WILD(SEMI)FUSION

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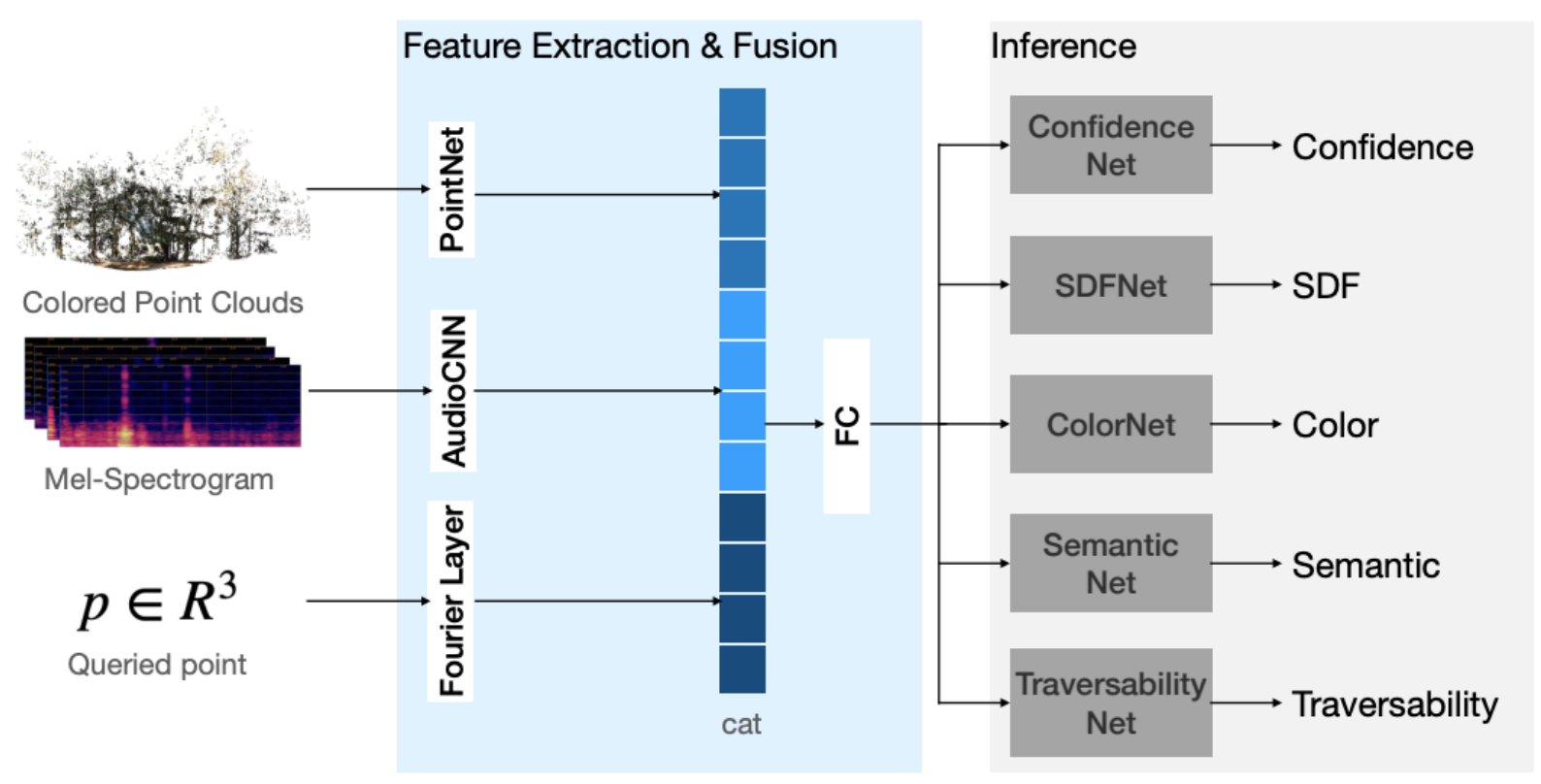
Motivation

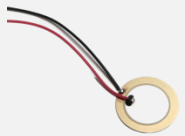





WildFusion To The Rescue



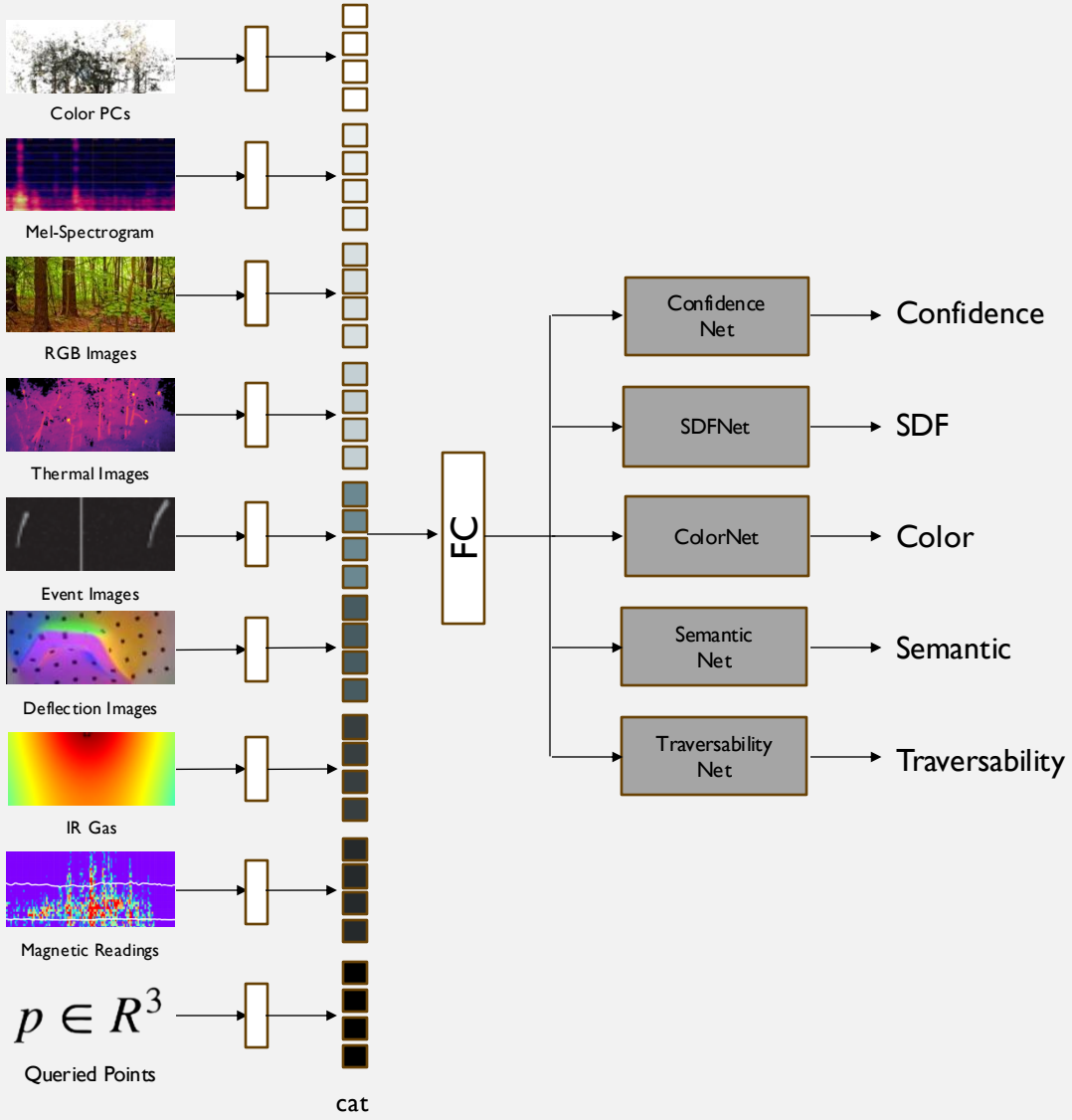
Fusing Additional Sensors



Provides Modularity

So let's add more sensors!!!

More Modalities?



Problem 1: Complicated Model Relationships

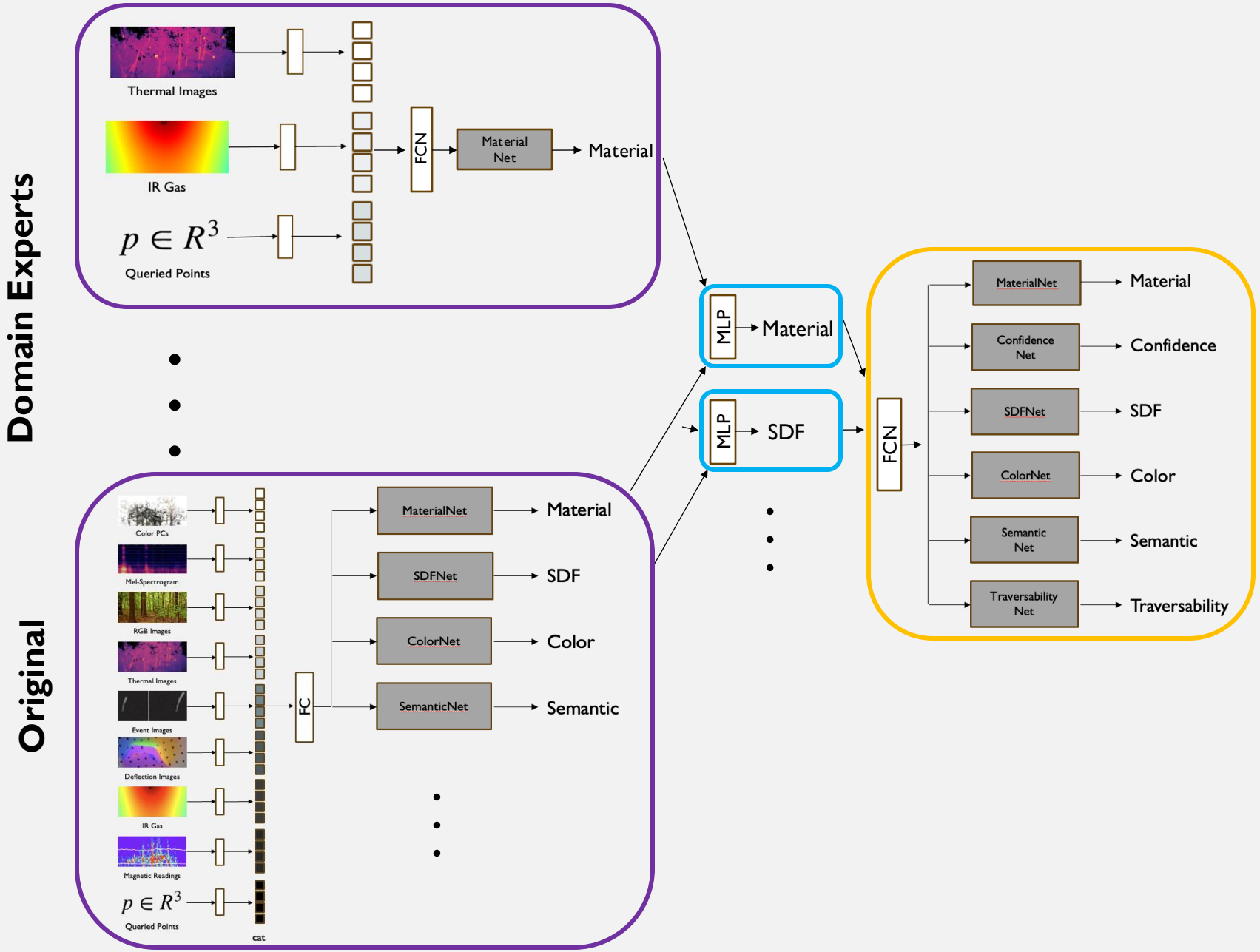
As we increase sensors, will relationships may become harder?

How much more training would it take for the model to understand that the thermal image likely has minimal impact on color?

Problem 2: Poor Modal Simulators

Simulators Learning simulations with advanced physics do not support great fidelity and dynamics for the environment

Semi Fusion Key Idea



Less Data and Quicker Training
Each color indicates a separate training

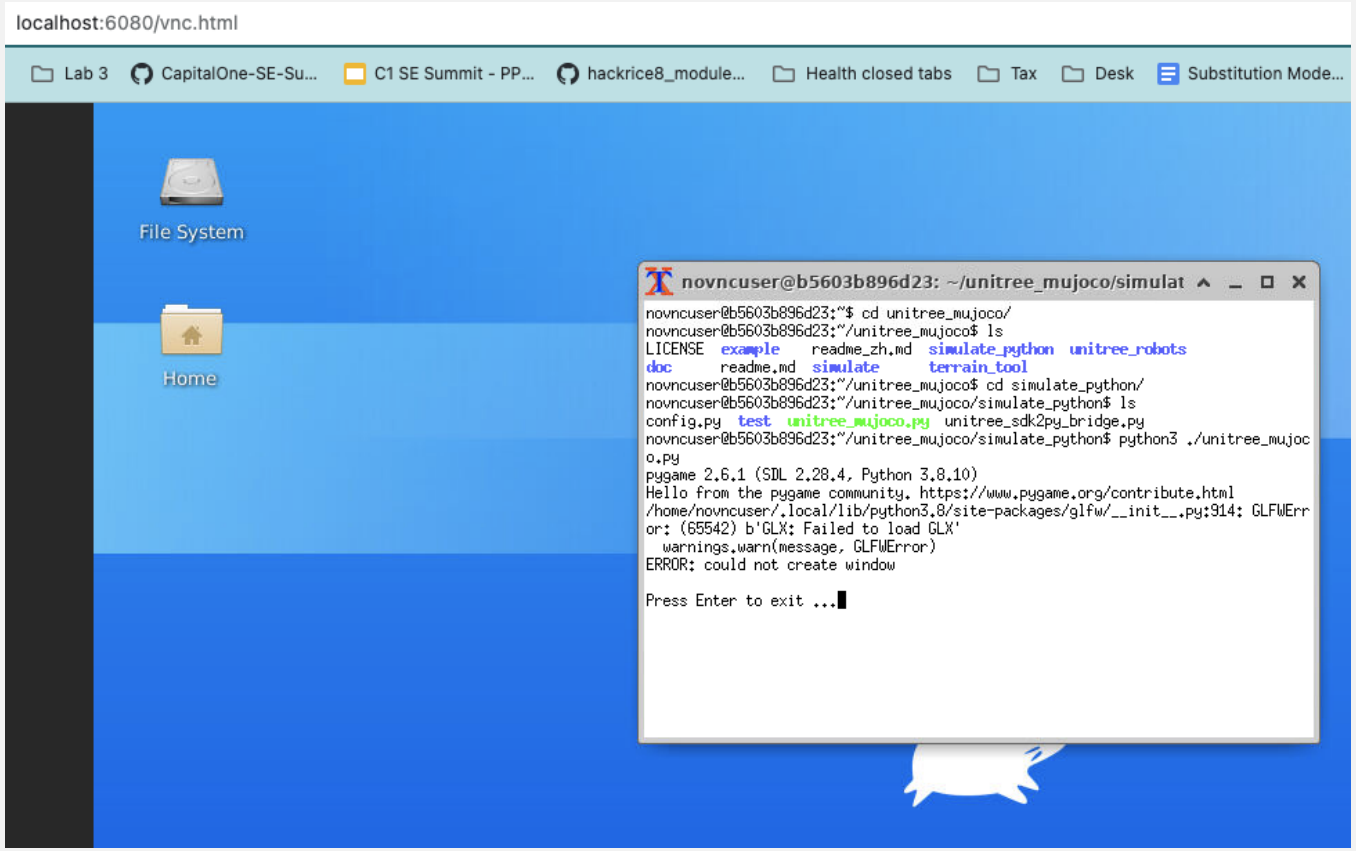
Increasing Meaningful Relationships

Increased Simulation Modularity
Given that differnindicates a separate training

Problem 2:

Progress

When I read WildFusion, I was wondering why there was not as much on simulation, now I know):



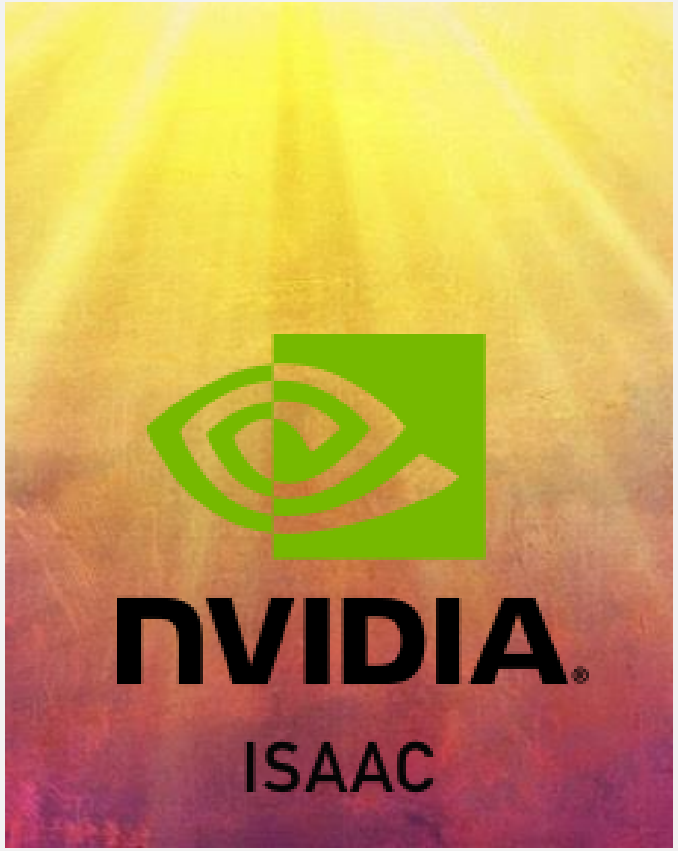


Image and Paper Citations

- Thermal Image: https://www.researchgate.net/figure/Bhaktapur-Durbar-Square-Nepal-Point-cloud-reconstructed-from-many-images-blue_fig2_373977877
- RGB Image: https://www.pexels.com/photo/photo-of-windshield-during-rainy-weather-1600909/
- Deflection Image: https://arxiv.org/pdf/1805.11085
- Event Image: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9815134
- IR Gas Image: https://www.nature.com/articles/s41467-020-19085-1
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- Liu, Y., & Chen, B. (2024). WildFusion: Multimodal Implicit 3D Reconstructions in the Wild. arXiv preprint arXiv:2409.19904. Retrieved from https://arxiv.org/abs/2409.19904