

# Memory Unsafe Processes with Parsl

## Team:

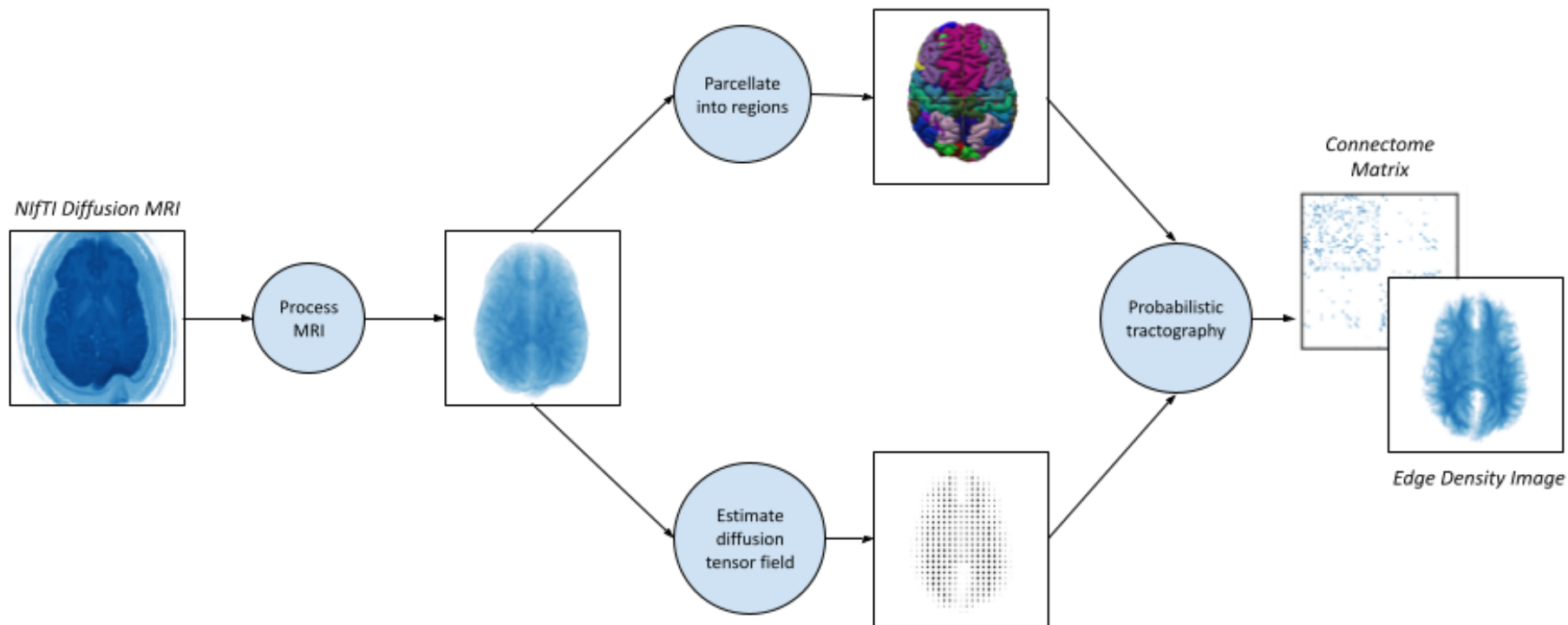
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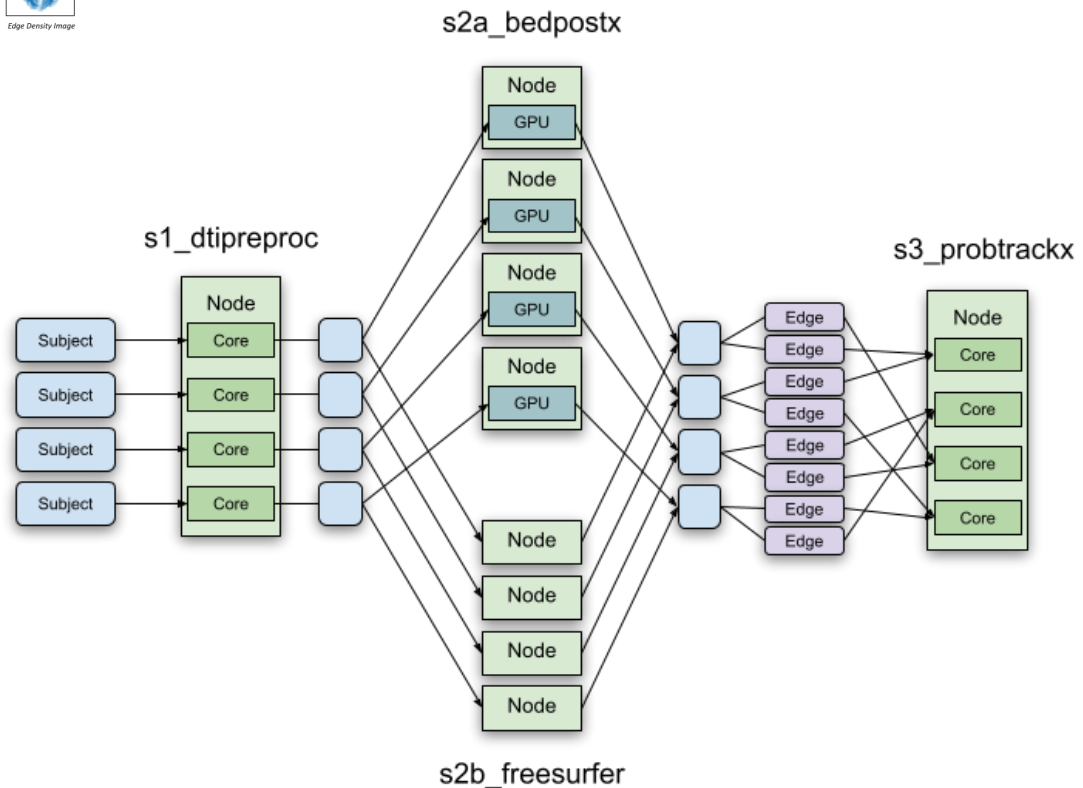
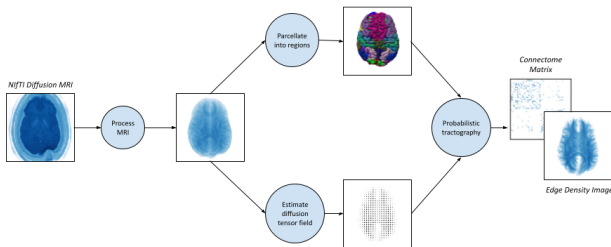
<sup>3</sup>UC San Francisco



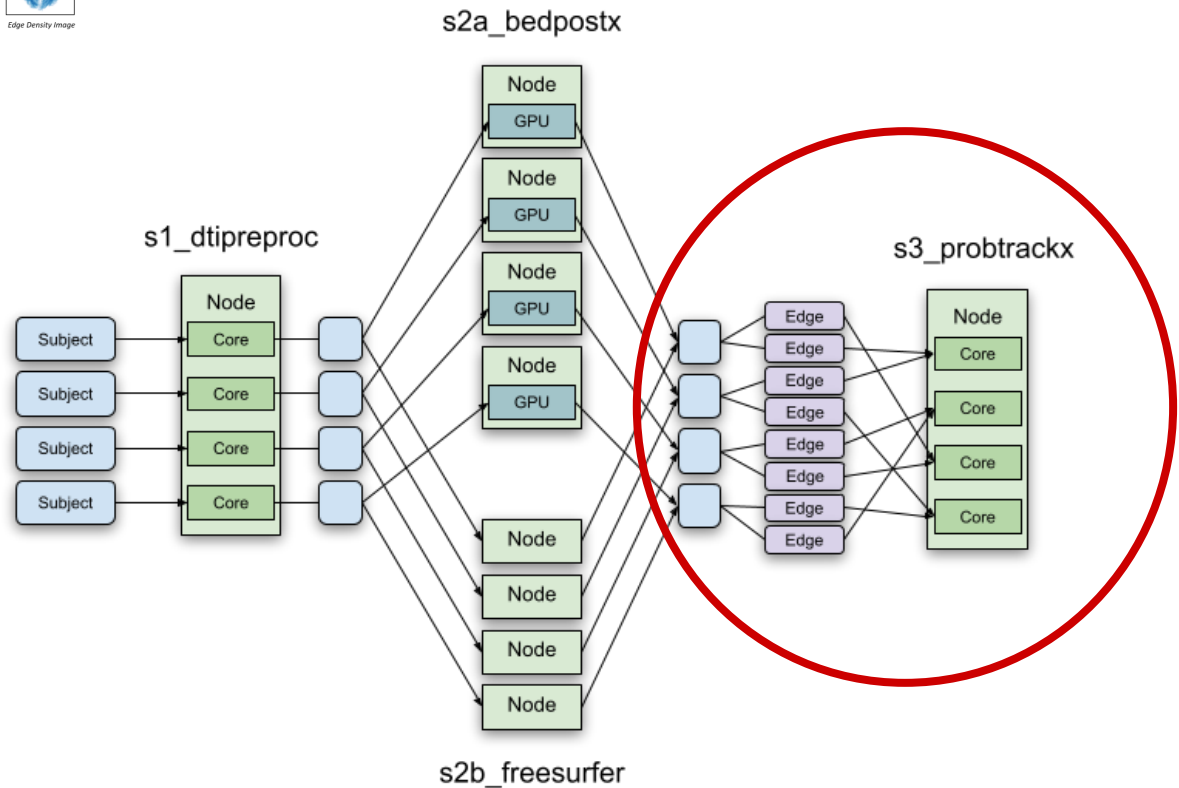
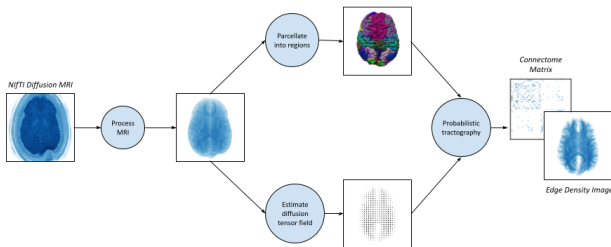
# The MaPPeRTrac workflow uses Parsl to orchestrate probabilistic tractography



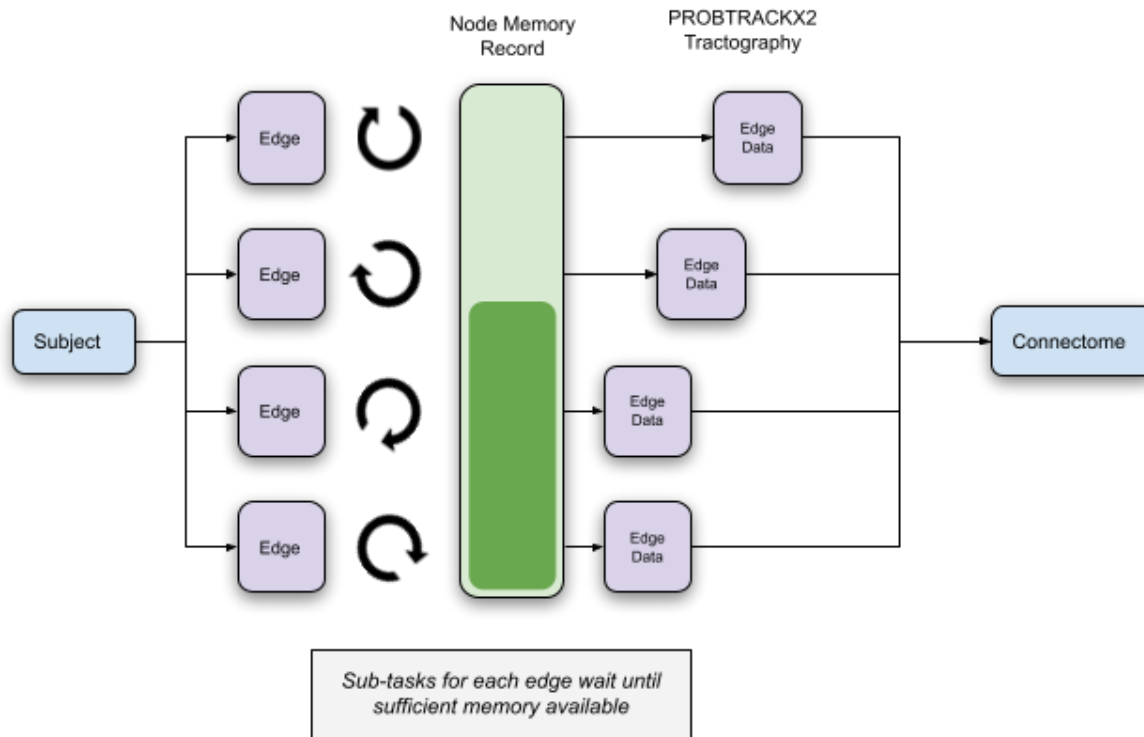
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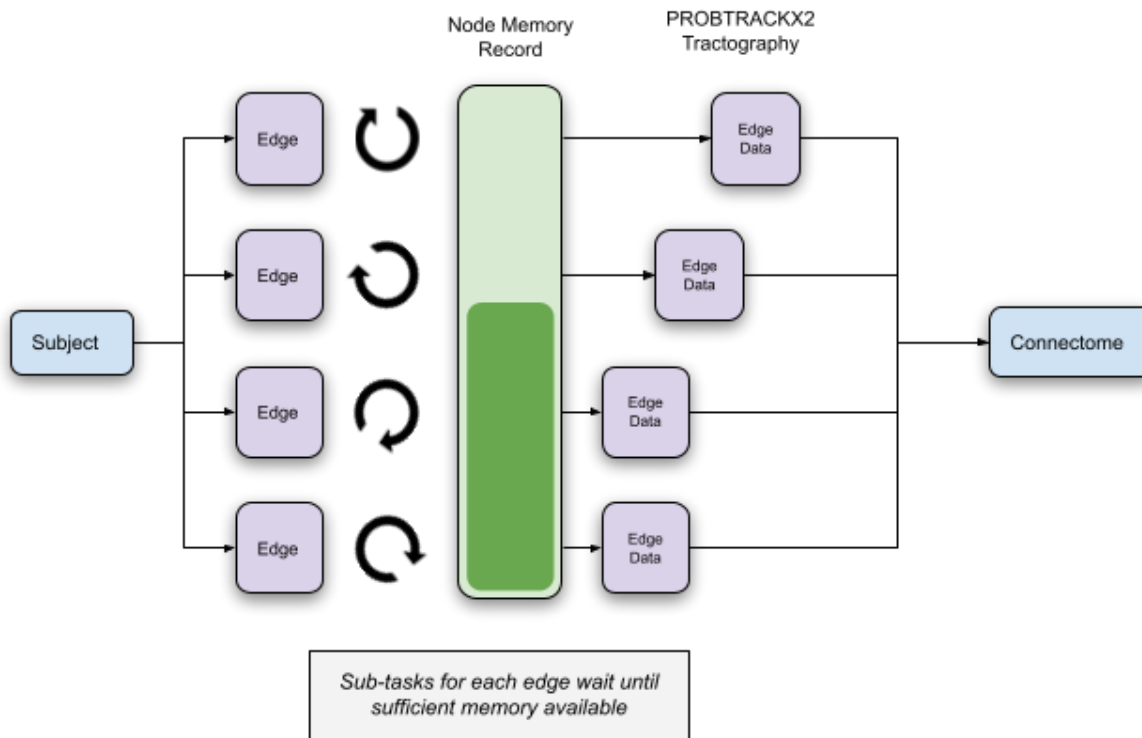
# The MaPPeRTrac workflow uses Parsl to orchestrate probabilistic tractography



# Limiting memory usage across parallel processes



# Limiting memory usage across parallel processes



- Estimate memory usage based on data size
- Unix file locking on shared record file
- Sleep until shared record file shows free memory

# Current Limitations

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- Only useful for memory-unsafe applications that ignore paging
- Potential incompatibility with certain Unix systems
- Imprecise memory estimates can waste resources

