End-to-End Program Execution with CNNs

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Programs: A Review

- Parsing
- Type Checking
- Execution
Neural Networks

[Insert stock explanation of what a neural networks is. Probably involves lots of lines and circles, maybe some pictures of numbers or robots or something]]]]]]
Parsing

\[ x = 1; \]
\[ y = 2; \]
\[ \text{return } 3 \times (x + y); \]
x = 1;
y = 2;
return 3 * (x + y);
Parsing code with your CNN
Type Checking

I heard this involves something called “safety” and “understanding what the code does”

Fortunately, NNs don’t need either
Parsing code with your CNN

Who needs type checking? We have neural networks
Operations

AST

Result

9
Operations

AST.png

CNN

Result

9
Parsing code with your CNN

Who needs type checking?
We have neural networks

AST nodes as a neural network
That AST sorta looks like a Neural Network
That AST sorta looks like a Neural Network
That AST sorta looks like a Neural Network
That AST sorta looks like a Neural Network

```
x = 1;
y = 2;
return 3 * (x + y);
```

![code.png](attachment:code.png)

Result: 9
Parsing code with your CNN
Who needs type checking?
We have neural networks
AST nodes as a neural network
Just let deep learning solve everything
Codebase

```python
import deep_learning

def run(input):
    print deep_learning.nn(input)
```
Results

Simple Loop

Matrix-Matrix Multiplication
Questions

...will be directed to our QNN