A novel working scheme for program repair

Generate and Validate

Generate – Validate – AnalyzeErr

Analyze error using error generalization

```
int max1(int x){
    r = 1;
    if(x >= 0){
        r = x;
    }
    assert(r > 0);
}
```

Generate using a SAT solver

Validate using an SMT solver

Prune the search space differently:
- Remove all programs that fail on same input
- Remove all programs that fail on same path
- Remove some (not all) programs
- Remove programs that only might fail

Update search priority:
- Prioritize all locations along the path
- Use fault localization for the trace, and prioritize resulting locations
- Prioritize certain changes over others, based on observations in error traces

Your ideas …?

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