Proposal Timeline

PhD Research Calendar

Total Tasks: 63 tasks

Generated: September 03, 2025

1 Complete Task List

1. **Draft timeline v1** PROPOSAL
   Duration: 2025-08-29 – 2025-08-31
   Create initial project timeline for Tuesday review with Andy. Bring both printed and digital copies to meeting.
2. **Initial proposal skeleton** PROPOSAL
   Duration: 2025-08-29 – 2025-08-31
   Develop 1-page Specific Aims and detailed outline following BME format requirements for PhD proposal.
3. **Submit proposal outline** PROPOSAL
   Duration: 2025-08-31 – 2025-08-31
   hfill ⋆ **MILESTONE**
   Send initial proposal draft to advisor for review before Monday deadline.
4. **Define proposal committee** PROPOSAL
   Duration: 2025-09-02 – 2025-09-05
   Identify committee members; confirm availability; and schedule oral exam date. Reserve room for exam.
5. **Expand proposal draft** PROPOSAL
   Duration: 2025-09-01 – 2025-09-12
   Develop 12-page Research Strategy section from outline following BME proposal guidelines.
6. **Confirm exam date** PROPOSAL
   Duration: 2025-09-12 – 2025-09-12
   hfill ⋆ **MILESTONE**
   Oral exam date scheduled. Must send final proposal to committee $\geq$2 weeks prior to exam.
7. **Align seed laser** LASER
   Duration: 2025-08-30 – 2025-09-03
   Achieve $\geq$30 mW output in fiber core (pre-pump configuration) for stable laser operation.
8. **Align amplifier** LASER
   Duration: 2025-09-03 – 2025-09-10
   Restore amplified output to $\geq$130 mW (previous benchmark performance level).
9. **Check pulse compression** LASER
   Duration: 2025-09-10 – 2025-09-12
   Verify $\leq$200 fs pulse duration and record specifications in equipment log.
10. **Calibrate microscope** LASER
    Duration: 2025-09-12 – 2025-09-12
    Align imaging system using USAF target for optimal resolution before in vivo experiments.
11. **Laser system ready** LASER
    Duration: 2025-09-12 – 2025-09-12
    hfill ⋆ **MILESTONE**
    Laser output and imaging optics meet all requirements for live animal imaging.
12. **Plan imaging cohort** IMAGING
    Duration: 2025-09-01 – 2025-09-05
    Plan \textasciitilde3 pilot mice cohort with IACUC protocol confirmation and surgery slot booking.
13. **Annual progress review** ADMIN
    Duration: 2025-09-01 – 2025-09-07
    Complete yearly graduate student progress report (department form) due early September.
14. **Proposal exam paperwork** ADMIN
    Duration: 2025-09-12 – 2025-10-15
    File committee forms; Program of Work; and confirm exam room logistics for proposal defense.
15. **Design AAV vectors** IMAGING
    Duration: 2025-10-01 – 2025-10-15
    Design and order AAV-mScarlet (vascular) and jRGECO1b (neuronal) vectors. Finalize constructs and submit production orders to core facility.
16. **AAV vectors ready** IMAGING
    Duration: 2026-01-15 – 2026-01-15
    hfill ⋆ **MILESTONE**
    AAV vectors received from core facility. Ready for in vivo animal injections to begin expression studies.
17. **Complete proposal draft** PROPOSAL
    Duration: 2025-11-15 – 2025-12-15
    Write full proposal document (\textasciitilde13 pages) including all aims and research strategy for committee review.
18. **Send proposal to committee** PROPOSAL

Duration: 2025-12-16 – 2025-12-16
hfill ⋆ **MILESTONE**
Email proposal to committee ≥2 weeks before exam date (satisfies pre-exam requirement).

19. **Prepare presentation** — PROPOSAL
Duration: 2026-01-04 – 2026-01-18
Create slide deck and practice oral exam presentation. Aim for two practice runs with lab members.

20. **PhD Proposal Exam** — PROPOSAL
Duration: 2026-01-20 – 2026-01-20
Qualifying Exam: Defend dissertation proposal in oral exam with committee members.

21. **Address committee feedback** — PROPOSAL
Duration: 2026-01-21 – 2026-01-28
Incorporate committee revisions into proposal and submit signed approval form for final approval.

22. **Cranial window surgery \1** — IMAGING
Duration: 2026-02-01 – 2026-02-01
Install cranial window and inject AAV in first pilot mouse. Begin expression timeline for vascular labeling.

23. **Post-op recovery \1** — IMAGING
Duration: 2026-02-02 – 2026-02-05
Monitor and medicate Mouse \1 after surgery. No imaging during recovery period to allow healing.

24. **Cranial window surgery \2** — IMAGING
Duration: 2026-02-08 – 2026-02-08
Install cranial window and inject AAV in second pilot mouse (staggered one week after \1).

25. **Post-op recovery \2** — IMAGING
Duration: 2026-02-09 – 2026-02-12
Monitor and medicate Mouse \2 after surgery. Maintain analgesia schedule during recovery.

26. **Cranial window surgery \3** — IMAGING
Duration: 2026-02-15 – 2026-02-15
Install cranial window and inject AAV in third pilot mouse (further staggered timing).

27. **Post-op recovery \3** — IMAGING
Duration: 2026-02-16 – 2026-02-19
Monitor and medicate Mouse \3 after surgery. Complete recovery period before imaging.

28. **Pilot imaging session \1** — IMAGING
Duration: 2026-02-22 – 2026-02-23
Acquire in vivo images for Mouse \1 comparing AAV fluorescence vs traditional dye injection methods.

29. **Pilot imaging session \2** — IMAGING
Duration: 2026-03-01 – 2026-03-02
Acquire in vivo images for Mouse \2 under dual-label vs dye conditions for comparison.

30. **Pilot imaging session \3** — IMAGING
Duration: 2026-03-08 – 2026-03-09
Acquire in vivo images for Mouse \3. Complete final pilot dataset for Aim 1 validation.

31. **Pilot datasets complete** — IMAGING
Duration: 2026-03-10 – 2026-03-10
hfill ⋆ **MILESTONE**
Three pilot two-photon imaging datasets acquired for Aim 1 validation and proposal figures.

32. **Process pilot data** — IMAGING
Duration: 2026-03-10 – 2026-03-15
Perform image registration and SNR analysis. Calculate contrast metrics and refine imaging protocols.

33. **Develop U-Net pipeline** — IMAGING
Duration: 2026-03-15 – 2026-04-01
Begin developing automated image segmentation pipeline using U-Net architecture for vascular features.

34. **Optimize imaging systems** — IMAGING
Duration: 2026-03-15 – 2026-04-30
Tune microscope optics for dual-channel two-photon imaging and configure LSCI for blood flow measurements.

35. **Order enhanced AAV** — IMAGING
Duration: 2026-03-01 – 2026-05-01
Design and order enhanced-expression AAV with tissue-specific enhancer for improved dual-label imaging (Aim 2).

36. **Enhanced AAV delivered** — IMAGING
Duration: 2026-07-01 – 2026-07-01
hfill ⋆ **MILESTONE**

Enhanced AAV vector received and ready for in vivo testing to continue Aim 2 studies.

37. **Compare labeling methods** IMAGING
Duration: 2026-04-30 – 2026-05-31
Systematically compare imaging depth; SNR; and contrast across different labeling methods (AAV vs dye) in vivo.

38. **Draft methodology paper** PUBLICATION
Duration: 2026-04-01 – 2026-05-31
Write manuscript on AAV-based vascular imaging methodology and pilot results from Aim 1 studies.

39. **Submit methodology paper** PUBLICATION
Duration: 2026-06-01 – 2026-06-01
Submit Aim 1 imaging methodology paper to journal for peer review and publication consideration.

40. **Establish stroke protocol** IMAGING
Duration: 2026-05-31 – 2026-06-05
Complete training and IACUC approval for stroke induction method (photothrombosis). Ensure all regulatory approvals are in place.

41. **Induce stroke** IMAGING
Duration: 2026-06-06 – 2026-06-10
Perform stroke induction surgeries on experimental animal cohort to initiate Aim 3 longitudinal imaging study.

42. **Acute-phase imaging** IMAGING
Duration: 2026-06-15 – 2026-06-16
Conduct two-photon + LSCI imaging sessions in acute phase (0-1 week post-stroke) to capture immediate vascular changes.

43. **Transition-phase imaging** IMAGING
Duration: 2026-07-01 – 2026-07-02
Conduct imaging sessions during subacute transition phase (2-4 weeks post-stroke) to capture evolving vascular dynamics.

44. **Stabilization-phase imaging** IMAGING
Duration: 2026-07-30 – 2026-07-31
Conduct imaging sessions in early chronic phase (5-8 weeks post-stroke) to observe vascular remodeling processes.

45. **Extended chronic imaging** IMAGING
Duration: 2026-08-25 – 2026-08-26
Conduct imaging at \textasciitilde12 weeks post-stroke (if needed) to capture long-term vascular remodeling and recovery patterns.

46. **Refine ML pipeline** IMAGING
Duration: 2026-06-15 – 2026-08-31
Adapt and improve machine learning segmentation pipeline for stroke dataset analysis and vascular feature detection.

47. **Stroke data complete** IMAGING
Duration: 2026-08-31 – 2026-08-31
hfill ⋆ **MILESTONE**
Completion of all planned longitudinal imaging sessions for stroke study (Aim 3).

48. **Integrate flow data** IMAGING
Duration: 2026-09-01 – 2026-09-30
Combine LSCI blood flow metrics with two-photon structural/functional data for comprehensive vascular analysis.

49. **Analyze neurovascular coupling** IMAGING
Duration: 2026-10-01 – 2026-11-15
Quantify microvascular network changes and neurovascular coupling dynamics from post-stroke imaging data.

50. **Prepare conference presentation** PUBLICATION
Duration: 2026-11-15 – 2026-12-01
Create talk/poster for conference presentation (SPIE or neuroscience meeting) showcasing Year 5-6 research results.

51. **Draft second manuscript** PUBLICATION
Duration: 2026-11-15 – 2026-11-30
Write second research paper covering dual-color imaging platform and initial stroke study findings (Aim 2/3).

52. **Submit second manuscript** PUBLICATION
Duration: 2026-12-15 – 2026-12-15
Submit second major manuscript (Aim 2/3 results) to journal for peer review and publication consideration.

53. **Annual progress review** ADMIN
Duration: 2026-09-01 – 2026-09-07
Complete yearly graduate student progress review (department form) with advisor due early September.

54. **PhD Dissertation \ Defense** DISSERTATION
Duration: 2026-12-01 – 2027-08-15
Complete dissertation write-up; final defense; and all graduation requirements by Summer 2027.

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}**Subtasks:**

item **Draft Introduction**
hfill 2026-12-15 – 2027-01-31

textcolorblack!70Write dissertation Introduction chapter including literature review and study rationale for PhD thesis.
item **Draft Aim 1 chapter**
hfill 2027-01-01 – 2027-02-28

textcolorblack!70Write chapter detailing Aim 1 (AAV imaging) methods; experiments; and results for dissertation.
item **Draft Aim 2 chapter**
hfill 2027-01-15 – 2027-03-31

textcolorblack!70Write chapter detailing Aim 2 (dual-color imaging platform) methods and results for dissertation.
item **Draft Aim 3 chapter**
hfill 2027-02-01 – 2027-04-15

textcolorblack!70Write chapter detailing Aim 3 (stroke model imaging study) methods; data; and findings for dissertation.
item **Draft Conclusions**
hfill 2027-03-01 – 2027-04-30

textcolorblack!70Write final dissertation chapter summarizing findings; implications; and future research directions.
item **Dissertation draft complete**
hfill 2027-05-01 – 2027-05-01
hfill ⋆

textcolorblack!70Complete PhD dissertation draft compiled and ready for committee review.
item **PhD Defense**
hfill 2027-07-15 – 2027-07-15

textcolorblack!70Defend PhD dissertation in oral exam with committee (must occur $\geq$2 weeks before final submission deadline).
item **Revise dissertation**
hfill 2027-07-16 – 2027-07-31

textcolorblack!70Incorporate committee feedback and revisions after defense. Obtain final approval signatures.
item **Submit dissertation**
hfill 2027-08-01 – 2027-08-01

textcolorblack!70Upload approved dissertation PDF and submit all required forms to Graduate School by deadline.
enditemize