Wildfire Integrated Modeling, Prediction, and Learning Environment (WIMPLE)

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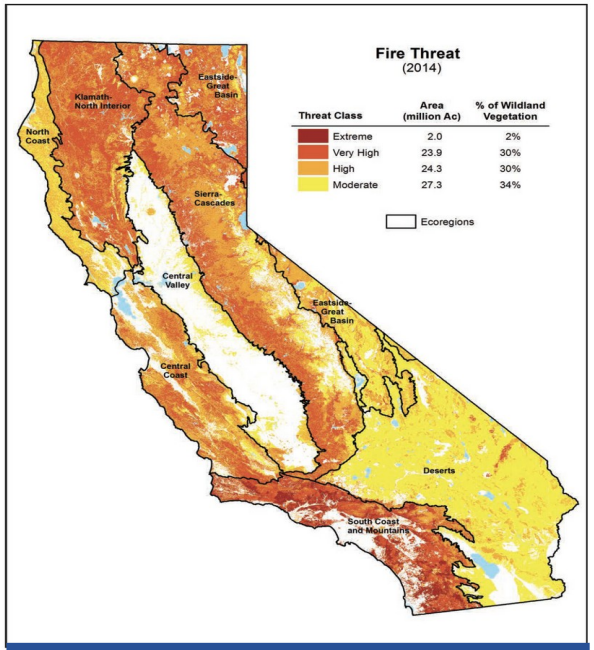
Wildfire Risk Modeling Domain

- **Problem**: The threat of wildfire causes stress to homeowners, who are faced with potential loss of property and life as well as difficulty in obtaining insurance and increased insurance premiums
- **Solution**: Personalized risk assessment and mitigation recommendation considering both regional- and property-level risk
- **Our Approach:** WIMPLE provides homeowners with tools to map and model the wildfire risk on their property

Current Approaches

- National Wildfire Risk Assessment for Forest Service
- Firewise USA
- First Street Foundation
- FireScore by Jupiter Intelligence
- State-level Fire Resource Assessment Program (FRAP) maps
- Verisk's FIRELINE



Fire threat map from
2017 California FRAP Assessment

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Our Approach

- Informs homeowners about their wildfire risk through regional- and property-level risk assessment
- Combines climate, fire incidence, and regional and local fire spread models in an understandable manner

Technical Approach

- Uses Hybrid AI (HAI) to build integrated, multiparadigm, multiscale wildfire models
- Provides an explainable user interface that communicates risks and mitigations
- Builds on Charles River Analytics' HAI framework: Scruff™

SCRUFF

github.com/charles-river-analytics/Scruff.jl

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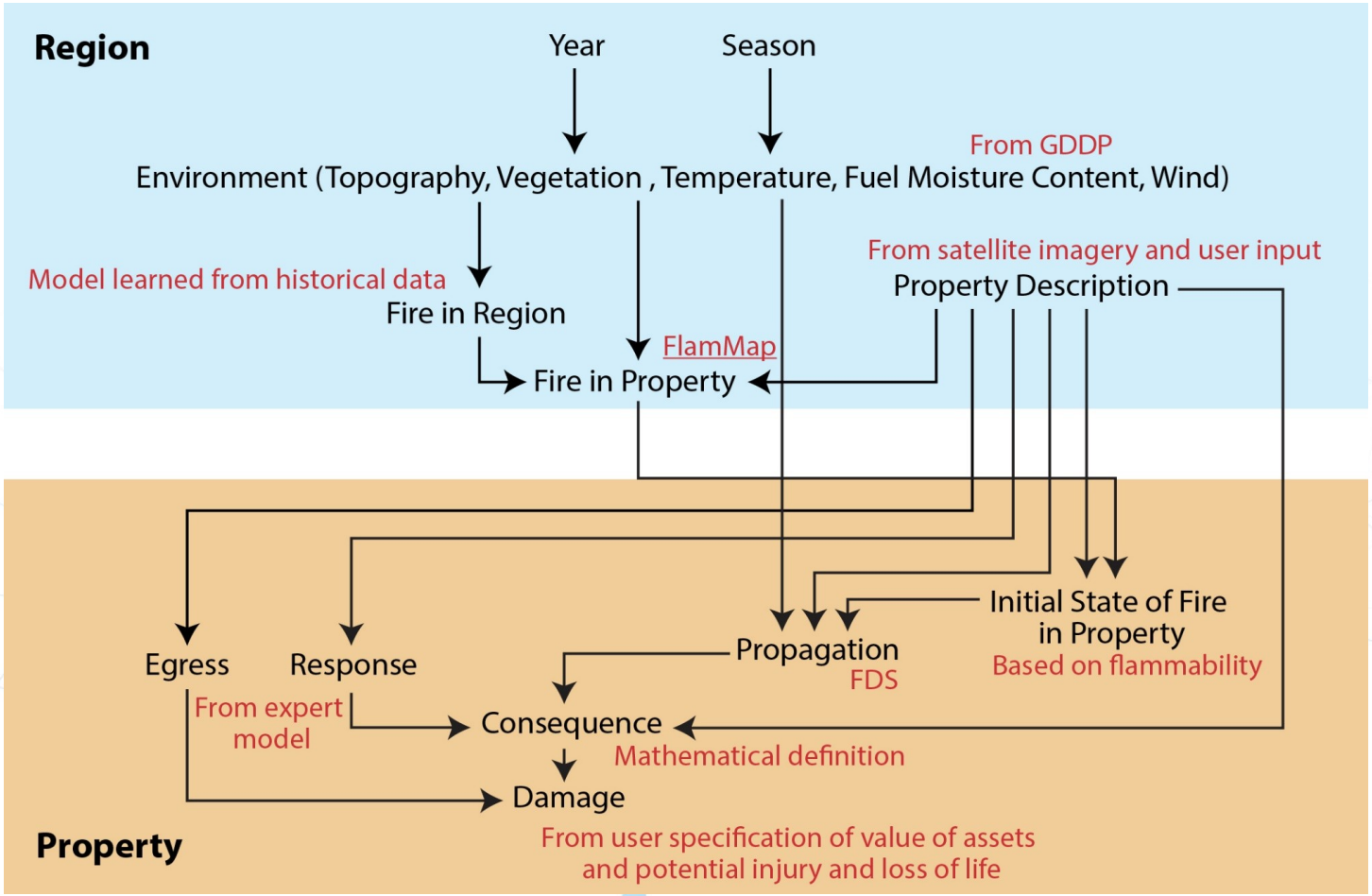
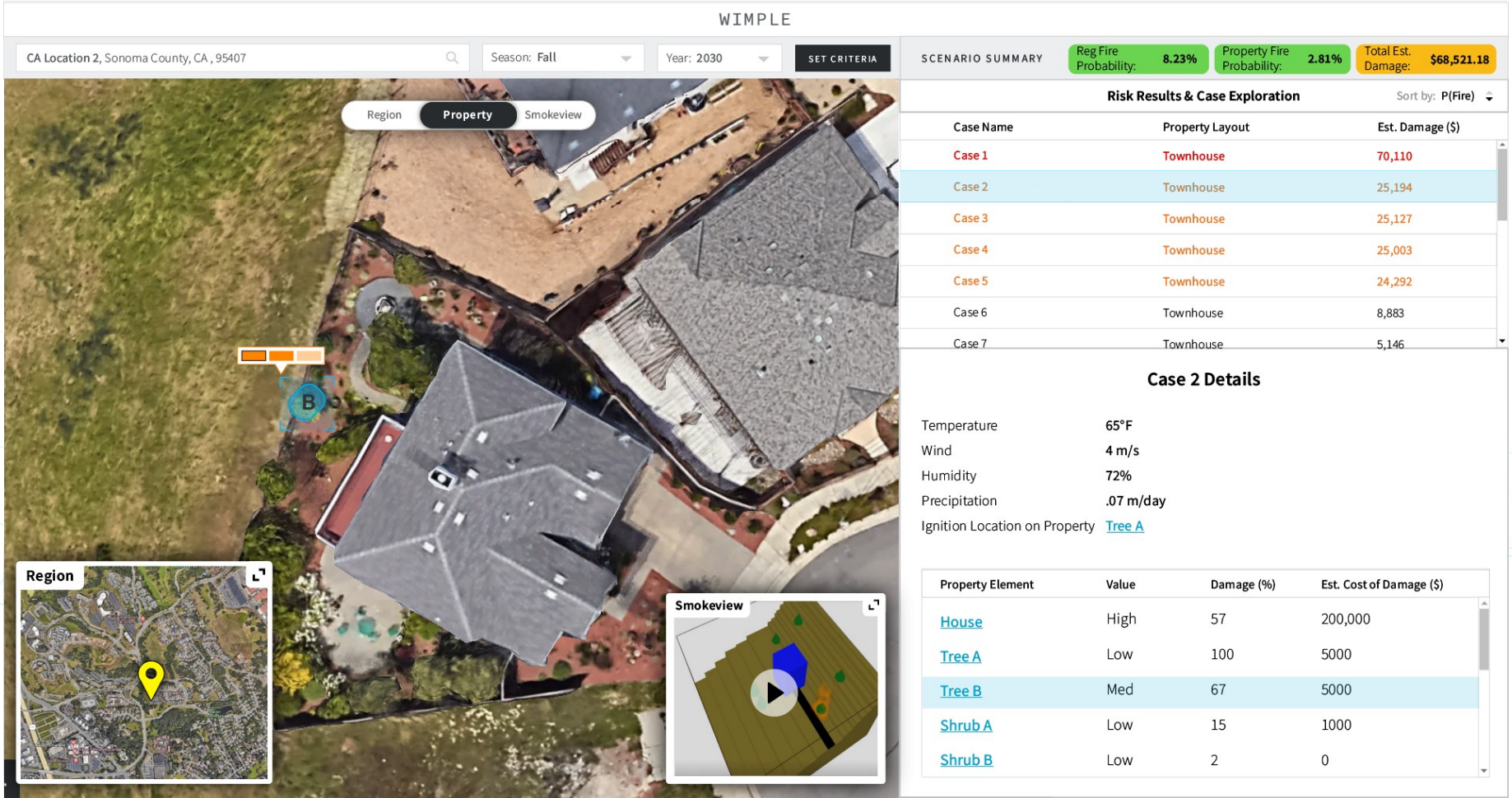
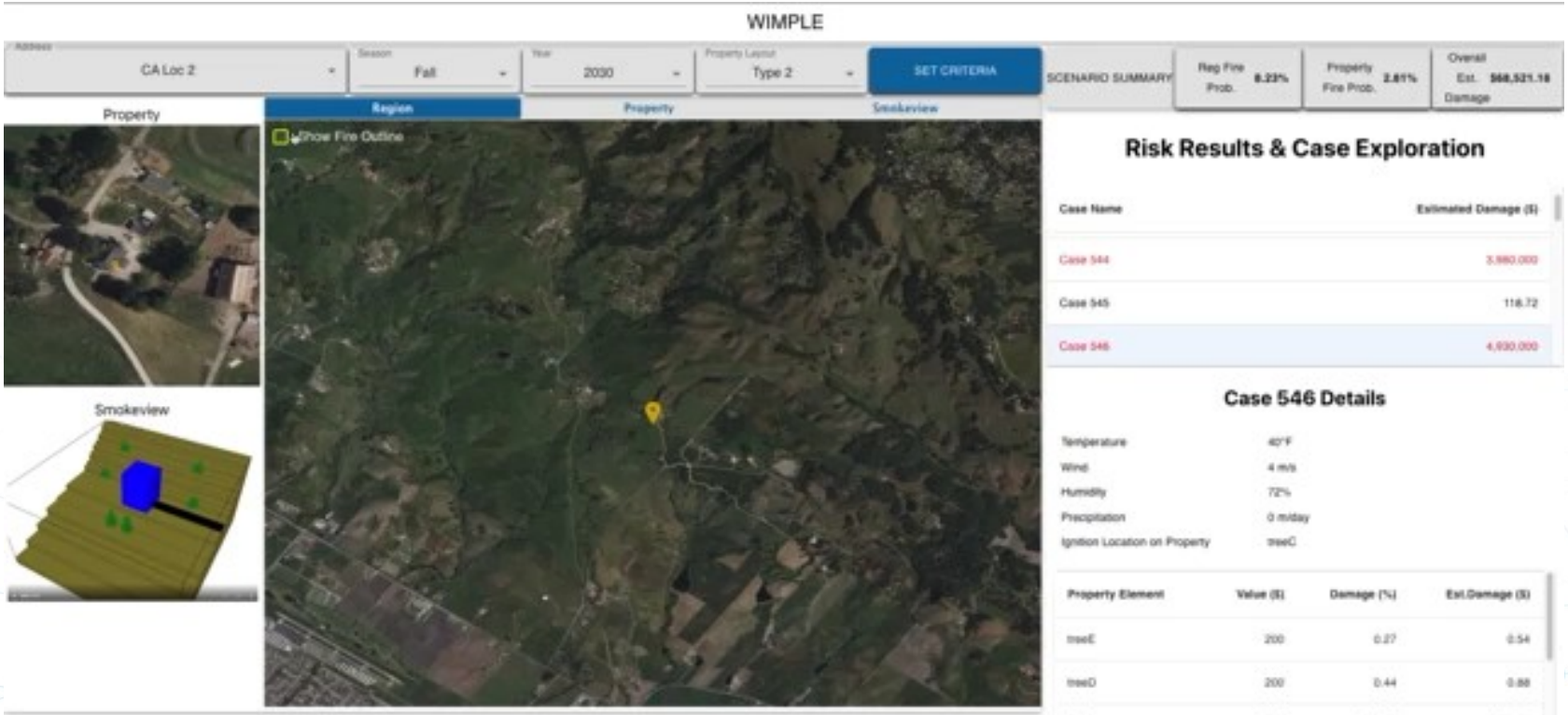
Integrated Model Design



Technical Approach



Demonstration Video



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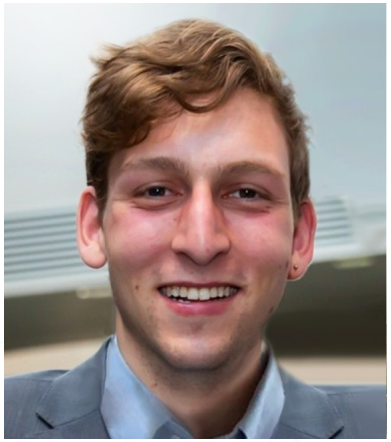
Future Work

- Improve predictive Fuel Moisture Content Modeling
- Design property layout builder for homeowners
- Refine property-level model implementation
- Coordinate with insurers to use this as a tool to reduce premiums

Questions and Discussion



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