach: UCSF NGP is exceptionally selective, admitting ~25-30 students per year. One-program-only rule means UCSF must be your sole UCSF/UC application. Your hippocampal memory background and Frick lab pedigree position you well, but the applicant pool here is among the strongest nationally.
Neurobiology and Behavior	Columbia University	University - December 1 (ET)	\$42,000	Attila Losonczy's lab is one of the world's leading groups in two-photon calcium imaging of hippocampal place cells, memory encoding, and dendritic computation in behaving mice – an exact match for your training. Nathaniel Sawtell adds sensorimotor circuit work.	Reach: Columbia NB&B at the Zuckerman Institute admits 15-20/year and is extremely competitive. Your hippocampal background and calcium imaging training are directly aligned with Losonczy lab work. The fit is so strong it warrants reaching out to him directly before applying.
Brain and Cognitive Sciences PhD	MIT	December 1 (ET)	\$51,226	MIT BCS hosts Fan Wang (somatosensory circuits, calcium imaging), Edward Boyden (optogenetics tools, calcium imaging), and Mehrdad Jazayeri (timing, computational). Your technique stack matches	Reach: MIT BCS admits 17-22/year with a sub-5% acceptance rate. Your hippocampal memory focus is somewhat tangential to the program's typical emphasis on motor, sensory, and computational neuroscience – make sure your statement bridges

the systems neuroscience emphasis of the program.

your background to MIT-specific PIs. Highest stipend in the field at \$51,226.

## REALISTIC PROGRAMS

Program	University	Deadline	Stipend	Research fit	Why this tier
Neuroscience PhD Program	Johns Hopkins University	December 3 (ET)	\$38,000	JHU Neuroscience hosts Alla Karpova (motor learning, striatum, calcium imaging, optogenetics) and Daeyeol Lee (decision making, reward learning). The department has strong systems neuroscience infrastructure and an established hippocampus/memory faculty cluster.	Realistic: JHU Neuroscience admits 20-25/year with strong but slightly less brutal selectivity than the top-5 reaches. Your 3.82 GPA, three years of research, and clear technique match make this an appropriate realistic-tier program where you should be a competitive applicant.
Neuroscience Graduate Group	University of Pennsylvania	December 1 (ET)	\$38,000	Penn NGG operates through the BGS umbrella with access to a large faculty pool spanning systems, circuits, and behavioral neuroscience. Your calcium imaging and optogenetics training matches several Penn labs working on memory and reward circuits.	Realistic: Penn BGS receives 3,000+ applications across all programs, with ~150 matriculants total. NGG-specific cohort is competitive but achievable for a candidate with your profile. One-program-only rule within Penn BGS means choose carefully.
Interdisciplinary Biological Sciences (IBiS) – Neuroscience track	Northwestern University	December 1 (CT)	\$46,356	IBiS provides flexibility to rotate across the rich Northwestern neuroscience faculty, including labs working on hippocampal circuits, memory, and neuromodulation. Strong infrastructure for two-photon imaging and behavioral neuroscience.	Realistic: Northwestern IBiS admits ~20/year. Your profile is competitive here, and the umbrella structure lets you explore multiple PIs during rotations – a good fit for a candidate with multiple subfield interests.
Neurobiology PhD Program	Duke University	December 1 (ET)	\$38,600 (2023-2024; update when 2025-2026 rate posted)	Lindsey Glickfeld's lab uses two-photon calcium imaging and optogenetics in mice to study visual cortex and plasticity – a direct technique match. Duke Neurobiology has strong overall systems neuroscience infrastructure.	Realistic: Duke Neurobiology admits 15-20/year. Six-year guaranteed support and clear PI matches make this a strong realistic-tier choice. Your technique portfolio aligns particularly well with Glickfeld's work.
Neuroscience Interdepartmental Program (NSIDP)	University of California Los Angeles	December (PT)	1 not found on official NSIDP pages	UCLA NSIDP is a large umbrella program with strong faculty in memory, hippocampal circuits, and systems neuroscience. Multiple labs use calcium imaging and optogenetics – strong technique alignment.	Realistic: UCLA NSIDP admits 10-15/year with cohort sizes that make admissions competitive but achievable for your profile. The umbrella structure provides flexibility to find the best PI fit.
Neurosciences PhD Program			\$38,000	Takaki Komiyama's lab at UCSD is one of the strongest technique matches in the country – two-photon calcium imaging of motor learning circuits in behaving mice. Ac-	Realistic: UCSD Neurosciences admits 20-25/year. Your profile is highly competitive here, especially with the Komiyama lab match. This program is strong but slightly less

University of California San Diego December 1 (PT)

tive recruitment, multiple recent high-profile publications.

reach-tier than UCSF/Stanford.

## SAFER PROGRAMS

Program	University	Deadline	Stipend	Research fit	Why this tier
Neuroscience PhD Program	University of Washington	November 12, 11:59 pm PT	\$35,000	Karel Svoboda is at UWash — a two-photon calcium imaging pioneer recently moved from Janelia. UW Neuroscience has strong systems neuroscience infrastructure and active circuit/memory research.	Safer: UW Neuroscience admits 15-20/year. Your profile is well above the typical bar here, and the Svoboda lab match is exceptional. Confirm Svoboda's current UW affiliation and recruitment status before applying.
Neurosciences PhD Program	Washington University in St. Louis	December 1 (CT)	\$41,000	WashU DBBS Neurosciences has strong faculty in memory, hippocampus, and circuit neuroscience. Calcium imaging and optogenetics are well-supported across multiple labs.	Safer: WashU admits 15-20/year and your profile is competitive above the typical applicant bar. Low cost of living in St. Louis makes the stipend stretch further than at coastal programs.
Neuroscience Graduate Program	Oregon Health and Science University	December 1 (PT)	\$40,700 (2025-2026); tentative \$41,110 from July 2026	OHSU NGP has strong faculty in circuit neuroscience and memory research, with infrastructure for two-photon imaging and optogenetics. Smaller, supportive program culture.	Safer: OHSU admits 8-12/year. Your profile is well-positioned here, with strong technique fit. Stipend of \$40,700 in Portland (medium cost of living) is favorable.

## PROFESSOR MATCHES

Professor	University	Research focus	Technique match	Taking students	Recommended action
Lisa Giocomo	Stanford University	Spatial navigation, grid cells, entorhinal cortex, memory — direct extension of your hippocampal memory consolidation work	Two-photon calcium imaging, electrophysiology, optogenetics — exact match with your training	likely	Email in September-October before applying. Reference her 2024 Nature paper on subicular geometry coding and connect to your hippocampal estrogen/spatial memory work.
Attila Losonczy	Columbia University	Hippocampal circuits, place cells, memory encoding, dendritic computation — the closest match in our database to your subfield interests	Two-photon calcium imaging, optogenetics, electrophysiology — exact match	likely	Highest priority outreach. Reference his 2024 Nature paper on synaptic feature selectivity. Mention specific Frick lab projects on hippocampal coding.
Loren Frank		Memory consolidation, hippocampus, sharp-wave ripples,	Calcium imaging, electrophysiology, optoge-	likely	Highest priority outreach. Frank's work on memory consolidation is conceptually adjacent to Frick lab themes. Refer-

	University of California San Francisco	spatial learning – direct extension of Frick lab work	genetics in behaving rodents – full match			enrich his Spyglass framework and hippocampal replay work.
Takaki Komiyama	University of California San Diego	Motor learning, neural circuits, systems neuroscience using two-photon calcium imaging	Two-photon calcium imaging in behaving mice – primary lab technique, identical to yours	likely		Email in September-October. Active recruitment confirmed. Reference his 2023 Nature paper on cortical reactivation and connect to your interest in memory consolidation mechanisms.
Bernardo Sabatini	Harvard University	Synaptic transmission, basal ganglia, dopamine, learning – relevant to your neuromodulation interest	Two-photon calcium imaging, electrophysiology, optogenetics – full match	likely		Email by mid-October. Reference his 2024 Nature Neuroscience review on dopamine prediction errors and connect to neuromodulation in memory circuits.
Bence Ölveczky	Harvard University	Motor skill learning, basal ganglia, striatum, neural variability	Calcium imaging, electrophysiology, optogenetics in behaving rodents	likely		Secondary contact at Harvard. Reference his 2024 Nature paper on virtual rodent neural activity.
Venkatesh Murthy	Harvard University	Olfactory circuits, synaptic plasticity, sensory processing, learning	Two-photon calcium imaging, optogenetics, electrophysiology	likely		Tertiary Harvard contact. Strong technique match but sensory rather than hippocampal focus.
Karel Svoboda	University of Washington	Sensory perception, motor cortex, synaptic plasticity	Two-photon calcium imaging – pioneer of the field	unclear		Confirm UW affiliation and recruitment status before applying. Recently moved from Janelia.
Lindsey Glickfeld	Duke University	Visual cortex, sensory processing, neural circuits, plasticity	Two-photon calcium imaging, optogenetics in behaving mice	likely		Email if Duke moves up your priority list. Less subfield overlap (visual rather than hippocampal) but excellent technique match.
Alla Karpova	Johns Hopkins University	Motor learning, striatum, neural circuits, decision making	Calcium imaging, optogenetics, electrophysiology in mice and non-human primates	unclear		Verify current JHU appointment and recruitment. Strong technique alignment.

## FUNDING ELIGIBILITY MATRIX

Fellowship	Eligible	Reason	Notes
NSF GRFP	Yes	US citizen applying to a PhD program in a supported field (neuroscience qualifies under Life Sciences).	Apply October 2026 (typical deadline mid-October). Strong applicants like you should apply this fall as a senior and again in Year 1 of grad school if not awarded. Three years of research and a clear research narrative are exactly what reviewers want.

NIH F31	Yes	US citizen, applying to PhD programs in NIH-relevant biomedical research (memory, neurodegeneration, hippocampal circuits all align with NIA, NIMH, NINDS missions).	Not applicable until Year 2 of PhD. Plan to apply in spring of Year 2 with your thesis advisor. Your Alzheimer's motivation aligns particularly well with NIA F31 funding.
NIH F30	No	F30 is restricted to MD-PhD dual-degree students. You are pursuing a PhD only.	Not applicable for your trajectory.
HHMI Gilliam Fellowship	Yes	US citizen in a PhD program. Gilliam emphasizes underrepresented backgrounds in science and mentor-mentee pairs.	Apply in Year 2 or 3 of PhD with your thesis advisor. Requires institutional nomination – check with program leadership early.

## COST OF LIVING SUMMARY

University	City	Cost	Median 1BR Rent	Monthly Stipend	Stipend / Rent ratio	Notes
Harvard University	Boston, MA	High	\$3,000/mo	\$3,650/mo	1.2x	Stipend covers roughly 1.2 months of rent – very tight in Boston. Consider shared housing or Cambridge/Somerville options.
Stanford University	Stanford, CA	High	\$2,800/mo	\$4,696/mo	1.7x	Highest stipend in the field, but Bay Area rents consume most of it. On-campus housing strongly recommended.
University of California San Francisco	San Francisco, CA	High	\$3,200/mo	\$3,650/mo	1.1x	SF rents are brutal. Stipend covers barely one month of median rent – budget carefully and consider shared housing in Mission Bay or Sunset.
Columbia University	New York, NY	High	\$3,500/mo	\$3,500/mo	1x	Stipend covers approximately one month of NYC rent – student housing through Columbia is essential.
MIT	Cambridge, MA	High	\$3,000/mo	\$4,269/mo	1.4x	Top-tier stipend helps but Cambridge rents are high. MIT graduate housing is highly recommended.
Johns Hopkins University	Baltimore, MD	Medium	\$1,600/mo	\$3,167/mo	2x	Stipend covers roughly 2 months of rent – Baltimore offers strong value for the stipend relative to coastal cities.
University of Pennsylvania	Philadelphia, PA	Medium	\$1,900/mo	\$3,167/mo	1.7x	Philadelphia rents are reasonable; stipend stretches further than at coastal peers.
Northwestern University	Evanston, IL	Medium	\$1,800/mo	\$3,863/mo	2.1x	Strong stipend relative to Evanston/Chicago rents – among the most livable options on your list.
Duke University	Durham, NC	Low	\$1,250/mo	\$3,217/mo	2.6x	

Excellent value – Durham rents are low and stipend covers 2.6 months of rent.

University of California Los Angeles	Los Angeles, CA	High	\$2,500/mo	–	–	Stipend not publicly available on NSIDP pages. LA rents are high – confirm stipend during interviews.
University of California San Diego	La Jolla, CA	High	\$2,400/mo	\$3,167/mo	1.3x	La Jolla is expensive but slightly more livable than SF or LA on this stipend.
University of Washington	Seattle, WA	High	\$2,300/mo	\$2,917/mo	1.3x	Seattle rents have risen substantially – stipend is on the lower end relative to cost of living.
Washington University in St. Louis	St. Louis, MO	Low	\$1,100/mo	\$3,417/mo	3.1x	Best stipend-to-rent ratio on your list – stipend covers over 3 months of rent. Excellent quality of life.
Oregon Health and Science University	Portland, OR	Medium	\$1,700/mo	\$3,392/mo	2x	Portland offers strong value – stipend covers 2 months of rent with room for quality of life.

Stipend / Rent ratio: how many months of median 1BR rent your monthly stipend covers. A ratio below 1.0x means rent alone exceeds your monthly stipend – budget carefully. Rent figures are approximate 2025 market rates for a 1-bedroom apartment near campus.

## APPLICATION CALENDAR

Date	Event	Notes
April 15, 2027	Universal acceptance deadline	Decision day for all programs.
December 1, 2026	Major deadline cluster: Harvard PiN, Columbia, MIT, Penn NGG, Duke, Northwestern IBiS, UCLA NSIDP, UCSD, WashU, OHSU	Plan for completed applications by November 25 to avoid last-week stress.
December 2, 2026	Stanford Neurosciences deadline (PT)	One-program-only rule at Stanford.
December 3, 2026	Johns Hopkins Neuroscience deadline (includes recommendation letters)	All materials including letters due by this date.
January – February 2027	Interview invitations and recruitment weekends	Top programs typically issue invites in mid-December through January.
November 12, 2026	University of Washington Neuroscience deadline (11:59 pm PT)	Earliest deadline on your list – do not miss.
November 15, 2026	UCSF NGP fee waiver deadline	Submit fee waiver request the same day as application; waiver closes same day as deadline.
November 16, 2026	UCSF NGP application deadline (11:59 pm PST)	One-program-only rule at UCSF.
November 21, 2026	UC Berkeley Helen Wills deadline (if added to list)	Earlier than most December deadlines.

October 15, 2026	NSF GRFP deadline (typical mid-October)	Apply this cycle — your profile is competitive. Plan to apply again in Year 1 if not awarded.
October 31, 2026	WashU DBBS early fee deadline (\$20 instead of \$45)	Submit by this date to save on application fees.
September 2026	1–15, Begin PI outreach emails	Target Losonczy, Frank, Giacomo, Komiyama, and Sabatini first. Reference specific recent papers.
September 2026	15–30, Draft personal statement and request reference letters from Dr. Frick and two others	Frick letter is your strongest asset — give her at least 8 weeks of lead time and a draft of your statement.

## PROFESSOR OUTREACH TEMPLATE

Subject: Prospective PhD Applicant — Hippocampal Memory and Calcium Imaging

Dear Dr. [Last Name],

I am a senior at the University of Wisconsin-Madison applying to PhD programs in neuroscience for Fall 2027, and I am writing to express my strong interest in your lab's work.

For the past three years, I have worked in Dr. Karyn Frick's lab studying hippocampal memory consolidation, with a focus on estrogen receptor signaling in spatial memory. I have gained extensive hands-on experience with two-photon calcium imaging, fiber photometry, optogenetics, and a range of behavioral assays in mice and rats. I have contributed to a manuscript currently under review and presented at two conferences.

Your recent work on [specific paper or finding — e.g., 'synaptic basis of feature selectivity in hippocampal neurons (Nature, 2024)'] resonated strongly with the questions I am most excited to pursue in graduate school. In particular, I am drawn to [specific aspect — e.g., 'how dendritic computation shapes place cell formation during learning'], and I believe my training in calcium imaging of memory circuits would translate well to your lab's approach.

My long-term motivation comes in part from my family's experience with Alzheimer's disease, which has shaped my interest in understanding the cellular and circuit mechanisms of memory in health and disease.

I would be grateful for the opportunity to learn whether you anticipate taking new students in the 2027 admissions cycle. If it would be helpful, I am happy to share my CV or speak briefly by Zoom.

Thank you for your time, and I look forward to hearing from you.

Best regards,

Socrates

[Email] | [Phone]

University of Wisconsin-Madison