# RESHINTH **ADITHYAN**
## Research Engineer

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Research Engineer with research interests directed towards Representation Learning in Source Code and Software Engineering(Static Analysis, Dynamic Analysis and Naturalness in Code) and DSL based Program Synthesis using Deep Learning. I have 3 years of experience in research of Machine Learning applied on Code. For the past year I've been focusing on the idea of making Machine Learning Models that can radically improve developer productivity.

## Formation

2015-2019 **Bachelor of Technology - Mechanical Engineering** Sri Manakula Vinayagar Engineering College, Pondicherry. **First Class, 86%**

## Experience

**Present – October 2021** — **Independent Researcher , Code.AI.,**
- Working on open-source code generation model - gpt-code-clippy
- Responsible for Evaluation and Dataset scraping during the huggingface sprint.

Pytorch | Transformers | Jax

**Present – October 2021** — **Research Engineer , SAAMA RESEARCH LAB,**
- Responsible for devising formal methods for Clinical Trial Transformation.
- Responsible for research on **DSL-based Neural Program Synthesis**.
- Built a Grounded Neural Search in DSL's Grammar.
- Research in Low-Code, No-Code Framework.

Pytorch | Parsers | Transformers | Jax

**June 2019 – October 2021** — **Research Engineer, TCS Mastercraft TransformPlus,**
- Responsible for devising, building unsupervised techniques to represent various forms of source codes such as DFG, AST, CFG.
- Responsible for devising methods to compile code using Deep Learning without the use of an explicit Compiler.
- Primarily used, Graph Neural Networks, Transformer based Architectures.
- Expression Evaluation in Conditional Statements for Test Case Generation using Data Flow Graph.

CFG | DFG | Transformers | Python | Pytorch | Pytorch-Geometric | Tensorflow

**January 2019 – April 2019** — **Research Intern, TCS Mastercraft TransformPlus,**
Building Graph Neural Network-based Models to represent Naturalness in a Data Flow Graph of a System. Naturalness via Hardcoded Values and Variable Names.

Keras | Tesnorflow | Python

## Competences

| | |
|---|---|
| **Programming** | Python, JavaScript, Haskell |
| **Frameworks** | Pytorch, Tensorflow, Jax |
| **Pytorch Ecosystem** | Pytorch Geometric, Transformers |
| **Jax Ecosystem** | Jraph (GNN with Jax), Flax |
| **Js Based** | Jison (Parser in Js, built over Bison), Python Lex and Yacc, Antlr, P5.Js. |

## Languages

**English** ●●●●●
**Français** ●●●○○
**Tamil** ●●●●●

## Forces

- Passioné
- Motivé
- Autonome

## Publications

2021 Method and system for inferencing logic from an application source code https://patents.google.com/patent/US20220137933A1/en

2021 Method and system for extracting natural language elements embedded in application source code https://patents.google.com/patent/US20220137933A1/en

2021 Method and system for automated classification of variables using unsupervised distribution agnostic clustering https://patents.google.com/patent/US20220083332A1/en

## Projects

### GPT-Code-Clippy 2021

github.com/https://github.com/CodedotAI/gpt-code-clippy

One of the Main Contributors for the open-source version of GitHub Copilot.

Jax | Pytorch | Transformers

### Bash Synthesis 2021

Synthesis Bash Commandline using a GPT-style Model trained from scratch
Pytorch

### Transcoder in Jax 2021

github.com/https://github.com/reshinthadithyan/hf$_j ax_t ranscoder_m ini$

Main Contributor for an open-source version implementation of Transcoder by Facebook. For a minimal time frame choose two languages Java/C-sharp

Jax | Pytorch | Transformers